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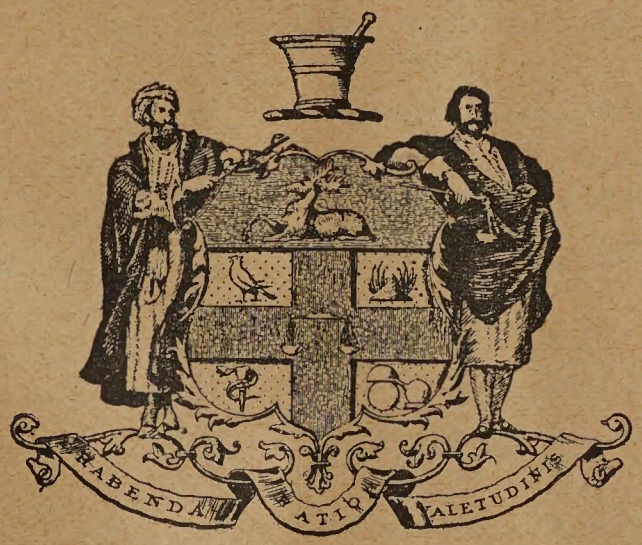

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CONTRACTIONS OF TITLES.

The following is a list of the contractions and the corresponding full titles of Journals from which abstracts are most frequently prepared for the "Pharmaceutical Journal." The titles prefixed by an asterisk (*) are those of official Journals.

Amer. Journ. Pharm. = American Journal of Pharmacy. Philadelphia. Monthly.

Annalen = Justus Liebig's Annalen der Chemie. Leipzig. Monthly.

* *Apot. Zeit.* = Apotheker-Zeitung. Organ of the Deutsche Apotheker-Verein. Berlin. Twice a week.

* *Apot. Zeit. Rep.* = Repertorium der Pharmacie. Supplement to the Apotheker-Zeitung.

* *Archiv* = Archiv der Pharmacie. Berlin: J. Greiss. Monthly.

* *Berichte* = Betichte der deutschen chemischen Gesellschaft. Berlin. Once or twice a month.

* *Brit. Med. Journ.* = British Medical Journal, London. Weekly.

Bull. Com. = Bulletin Commercial. Supplement to L'union Pharmaceutique. Paris: Pharmacie Centrale de France. Monthly.

* *Can. Pharm. Journ.* = Canadian Pharmaceutical Journal. Toronto Monthly.

Chem. News. = Chemical News. London. Weekly.

Chem. Zeit. = Chemiker Zeitung. Cöthen. Twice a week.

Chem. Zeit. Rep. = Chemisches Repertorium. Supplement to the Chemiker Zeitung.

* *Comp. rend.* = Comptes rendus des séances de l'Académie des Sciences. Paris: Gauthier-Villars. Weekly.

Deuts. Am. Apot. Zeit. = Deutsch Americanische Apotheker Zeitung. New York.

Int. Photo. Monats. = Internationale Photographische Monatschrift fur Medzin. Düsseldorf. Monthly.

* *Journ. Chem. Ind.* = Journal of the Society of Chemical Industry. Monthly.

* *Journ. de Pharm.* = Journal de Pharmacie et de Chimie. Paris: G. Masson. Twice a month.

Journ. Pharm. Elsass-Loth. = Journal der Pharmacie von Elsass Lothringen. Strassburg. Monthly.

Journ. Zahnheil. = Journal für Zahnheilkunde. Berlin.

Med. Press = Medical Press and Circular. London: A. A. Tindall. Weekly.

Mod. Med. = Modern Medicine and Bacteriological Review, Battle Creek, Mich., U.S.A. Monthly.

Mon. scient. = Moniteur Scientifique. Paris. Monthly.

Münch. med. Woch. = Münchener Medicinische Wochenschrift. Munich. Weekly.

Nouv. rem. = Les Nouveaux Remèdies. Paris. Twice a month.

Pediat. = Pediatrics. London and New York. Weekly.

Petit. Mon. Pharm. = Petit Moniteur de la Pharmacie. Paris. Fortnightly.

Pharm. Centralh. = Pharmaceutische Centralhalle. Dresden. Weekly.

Pharm. Post = Pharmaceutische Post. Vienna. Weekly.

Pharm. Woch. = Pharmaceutische Wochenschrift. Berlin. Weekly.

Pharm. Zeit. = Pharmaceutische Zeitung. Berlin: J. Springer. Twice a week.

Pharm. Zeits. für Russ. = Pharmaceutische Zeitsch rifte für Russland. = St. Petersburg. Weekly.

Photo. Arch. = Photographisches Archiv. Düsseldorf. Monthly.

* *Proc. Chem. Soc.* = Proceedings of the Chemical Society. London. About twice a month.

Répertoire = Répertoire de Pharmacie, Archives de Pharmacie, et Journal de Chimie Médicale Réunis. Paris. Monthly.

Scient Amer. = Scientific American. New York. Weekly.

Schweiz Woch. = Schweizerische Wochenschrift für Chemie und Pharmacie. Zurich. Weekly.

Therap. Monats. = Therapeutische Monatshefte. Berlin.

Union Pharm. = L'union Pharmaceutique. Paris: Pharmacie centrale de France. Monthly.

Wiend Klin Rund. = Wiener Klinische Rundschau. Vienna: A Hölder.

Zahn. Rund. = Zahnaertliche Rundschau. Berlin.

Zahntech. Reform. = Die Zahntechnische Reform. Berlin: R. F Funcke.

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THE

PHARMACEUTICAL JOURNAL

VOLUME LXIII. (FOURTH SERIES, VOLUME IX.)

LONDON: SATURDAY, JULY 1, 1899.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

A Sugar Bacterium.

H. Marshall Ward and J. Reynolds Green have followed up the observation of the former, which was recorded in the 'Annals of Botany' for 1897, that a curious association of organisms had been obtained in Paris, from an excrescence on the sugar-cane, said to have come from Madagascar. It consists of a bacterium associated with at least one yeast, which is probably a variety of *Saccharomyces cerevisiæ*. The organisms grow together in saccharine solutions, producing clumps very like the ginger-beer plant. These clumps induce a powerful fermentation in 14 to 20 per cent. aqueous solutions of common brown sugar, resulting in the liberation of carbon dioxide and the production of some acid. The saccharine liquid is thus converted into a not unpleasant acid drink, with some resemblance to lemonade or ginger-beer. Experiments show that in the association of organisms there is an agent capable of setting up active fermentation in various saccharine liquids, such as sugar and water or soda-water, beer-wort, milk and sugar, or an infusion of vegetable substance, *e.g.*, lemon-pulp. The fermentation results in destruction of the sugar and production of carbon dioxido, and is anaërobic. Plate cultures of the bacterium were obtained as circular, raised, dome-shaped, watery-looking colonies, stiff, like a firm jelly. The behaviour of the organism was tried in all the various media known to bacteriologists. A striking fact comes out, on surveying these cultures, viz., that the schizomycete practically refuses to grow in or on any pabulum devoid of sugar. Further, only certain sugars are capable of supplying it with the necessary food. No growth at any temperature could be obtained in normal gelatin-peptone media, or in broth, milk or other animal extracts, *e.g*, serum-agar, such as is used by the animal pathologists.—*Proc. Roy. Soc.*, 65, 65.

Choline and Neurine.

F. W. Mott and W. D. Halliburton have studied the physiological action of choline and neurine. The cerebro-spinal fluid, removed from cases of general paralysis of the insane, produces, when injected into the circulation of anæsthetised animals (dogs, cats, rabbits), a fall of arterial blood-pressure, with little or no effect on respiration. This pathological fluid is richer than the normal fluid, and, among the proteids, nucleo-proteid is present. The fall of blood-pressure is not due to proteid, nor to inorganic constituents, but to an organic substance which has been identified by chemical means as choline. It is soluble in alcohol, and is precipitated by phospho-tungstic acid. The crystals of the platinum double salt obtained from 15 per cent. alcohol are characteristic octahedra; this is the most convenient test for the identification of the base. Choline, together with the nucleo-proteid, doubtless originates from the disintegration of the brain tissue. The presence of choline in the pathological fluids will not explain the symptoms of general paralysis; it is, however, an indication that an acute disintegration of the cerebral tissues has occurred. Physiological tests also prove that the toxic substance in the cerebro-spinal fluid is choline. Neurine, an alkaloid closely related to choline, is not present in the pathological cerebro-spinal fluid; its toxic action is much more powerful, and its effects differ from those of choline.—*Proc. Roy. Soc.*, 65, 91.

Protection of Plants against Fungi.

Dr. Th. Bokorny enumerates the various substances which serve to protect plants against the attacks of fungi and schizomycetes. The most widely distributed of these substances are tannins, but Dr. Bokorny states that more than 1 per cent. of tannin is necessary in order to give the parts of living plants immunity against the attacks of fungi or bacteria. Tea-leaves contain 12 to 15 per cent. of tannin, oak-bark in the spring from 4 to 20 per cent. Bacteria offer less resistance to tannin than mould-fungi. Salts of oxalic acid are not poisonous to the lower fungi, while any free acid is injurious to the growth of all fungi, but oxalic not more so than tartaric or malic acid. Essential oils afford an effective protection against the attacks of all parasitic organisms.—*Biol. Centralblatt*, 1899, 177

Production of Pure Chlorophyll.

In the *Botanisches Centralblatt*, 77, 81, Dr. G. Bode describes an elaborate process by which he obtains pure chlorophyll or its potassium salt from green leaves. He emphasises the fact that an acid reaction alcohol, even if only slight, decreases its power of dissolving chlorophyll as contrasted with the solvent power of benzin, while an alkaline reaction has the opposite effect. He points out also the mistakes that have resulted from confusing between benzin and benzol, two substances which have nothing to do with one another except the similarity of their names.

Oleo-resin of Dacryodes Hexandra.

According to A. More (*Proc. Chem. Soc.*, 15, 150) the oleo-resin of *Dacryodes hexandra* consists of essential oil, a resin, and a white crystalline substance, $C_{15}H_{44}O$, which melts at 166-167°. The essential oil contains lævorotatory pinene and lævorotatory sylvestrene, which is the optical isomer of the sylvestrene described by Atterberg. The crystalline substance is insoluble in water, and only sparingly soluble in strong alcohol. By the action of acetic anhydride, it yields a crystalline mono-acetate, m. p. 200°, and it therefore appears to be an alcohol. It is unaffected by potash and by all ordinary reagents. A tetranitro-derivative is produced by the action of fuming nitric acid. Chromic acid in acetic acid solution, while oxidising it, appears to cause two molecules to combine; the product is a feeble acid, the molecular weight of which was determined by the cryoscopic method. The substance is probably identical with Personne's ilicic alcohol (m. p. 175°), with which it agrees in composition.

BOTANIC GARDENS OF THE WORLD.

DUBLIN BOTANIC GARDENS.

Dublin has two Botanic Gardens—the Royal Botanic Gardens at Glasnevin and the Botanic Garden of Trinity College, Dublin. As far back as the year 1711, there was a botanical lectureship in connection with the Trinity College Medical School, and there seems to have been at that time a Physic Garden available for the purposes of the School. Dr. Nicholson, the first lecturer, published a little pamphlet of about forty pages in 1712, "Methodus Plantarum in Horto Medico Collegii Dublinensis jamjam disponendarum Dublini." During the lectureship of Edward Hill the garden was transferred to the neighbourhood of Harold's Cross, and was partly the private property of the Curator, though assisted by a grant from the College. The salary of the Curator, appointed first in 1801, was fixed at £130 yearly in 1805. Out of this sum he was to employ two labourers all the year round, and two additional labourers in March and December.

In July, 1806, the Board of Trinity College leased a small piece of ground near Ball's Bridge for the purpose of a Botanic Garden. Situated about a mile from the College, it comprised about three acres and was held for 175 years at a rent of 15 guineas an acre. The first Curator of this College Garden was James Townshend Mackay, an excellent botanist and the author of the 'Flora Hibernica,' published at Dublin in 1836. Harvey named a beautiful acanthaceous plant after him—*Mackaya bella*. In 1807 the Garden was walled round and its planting was begun. In 1832 two more acres were added along the Blackrock Road, and the present entrance gates and a strong iron railing were put up. In 1848 two more acres were added as a shelter belt along the Landsdowne Road, formerly Old Watery Lane, making the garden altogether about eight acres in extent. The College Gardens became well known under Mackay, and were visited by Sir William Hooker, Lindley, Paxton Veitch, the McNabs, Loudon, and other distinguished gardeners and botanists. Several of Mackay's pupils became famous, *e.g* , Dr. David Moore ; Fraser, the landscape gardener ; Balfe, for a long time the energetic Secretary of the Dublin Horticultural Society ; Charles Moore, Director of the Sydney Botanic Gardens ; and Mackay's successor in the Curatorship, Bain. The Gardens are now surrounded on all sides by trees and houses, and the electric tramway runs past the gates. The roads are very level and symmetrical, all the walks being straight and running at right angles to each other. The outer garden, which runs along two sides of the ground originally enclosed, has been very judiciously planted with trees and shrubs. The hollies are especially luxuriant. The wall which surrounds this garden is covered with many choice creepers, *e.g.*, fine plants of *Magnolia grandiflora*, which often flowers profusely, *Colletia ferox*, *C. crucialia*, large plants of *Pyrus japonica*, *Wistaria sinensis*, *Chiminanthus fragrans*, *Choisya ternata*, *Smilax latifolia*. In the inner garden is a well-arranged collection of the principal natural orders of plants, a large storehouse, greenhouses, an orchid and a fern house. The soil of the Garden is a light sandy loam, resting on old river beds, on creeks that at one time extended inland from the shore. It is thus deep and warm. Owing to this fact, its sheltered position, and its nearness to the sea, many plants which are usually only half hardy can be grown there for many years consecutively out of doors. The Gardens have some remarkable trees, including a dwarf Cedar of Lebanon, which was thirty years old when it was moved into the old garden in 1807. Many rare thorn trees fruit freely, *e.g.*, a fine specimen of *Crataegus tanacetifolia*. There are also very large specimens of *Garrya elliptica*, the Japan wax tree, *Ligustrum lucidum*, *Diospyros lotus*, and *Magnolia acuminata*. Another remarkable tree is the Himalayan paper birch, *Betula bhojpattra*, two specimens of which were grown from seeds presented to the Gardens by Sir John Hooker, shortly before he retired from Kew. The Gardens are well supplied with water. Opposite one of the greenhouses there is a small pond, the water in which comes from the river, and there is a supply under pressure from the City of Dublin Waterworks. The Gardens are open daily from sunrise to sunset, as far as the officers and students of the College are concerned. The general public are admitted by orders obtainable from any of the Fellows of the College, or from the Professor of Botany. Lectures are given in the Garden during Trinity term to the Medical School class and to students working for the Natural Science Medal. The Herbarium of Trinity College may be considered the foundation of Dr. Harvey. Between the years 1843 and 1844 there was only a small collection of plants kept in presses, which mainly consisted of specimens gathered by Dr. Coulter in Mexico and California. In 1844 the post of Curator of the Herbarium was specially endowed for Dr. Harvey, who had spent several years at the Cape of Good Hope and had made large collections of native plants there, supplying from time to time many descriptions of new and rare forms to Hooker's 'Journal of Botany.' He presented his large collections to the herbarium, and added largely to it from Sir William Hooker's duplicates, from Drummond's collections in the Swan River Colony, and by collections he purchased. In 1858 a herbarium was purchased for £237. A visit made by Dr. Harvey in 1849-50 to the United States enriched the College collections, and a longer tour made by him during 1853-55 in Australia and the South Sea Islands, chiefly undertaken for the purpose of collecting algæ, resulted in making the College herbarium so rich in these forms that it has become a necessary resort for all students of this group of plants, containing, as it does, the types, as well as the finest series of specimens collected by one who was during his lifetime the chief authority upon these plants." He died at Torquay, May 15, 1866.

The Royal Botanic Gardens, Glasnevin, originated in a resolution of the Dublin Society in 1790. In that year the Irish House of Commons voted a considerable sum towards the cost of providing a Botanical Garden, and subsequent grants were made for this purpose, amounting in 1794 to the sum of £1700. A chief part in founding the Garden was taken by Dr. Perceval Hill and Dr. Wade. The former was the Dublin University Professor of Botany, the latter the Lecturer on Botany to the Dublin Society and the author of the first published 'Catalogue of Dublin Plants' and of 'Plantæ Rarores in Hibernia Inventæ.' Various sites were examined for the projected gardens, but the Society's Garden Committee was unanimous in reporting the most suitable to be the ground held at Glasnevin by Major Tickell by a *toties quoties* lease from the Dean and Chapter of Christ's Church. "The demesne had been that of Tickell, the poet, who is known to have planted many of the trees. The house in the grounds" (which enlarged and improved became the residence of the professor of botany, and later of the Curator) "was that in which he had enjoyed the society of Addison during the time the latter acted as private secretary to the Marquis of Wharton, in 1714. Near at hand was Delville, the residence of Dr. Delany, the friend of Swift, where Stella resided for a short time. Steele and Parnell were also residents in the neighbourhood of Glasnevin."

The Society speedily acquired the ground, and the formation of the Garden was rapidly proceeded with, Parliament voting for the purpose a sum of £1300 both in 1798 and 1799. In 1800 £1500 was

assigned to the Committee of Agriculture of the Dublin Society for that purpose, and the payment of the salary of the Professor of Botany. With Dr. Wade as professor and Mr. John Underwood as head of the practical department, the Gardens soon became available for purposes of technical instruction. Among the different departments of the Garden that were instituted were "the Linnæan Garden for the scientific botanist, who studies the plants systematically; the Cattle Garden; the Hay Garden; the Esculent Garden; the Dyers' Garden; the Irish Garden, etc." Lectures on general botany were given by the professor, "and also separate lectures on the Cattle and Hay Gardens for the instruction of the common farmers, their servants and labouring men," all of whom were admitted to the lectures without payment. Similar lectures were given "for the dyers' use and for the purpose of extending practical knowledge, particularly in husbandry."

Underwood published in 1801 'A Systematic Catalogue of Greenhouse and Hothouse Plants in the Dublin Society's Botanical Garden at Glasnevin,' which contains a plan and elevation of the hothouses and greenhouses existing at the time. They comprised a large central conservatory, with two Greenhouses on the one side and a hothouse and stove on the other, and were situated with their ends facing the south, where the walk now leads from the entrance gate to the Octagon House. They were connected by a corridor with the house now occupied by the Curator and to the south-west end of which a Greenhouse was also attached. A systematic catalogue of the Arboretum, Fruticetum, and Herbarium was published by Mr. Underwood in 1802.

By the year 1813 the exotics cultivated at Glasnevin had increased so that a range of three additional small houses was erected near the entrance gate, and two years later two handsome entrance gates were presented to the Gardens by Mr. Pleasants, one of the members of the Dublin Society. The principal range of hothouses was found to be both unsuitably situated and badly constructed. It was therefore moved in 1817-1818 to the spot where the large palmhouse now stands, and in 1819 the Octagon House, forty feet high, was built. On the death of Dr. Wade, Dr. S. Litton was appointed Professor of Botany.

In 1830 the Botanical Committee instituted some very extensive alterations and improvements. The Cattle and Hay Gardens were abolished, thus leaving more ground directly available for scientific purposes, the Arboretum was enlarged, and more space was devoted to the arrangement of plants in their natural orders. It was decided to take down the worst houses and erect a range of cast-iron houses in their place. Mr. Ninian Niven became Superintendent of the Gardens in 1834, and during the four years he was at Glasnevin the plan of the Garden was entirely changed. The hothouses were repaired and stocked with new introductions, a different class of assistants was introduced, and a general system of professional instruction instituted.

When Mr. David Moore became Superintendent in 1838, very extensive alterations were carried out by him. All the old houses, except the Octagon, were removed, and a splendid range of curvilinear wrought-iron conservatories were built in 1843, partly at the cost of the Government, which voted four thousand pounds for the purpose, and partly by the Royal Dublin Society. Dr. Litton, the Professor of Botany, died in 1846, and was succeeded by Dr. Harvey, who gave two courses of lectures annually, one at the Royal Dublin Society's House, Kildare Street, the other at the Botanic Garden, till 1854. In this year the Botanic Garden was placed on a new footing, so far as the Government was concerned. Instead of the Gardens receiving aid from the sum annually voted for the Royal Dublin Society as heretofore, it was included in the vote taken for educational purposes in connection with the Science and Art Department of the Committee of Council on Education, the grant being administered, however, by the Dublin Society. The first Palm House was built in 1862.

The Orchid House was built in 1854, Parliament voting a special sum of £1000 for the purpose, and the Victoria Regia House was built by the Royal Dublin Society in 1854-5. The gardens at Glasnevin entered on the third period of their history in 1877, when by special Act of Parliament the Royal Dublin Society transferred the control of their Garden Museum and School of Art to the Science and Art Department. Two years later Dr. Moore died, and was succeeded by his son, Mr. Moore, the present Curator. In 1880 Dr. M'Nab, Professor of Botany at the Royal College of Science, was appointed Scientific Superintendent and Referee—an office abolished on his death in 1889. The severe gales of the autumn of 1883 having seriously injured the Palm House, it was removed, and a new one built during the next year at a cost of £5000. There were 330,203 visitors to the Gardens during the year 1885, and a large part of the Director's time and attention was occupied by the laying out of new beds and of walks through the pleasure ground. About 300 hardy plants were sent from Glasnevin to the Regent's Park Botanic Gardens. During the year 1886 the Gardens had greater demands made on them than hitherto for botanical teaching. Students from the Royal College of Science were allowed to work at the Gardens. Among the investigations carried on in the laboratory during the year were: (1) A comparative examination of sisal, manilla, and phormium fibre as met with in commerce; (2) the examination of ergotised grasses; (3) the examination of diseased potatoes and of potato tubers produced above ground; (4) a careful examination of many fungi and myxomycetes growing in the garden. Many specimens were prepared for lecture illustration and histological work at the Royal College of Science. It was decided that the Octagon House should be replaced by a new fern house. Many scarce and new plants were purchased for the Gardens. These included *Zamia calocoma*, *Brahea glauca*, *Alsophila crinita*, *Trichomanes attenuatum*, *T. luschnathianum pulchrum*, *Phalænopsis mariæ*. Musical promenades, at which military bands performed, were held in the Gardens.

The year 1887 was one of great drought. Newly moved plants and herbaceous plants generally suffered severely. On the shallow, gravelly soil of Glasnevin moisture quickly disappeared, and although several men were constantly employed in watering them, herbaceous plants only attained to about one-half their normal development, and many of them did not flower. Several large trees throughout the Gardens died, and it was only by constant watering that newly-planted trees were kept alive. Considerable changes were made in the walks and grounds adjacent to the new Fern House. The main walk leading from the entrance gate was altered, widened, and re-made. The herbaceous border in front of the new house was remade, all the plants in it being lifted, the ground well trenched and manured, the former occupants being replanted and many additions made to them. The Rose Garden, too, was remodelled. All the plants were regrouped and classified, the old plants replaced by a fresh stock, and the beds renewed. In the new Arboretum a piece of ground in a suitable position was levelled, cleared, and dressed, and the grass kept short through the summer for the musical promenades. Additions were made to the poplars, maples, walnuts, hollies, thorns, and hickories. A large collection of 192 species of hardy plants was sent to the Queen's College, Cork, and 110 species of hardy plants were supplied to the Royal University for the new plant ground. A collection of scarce Cape bulbs was forwarded to the Sydney Botanic Garden.

During the year 1888 many changes were carried out in the Glasnevin grounds. The central walk was entirely remade and widened as far as the new Palm House, and the walk from the rockwork to the centre of the new ground was also re-made and widened. In the Arboretum a large number of young trees were planted in almost all the classes. Among the interesting and valuable plants purchased for the Garden were *Angræcum chailluanum*, *A. sedeni*, *A. kotschyi*, *Cocos marie rose*, *Cypripedium sanderianum*, *C. elliottianum*, *Licuala veitchii*, *Masdevallia elephanticeps*, *M. spectrum*, *Sobralia elisabethæ*, and *Zamia obliqua*. During the months of June and July a class of women students met on Fridays in the Gardens for landscape study from nature.

During 1889 a great deal was done in the Gardens. Some of the old walks were remade, widened, and repaired, all the necessary material coming from the gravel pit in the Garden. All the plants in the left herbaceous border were lifted and sorted to the number of several thousand, the less interesting being replaced by others. The very complete collection of species of *Pæonia* in the Garden were all collected together and the nomenclature as far as possible corrected. A great deal of work was done in the Arboretum. Some of the shrubberies were remade, and collections of elm, birch, and lime planted. Among the most important purchases made during this year were (1) the succulent plants purchased at the sale of the "Peacock Collection," (2) the "Grant Collection," of kniphofias, (3) some fine specimens of rhododendrons from the "Crawford Collection" at Cork.

The right-hand herbaceous border was remade and stocked with good hardy plants in 1890, and the renamed collection of Glasnevin Pæonies was placed in a new border 250 feet long near the enclosed garden. The bed for bog plants and the island in the lower end of the pond had both got quite overgrown with coarse grasses and sedges, and had to be remade. A good collection of moisture-loving plants was placed in the peat bed made on the island. Since there was no good representative collection of wall plants at Glasnevin, the wall round the enclosed garden was raised and repaired, all unsuitable plants removed from it, and a good selection of useful plants and of plants requiring the protection of a wall were planted and trained in it. Two magnificent specimens of *Philesia buxifolia* from the Lakelands Collection, Co. Cork, were acquired for the Gardens. New offices were completed near the entrance gate, consisting of Curator's office, clerk's office, and library on the ground floor, laboratory, herbarium, and plant room, and a room for the Professor of Botany at the College of Science on the upper floor.

During the year 1891 several new works were carried out at Glasnevin. A path joining Addison's Walk with the boundary walk by the river, so forming a connection between most of the main walks of the Garden. Many rare species were added to the collection of roses. The "Grant Collection" of kniphofias was placed in a sheltered corner, and all the most distinct sorts were planted out in small beds in the grass. The bed for arborescent and shrubby plants belonging to the natural order Leguminosæ was remade, and replanted, and a new collection of plants begun, the unique collection of varieties of *Nelumbium speciosum* originally purchased in Japan for Sir George MacLeay. During the summer months Professor Johnson gave demonstrations in botany in the new laboratory.

The chief work carried on in the grounds during 1892 was the construction of a new rockwork for ferns made of stones from Finglas Quarry. The botanical arrangements in the Garden were carefully looked to and all the plants were seen to be clearly and accurately labelled.

The year 1893 was rather a busy one in the Gardens. Many of the old walks in the Garden had no foundations and consequently got very soft in wet weather. These were remade with stones and gravel from the sandpit in the Garden. For the new fernery E. J. Lowe, Esq., of Chepstow, presented eighty-six plants of rare and fine varieties of ferns, many of which existed only in his collection. A valuable contribution was received from Mr. P. Neill Fraser, of Edinburgh, and fifty-two varieties from the Bristol and Clifton Zoological Gardens. Some of the beds of rhododendrons and hardy azaleas near the pond were renewed with suitable compost. The new varieties of hardy water-lilies in the tanks outside the Aquatic House flowered freely. Some of them grew so much that they filled the tanks, and portions had to be taken off them and planted in the pond, where they continued to thrive and flower. Many additional specimens were added to the collection of Glasnevin. Large collections of plants were sent to the Botanic Gardens at Kew, Glasgow, and Cambridge. The musical promenades were discontinued during this year. At the laboratory Miss Hensman worked steadily at investigations in the Irish marine algæ, and two Belfast students obtained leave to work there during the summer months.

In 1894 the gardeners and labourers of the Botanic Gardens were placed by the Lords of the Committee of the Council on Education, with the sanction of the Treasury, on a considerably improved footing with regard to wages. The new rockwork for ferns was almost entirely planted. E. J. Lowe, Esq., of Chepstow, presented a large collection of over 100 varieties of his choicest ferns, and the beds containing agricultural grasses were entirely remade. The collection of species and varieties of *Iris* was also renewed, and over 100 young trees were removed from the nursery ground to the various classes. A collection of 100 hardy plants was sent to Queen's College, Galway, and 4193 packets of seeds were sent from Glasnevin. Several students from different parts of Ireland worked at the laboratory during the year.

During the year 1895 the whole collection of species and varieties of *Narcissus*, which occupied fifteen beds in the nursery grounds, was lifted, rearranged, added to, and replanted. Many additions were made to the species and varieties of *Rosa*, and extensive alterations were made to the collections of ferns. The formation of a wild garden was commenced. A small railing was erected round a portion of the sloping walk leading to the pond, and under the trees in this railed-in portion large numbers of bulbous and other plants were planted in the grass. A collection of 468 hardy plants was forwarded to Dr. J. McFarlane to assist in the formation of the new Botanic Gardens in Pennsylvania, also a collection of 387 packets of seeds of hardy plants.

During the year 1896 the very fine collection of succulent plants was overhauled, cleaned, and potted, the nomenclature revised, and the plants labelled. Valuable additions were also made to the Arboretum.

In 1897 the new house for succulents which had been desired for years became advisable. Out of doors the river bank was raised to prevent floods, and much was done to improve the wild garden, over 30,000 bulbs being planted there and through the grounds. An immense amount of work has been done in the Arboretum, unsound and duplicate trees have been removed, and fifty-nine young trees, carefully prepared, were planted out; where the soil was deficient deep trenches were dug round specimens in the Pinetum, and fresh clay filled in. Ninety-eight hardy ferns were presented by E. J. Lowe, Esq., of Chepstow, some novelties of his own raising, and the rest the choicest varieties in his collection. An interesting collection of New Zealand seeds and some rare species of *Rhododendron* from Cornwall were received.

LESSONS IN PHYSICO-CHEMISTRY.

Solutions and Their Properties.

In a previous article (see last volume, page 316) reference was made, in connection with heats of neutralisation, to the current theory of solutions; and it will be well here to say something further about their properties.

The dissolving of a solid substance in water or some other solvent is probably the commonest of all operations that the pharmacist is called upon to perform. Naturally, a knowledge of the extent to which different substances can be dissolved is of considerable importance to him, and in the new British Pharmacopœia more attention is given to the solubilities of chemical substances than in previous pharmacopœias. As the exact determination of solubilities requires attention to several points, a few remarks on the subject may not be out of place here. For a correct determination of solubility, it is important, in the first place, that the substance to be dissolved and the solvent should both be quite pure. The solubility of nearly, though not quite, all substances varies according to the temperature, and this must accordingly be maintained constant and be accurately noted. For this end, the vessel containing the substances under experiment is immersed in a bath of water or other liquid, which is kept at a steady temperature; if this temperature is above that of the surrounding air, an automatic regulation of the heat supply is best; such an arrangement is called a thermostat. Several kinds of thermostat are in use; they are obtainable from makers of scientific apparatus, and need not be described in detail here; the principle on which the heat is regulated is the same in all of them. The gas supplied to the burner by which heating is effected has to pass through a tube which is in connection with a reservoir containing some very expansible substance, immersed in the bath itself. The connections are so arranged that expansion of the substance in this reservoir partly closes the tube through which the gas is passing, and so diminishes the supply, while contraction again increases it.

The substance whose solubility is to be found is reduced to powder and added to the solvent until a good deal remains undissolved; the mixture is now put into the constant temperature bath and kept in a state of continuous or intermittent agitation for a long time. When no more appears to be dissolved, the excess of the solid is allowed to subside, or, if necessary, it is removed by filtration. A portion of the solution is then removed, weighed, and carefully evaporated to dryness, and the residue again weighed; in this way the exact strength of the solution is found. To check this result, the remainder of the solution and the excess of the solid are again agitated together for some time at the same temperature as before, and the strength of the solution again found, as before. Or the temperature may be raised and solution effected at the higher temperature, and then the whole allowed to gradually cool down to the required temperature and kept at this for some time, the strength being then found as previously. The results found in these ways ought to agree very closely.

When dealing with a substance of which a solution cannot be evaporated down without loss or decomposition, the strength must of course be found otherwise; the particular method to be followed then will depend on the particular case. Ordinary volumetric analysis, carefully performed, is often a useful method. Another way is to dilute a given quantity of the solution with a known quantity of the solvent, and find the specific gravity of the diluted solution. The specific gravities of a number of unsaturated solutions of known strengths are previously ascertained, and the solution in question is so diluted that its specific gravity in the diluted state shall fall among these; the strength of it is then found by interpolation. This method is especially useful when the solubility of a salt at a large number of different temperatures is to be ascertained.

In finding the solubility of gases in liquids, points to be specially attended to are that the liquid should be quite free from dissolved gas at the beginning of the experiment, which condition is obtained by long boiling; also that the gas is perfectly pure. The amount dissolved is generally found by bringing an excess of gas into contact with the liquid and measuring its volume before and after solution. In addition to keeping the temperature constant, it is also important that the pressure should be the same at the final reading as at the first; this is secured by adjustment of the height of a tube containing mercury and communicating with the vessel in which solution is effected. Determinations of this kind do not frequently have to be made, and accordingly further details will not be given here.

In proceeding to give a short account of some of the chief properties of solutions, it may be remarked that there exists at present considerable divergence of opinion among scientists as to the actual condition in which dissolved substances exist. The two opposing theories that are upheld are generally known respectively as the "dissociation theory" and the "hydrate theory." According to the former, reference to which has already been made (see last vol., 318), when a salt is dissolved in much water it undergoes separation into two parts, the ions, which exist in the free state in th liquid. On the other hand, supporters of the hydrate theory consider that, far from being itself broken up, each molecule of the salt enters into combination with a number of molecules of the solvent, forming compounds of greater or less stability. By far the greater number of observed facts find at least a very plausible explanation on either theory. A discussion of the merits of the two would be outside our present scope,* and we shall content ourselves with a brief account of the more important facts. Our remarks will mainly deal with solutions of solids in liquids, and although aqueous solutions will mainly be referred to, what is said of the latter holds in many cases also for solutions in other liquids.

Osmotic Pressure.

It can readily be seen that when a solid substance, such as sugar, for instance, is dissolved in a large quantity of water so that there exist in the solution, say, a hundred or more molecules of water to every one of the sugar, the molecules of the latter will be separated by comparatively large spaces; since also these molecules have free motion within the liquid the state of the sugar very closely resembles the gaseous state. In these conditions the behaviour of the dissolved substance is very similar to that of a gas.

First, corresponding to the pressure exercised by a gas, we have what is called the osmotic pressure of the dissolved substance. A gas expands and fills any space that is offered to it, distributing itself equally through it, and moving, if need be, against the force of gravity. In just the same way the dissolved substance spreads itself through the whole space occupied by the solvent; if a layer of pure water is carefully put on the top of the solution the molecules of the sugar or other substance will penetrate into this against the action of gravity till they are evenly distributed throughout the whole. If, however, they are prevented from doing so, by putting between the water and the solution a partition through which the sugar-molecules cannot pass, while water-molecules can, there will be a passing of water-molecules through into the solution.

* Anyone who wishes for a summary of the arguments on the two sides cannot do better than read the two articles on solution in the latest edition of Watts' Dictionary, by Arrhenius and Pickering respectively, the leaders of the two schools.

If the vessel is arranged as in Fig. 1 the increased pressure which is thus produced causes the liquid to rise in the side tube; this goes on up to a certain definite point, when equilibrium is reached. At this point, the pressure of the column of liquid in the side tube above the level in the main vessel is equal (and opposite) to the "osmotic pressure" of the dissolved substance, that is, to the force with which water tends to pass through the partition into the solution. The osmotic pressure of a solution of a substance may therefore be ascertained by putting it into such an apparatus. The height of the liquid in the side tube above the liquid in the main vessel, after equilibrium has been reached, combined with the specific gravity of the liquid, is a measure of the osmotic pressure. The pressures obtained in this way are very considerable. Like ordinary gas pressures, they increase with rise of temperature. In fact, in this and other respects osmotic pressure is not only similar to gas pressure, but both obey the same laws. For instance, for every degree of rise in temperature osmotic pressure increases by 0 00367 times its value at 0°, which is exactly the proportion in which gas pressure increases. At common temperatures the osmotic pressure of sugar in 1 per cent. solution is equal to that of a column of mercury about 50 Cm. high, while that of potassium nitrate in 1 per cent. solution is equal to more than three atmospheres.

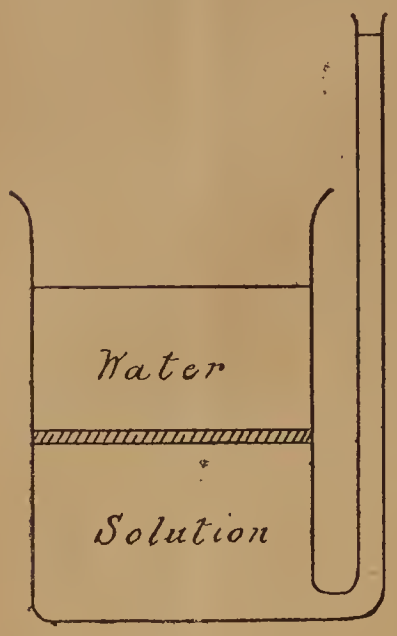

FIG. 1.

It has been found that the osmotic pressures of solutions of widely different substances are the same, when the quantity of each substance present in a given volume of the solution is proportional to its molecular weight; or, in other words, when equal numbers of molecules of the different substances are contained in equal volumes of the solutions. In this respect also the analogy to gas pressures is maintained, since the latter depend only on the relative number of molecules in a given volume, and not on the nature of the gas.

Boiling Points of Solutions.

Very important relations have been found to hold with regard to the boiling and freezing points of solutions. When a pure liquid is compared with the same liquid in which another substance has been dissolved, it is always found that the effect of the dissolved substance is to reduce the vapour pressure of the solvent liquid. If the dissolved substance forms vapour, the total vapour pressure of the solution may or may not be higher than that of the solvent alone; but in all cases where the dissolved substance is one that cannot be vaporised, such as sugar, the vapour-pressure of the solution is less than that of the solvent alone. It therefore requires a higher temperature in order that the vapour pressure may be equal to the atmospheric pressure—in other words, the boiling point is raised. The extent to which the boiling point is raised depends on the relative amount of the dissolved substance present. By comparing the effect of different substances, it has been found that in two or more solutions containing different dissolved substances (the solvent being the same in all), if to any constant amount of the solvent there are present amounts of the dissolved substances respectively proportional to their molecular weights,* the boiling points will be identical. In other words, the extent of the alteration of the boiling point depends on the ratio between the numbers of molecules of the solvent and the dissolved substance, and is independent of the nature of the latter. This conclusion has been arrived at both from theoretical considerations and from actual experiments. It is clear that by observing the alteration of the boiling point caused by dissolving any substance in a given proportion in a pure liquid, the ratio between the numbers of molecules of the two can be found by comparison with solutions of substances of known molecular weight, and from this the molecular weight of the substance in question is ascertained. We shall refer to this point again.

Freezing Points of Solutions.

The temperature of solidifying of a liquid, or, what is the same thing, the melting point of a solid, is, as we have seen, a perfectly definite and constant characteristic of a pure substance; when, however, a second substance is present in solution in the first, it exercises a lowering effect on the freezing point. The extent to which this lowering occurs is proportional to the amount of the substance present; and, as with the osmotic pressure and alteration of boiling point, an equal effect is produced by different substances, when they are present in amounts proportional to their molecular weights. If we find by experiment the extent to which the freezing point of a liquid is lowered by different proportions of a substance whose molecular weight is known, as well as that of the solvent, we can calculate the ratio existing between the numbers of molecules of the substance and the solvent, corresponding to any observed depression of the freezing point; or, since the relative number of molecules of the dissolved substance and the depression are proportional, we can make the calculation for any depression. If now we take another substance, whose molecular weight we are ignorant of, dissolve a known weight of it in a known weight of the solvent, and observe the resulting depression of freezing point, by comparison with the previous result we know the ratio of the number of molecules of the new substance to the number of molecules of the solvent. Knowing also the ratio of the actual weights of the two, and the molecular weight of the solvent, the molecular weight of the new substance is at once found. Thus, calling this substance A and the solvent B, and denoting by r the ratio of the number of molecules of A to those of B, we have

$$\frac{\text{mol. wt. of A} \times r}{\text{mol. wt. of B}} = \frac{\text{weight of A}}{\text{weight of B}}, \text{ from which}$$

$$\text{mol. wt. of A} = \frac{\text{wt. of A} \times \text{mol. wt. of B}}{\text{wt. of B} \times r}$$

This is exactly analogous to finding the molecular weight of a substance by observing the elevation of the boiling point of a liquid in which it is dissolved. Both methods are actually used for substances that cannot be obtained in the gaseous state, but in many ways the freezing point determination is more convenient; in practice a formula is employed by which the calculation can be made directly from the observed depression. The apparatus devised by Beckmann is used for this determination; it is represented in Fig. 2. The outer vessel c contains the freezing mixture to reduce the temperature below the freezing point; b is an air-jacket to prevent too rapid or irregular cooling; a is the tube into which the solvent is put, the exact amount being found by weighing in the tube; through the cork passes a thermometer, graduated in hundredths of a degree, and a wire

* Such solutions are commonly called equi-molecular.

bent at the lower end into a circle, for stirring the liquid. In carrying out a determination, the freezing point of the solvent is first ascertained; to do this, the freezing mixture is put into *c*, and occasionally stirred, the tubes *a* and *b* are put in place, and the liquid in *a* kept constantly stirred and carefully watched. Solidification does not usually commence until the temperature has fallen slightly below the actual freezing point, and at the moment when crystals begin to form the temperature rises slightly, and then remains stationary while freezing continues; this point at which it stands steady is the required one. On lifting the apparatus out of *c*, melting soon occurs; the observation is repeated several times, and the readings obtained should be the same. The cork in the side tube of *a* is now momentarily removed and a small amount of the substance under experiment is introduced from a weighing tube, which is so narrow that it can pass through the side arm, allowing the substance to fall straight into the liquid; by weighing the tube before and after the weight of substance taken is found. The substance that has been added is stirred about with the wire until it dissolves, and the freezing point of the solution is then found in exactly the same way as before. The molecular weight required is equal to

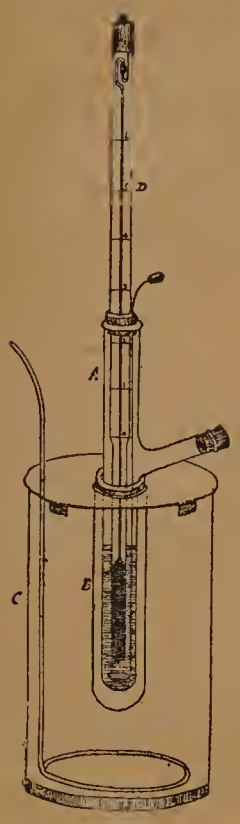

Fig. 2.

$$\frac{\text{weight of substance taken} \times \text{a constant number}}{\text{weight of solvent} \times \text{observed depression}}$$

The constant of course depends on the nature of the solvent, being always the same for the same solvent; it is found by experimenting with substances whose molecular weight is already known. If the weights are in grammes and the depression in degrees the values of the constant are :—

For water	1890.
For acetic acid	3880.
For benzene	4900.
For phenol	7500.

These are the solvents most generally used. The method is commonly called the kryoscopic method of determining molecular weights.

What has been said above about osmotic pressures, elevation of boiling points, and depression of freezing points, only applies completely to solutions of substances, such as sugar, which are not of the nature of a salt. In the case of aqueous solutions of salts, that is, substances consisting of a basylous and an acidulous portion, and including acids, in which hydrogen takes the part of the basylous radical, and bases, in which hydroxyl plays the part of an acidulous radical, the values found for these three quantities (osmotic pressure, etc.) are in all cases greater than would correspond to the relative number of molecules of the salt present. This is explained by supposing that in such solutions of salts the two parts of the molecule, termed ions, exist to a greater or less extent independently of each other, thus increasing the number of particles of the substance present with the solvent, and so causing the observed higher values. It is further supposed that when a solution of a salt is electrolysed the passage of the electric current simply directs the movements of the two ions to the two electrodes. The power a solution possesses of conducting electricity should therefore depend on the number of free ions present, and the conductivity of a solution furnishes a measure of the degree of "dissociation," or separation of the ions existing in it. The results obtained from determinations of conductivity agree perfectly with the conclusions as to degree of dissociation in a solution, drawn from its osmotic pressure, boiling point, etc.

It is only in the case of definite bodies having a limited solubility that these various relations hold. There are certain substances that are able to mix with water in all proportions, forming more or less thick liquids, or even solids; such are gelatin, gum, etc. These mixtures with water must be regarded as a kind of solution; they are spoken of as colloidal solutions, and the above statements about solutions do not apply to them.

BOTANICAL NOMENCLATURE.

BY E. M. HOLMES, F.L.S.

(*Concluded from last volume, page 568.*)

Specific Names of Plant.

4. Specific names should be adjectival, and agree in gender with the generic name, and should, if possible, be derived from Greek or Latin, but hybrid names formed from both languages are not admissible.

5. If possible, specific names should express some specific character as in *Conium maculatum*; striking property—*Physostigma venenosum*; general aspect—*Chondrodendron tomentosum*; resemblance to other plants—*Clechoma hederacea*; native country—*Hamamelis virginica*; situation—*Arnica montana*; time of flowering—*Colchicum autumnale*; the duration of life—*Mercurialis annua*; smell—*Ruta graveolens*; taste—*Fœniculum dulce*; or uses—*Indigofera tinctoria*. Resemblance to other plants is indicated in specific names derived from Latin by *pseudo* placed before the word, as *Narcissus pseudo-narcissus*, *Smilax pseudo-china*; or by *formis* placed after it, thus, *Carya olivæformis*. In words of Greek derivation *oides* is placed at the end of the specific name, as *Helminthia echioides*.

6. When a specific name is intended to commemorate the name of the discoverer or describer of a plant, it is made to end in *i* or *ii* as *Drimys Winteri*, *Aconitum Fischeri*, *Garcinia Hanburii*, but if it is only named in honour of someone, it ends in *ana* thus, *Aloe Hanburiana*, *Remijia Purdieana*. If the name is derived from a country or district it may end in *ensis*, as *Hydrastis Canadensis*, or in *ica* as *Hamamelis Virginica*, *Citrus Medica*, *Cetraria Islandica*, or in *us* as *Euonymus Europæus*, or in *a* as *Cuscuta Europæa*, according to the gender of the generic name. Sometimes the specific name consists of a noun in the nominative or genitive case, as *Pterocarpus marsupium*, *Pinus pumilio*, *Eucalyptus globulus* or *Vicia sepium*; but such names are exceptions to the Linnæan rule that the specific name should be an adjective, and are only retained on the ground of long usage or priority. Nouns employed as specific names are often printed with an initial capital letter, but this practice tends to confusion, since there is often nothing to indicate that they are not old generic names.

7. Specific names are sometimes formed of old generic names. When this is the case they are always printed with an initial capital letter, and usually differ in termination or gender from the generic name, thus *Delphinium Staphisagria*, *Pistacia Lentiscus* and *Daphne Laureola*; but sometimes, as in *Rhamnus Frangula*, this difference is not so evident, since trees are usually feminine in Latin.* When a vernacular name is used as a specific name, as *Strophanthus kombe*, *Pilocarpus jaborandi*, *Ægle marmelos*, etc., it is treated as indeclinable, unless the termination is conformable to Latin, or is

* Herbs and shrubs ending in *us* in Latin are masculine, *e.g.*, *Hyoscyamus niger*.

made so, as *Erythroxylon Coca*, *Jateorhiza Calumba*, *Quillaia Saponaria*, or *Citrus Bigaradia*.

8. A few specific names are composed of two words, thus, *Adiantum Capillus-veneris*, *Asplenium Ruta-muraria*, *Prunus Laurocerasus*, *Capsella Bursa-pastoris*. These are exceptions to the rules of Linnæus, which he himself allowed on account of long usage, and of the importance, whenever possible, of preserving the common and widely known name of a plant in its specific name.

9. Specific names formed of old generic names, nouns, vernacular words or names, as well as proper names of persons used as nouns or adjectives, are usually written with an initial capital letter, but by some authors, including Linnæus, adjectival proper names were written with a small initial letter, thus *Hookeri* would be written with an initial capital and *hookeriana* with a small letter. In some cases the correct orthography would be clear enough, but if the adjectival name happened to have two meanings as in *medica*, it is absolutely necessary to write it with an initial capital, *e.g.*, *Citrus Medica* (*i.e.*, the citron of the Medes), if written with a small initial it would mean the medicinal citron.

For this reason all adjectival names, used as specific names, should be spelt with an initial capital, as *Citrus Medica*, *Aloe Hanburiana*. This practice was followed by A. P. de Candolle in the *Prodromus*, and by other botanists, and conduces much to clearness. It would also prevent mistakes if nouns which are not proper nouns were spelt with a small initial letter, thus: *Pinus pumilio*, *Eucalyptus globulus*, *Vicia sepium*, since a reference to the Latin dictionary would show the real character of the words, which could not possibly be the case with all proper adjectives.

To avoid the difficulty of ascertaining whether a specific name is a Latin-like or Latinised vernacular name, or an old generic name, it has been suggested (*Atti de Congresso Botanico Internazionale de Genoa*, 1892, p. 123) that the usual methods followed in printing should be applied, viz., that old generic names used as specific names should be written in italics, with an initial capital letter, thus, Rhamnus *Frangula*; that vernacular names similarly used should be written in ordinary type, with quotation marks, and with an initial capital, thus: Erythroxylon "coca," Pilocarpus "jaborandi," and that all adjectival proper names should be written in ordinary type, with an initial capital, as Clematis Caripensis, Thea Chinensis, but as yet the suggestion has not been well received.

In the 'Kew Index' a rule has been followed of spelling every name exactly as it was spelt by the first person who published it, thus throwing the responsibility on the author, or the printer, as the case may be. Thus the question whether Zanthoxylum should be spelt Zanthoxylon, Xanthoxylon, or Xanthoxylum, would be decided by the first mode of spelling it; and Chondrodendron would be spelt Chondodendron, although the first syllable would lose its signification thereby; and *Jateorhiza Calumba* would be spelt Columba, although the native name is Calumb.

To make a *reductio ad absurdum* of this rule, it may be mentioned that a year or two ago a species of seaweed was named after a Dr. Becker, but was printed *Tyleiophora Becheri*; accordingly the incorrectly spelt name (either through a misunderstanding of the proper spelling, or by a printer's error remaining unnoticed) would have to be retained. The better plan in such cases perhaps would be to follow the rule of Linnæus and De Candolle, that names should be in accordance with the rules of the Greek and Latin languages, and where there is more than one form of spelling extant to chose the correct form, as *Xanthoxylum*, and in the second case to allow no incorrect spelling, like *Chondodendron*, that can lead to confusion or error. In the case of Calumba it is evident that confusion might arise, as there is a Colombo in Ceylon, whence a root called Colombo wood has come into commerce. In a few cases, as in *Rhododendron* and *Cinchona* (properly *Rhododendrum* and *Chinchona*), exception would have to be made on account of long and widespread usage, and the fact that no difficulty as to the meaning or origin is possible.

10. With respect to botanical names derived from the names of French botanists, whose names the words De, De la, Des, etc., enter, the rule is that they are only used when they form a part of the name, as in *Duhamelia*, *Lapeyrousia*, *Desvauxia*. But where it is not so, as in the case of A. de Candolle, it should be omitted, as in *Candollea*. De la Fontaine makes *Fontainesia* and L'Héritier, *Heritieria*. When a name already ends in *a*, as Colla, the *a* is changed into *ae* thus, *Collaea*.

Synonymy.

With respect to synonymy, the following rules are generally followed:—

11. The generic name to be upheld is, as a rule, the one given by Linnæus in his 'Species Plantarum,' A.D. 1753, if there is no valid reason against using it, such as the genus having subsequently been divided into two genera (in which case the old generic name is, if possible, retained for the oldest known plant in it), or imperfectly described.

12. If the genus has been published since the date given above (1753), priority belongs to the first subsequent genus in which the description of characters is complete, *i.e.*, if the generic description omits flowers and fruit it should not be upheld. The specific name to be upheld is, according to the majority of botanists, the first name that has been published in connection with the correct generic name, provided, of course, that the description of the plant is complete as regards all its organs.

But some German and American botanists, actuated by a desire not to do injustice to the first person who described the plant, maintain that the first specific name should be retained no matter what genus the species may be transferred to. This is impracticable for two reasons. First, because a large number of the Linnean binomial names were simply adopted from previous writers, such as Brunfels and others, who wrote 200 years before the time of Linnæus, and as all Linnean names published in 1753, in the 'Species Plantarum' of Linnæus, are always written with Linn. after them, as if he was the author, it would involve endless confusion to go back to the original description. In the second place, because in some cases the same specific name has existed earlier in the genus to which a species is transferred, and it would be utterly impracticable to have two different species under the same name in the same genus.

13. Nevertheless, it is generally accepted by all botanists that the specific name should always be retained wherever it is possible. This cannot, however, be an absolute rule, nor can a name that has been in extensive use for a long period of years be changed without the greatest inconvenience. It would also happen in some cases that the oldest specific name would be identical with the oldest generic name, and such absurd names as Benzoin Benzoin, Sassafras Sassafras, etc., would be the result of rigidly following the rule of retaining the oldest specific name.

14. In order to prevent confusion, it is usual to give, after the name of a plant, the abbreviated name of the botanist who first described it. The abbreviation is sometimes limited in the case of authors of classical works to the initial letters of the name only, as L. for Linnæus, DC. for De Candolle, and H. B. K. for Humboldt, Bonpland, and Kunth. A better plan, and one followed by many botanists, is to give the first syllable of the name, and where such would be of doubtful meaning, *e.g.*, Dec. for de Candolle, and Dec. for Decaisne, etc., it is usual to give either the first letter of the second syllable, or as much of the word or of the principal con-

sonants of the word as will serve to indicate without doubt who is meant. Thus Decne. or Decsne. would stand for Decaisne, Linn. for Linnæus, and Reichb. for Reichenbach. In some cases where there are two botanists of the same name—as Sir W. J. Hooker and Sir J. D. Hooker (father and son)—they are usually distinguished as Hook. and Hook. f. (filius); or when there are three, as in the case of the de Candolles, they are written DC. or De.C., A. DC. Alph. DC , and C. DC. (In this case the particle is written with an initial capital by general custom.)

The most satisfactory plan to prevent any possible error is to write the initials of the Christian as well as the surname, *e.g.*, D. Don, G. Don; C. Agardh, J. G. Agardh; Aug. de Cand., Alph. de Cand., Cas. de Cand. These abbreviations may be employed in works used by botanists, but in such works as the Pharmacopœia, or others in which a knowledge of botany is not necessarily implied on the part of the readers, the name of the authority should be given in full.

The object in giving the name of the authority is to indicate the particular plant intended by the writer. Thus there are seven plants that have been named *Solanum scabrum* by different authors, viz., Jacquin, Miller, Ruiz and Pavon, Zuccagni, Vahl, Lamarch, and Humboldt, Bonpland and Kunth, and the only way to indicate which of the seven species is intended is to place the name of the author after the plant name.

A custom exists amongst some botanists of giving two names of authorities when the genus of the plant has been changed, the first being enclosed in parentheses after the name of the plant. Thus a plant was described and named *Andira Araroba* by Dr. Aguiar, and as it was the first name published for the plant in the correct genus, it should be written *Andira Araroba*, Aguiar, which serves to indicate that the description of the plant will be found in the writings of that author. (In any flora in which that name is used, a reference to the books and the page in which it occurs should be given.) But an older name, *Vouacoupoua* (1775)* was given by a previous writer (Aublet) to the genus now called *Andira*, and a third botanist, Mr. G. C. Druce, suggests that the *Andira* should therefore be called *Vouacoupoua Araroba* (Aguiar), Aublet, to indicate that Aguiar's plant was placed in Aublet's genus. Those who use parentheses would write it *Vouacoupoua Ararobe* (Aguiar) Aublet.

But such a representation of the facts is utterly misleading, for anyone who searches the index of either Aublet's or Aguiar's works will not find that name. The proper way to write this name would be *Vouacoupoua Araroba*, G. C. Druce. Anyone looking through the writings of Druce would find the name and the reasons given for so combining the two words. The practice of giving a name in parentheses is a bad one (1) because it is misleading; (2) because it adds unnecessarily to the length of the name; (3) it is quite easy to find the history of the name in the synonymy of plants which is given in all good floras.

A list of the abbreviations of the authors' names may be found at the end of the second volume of Steudel's 'Nomenclator Botanicus' and in Asa Gray's 'Structural Botany,' pp. 385-390, and the lists of the works of botanical authors alphabetically arranged in Pritzel's 'Thesaurus Literaturæ Botanicæ,' or of later works since in the Royal Society's Catalogue of scientific papers.

The signs used to indicate whether a plant is annual, biennial, or perennial, or the flowers male or female, etc., are given in Gray's 'Structural Botany,' pp. 390–392, except the modern sign for a micromillimetre, viz, the Greek letter μ.

In conclusion, I may direct attention to the very weighty declaration made by some of the leading American botanists on the subject of botanical nomenclature as follows (*Journ. Bot.*, 1895, p. 212):—

"The nomenclature of systematic botany must be subject to constant modification with varying ideas of plant affinities. Its real developments, especially with regard to generic names, is largely determined by usage. By judicious recommendations greater and greater uniformity in the application of botanical names may doubtless be obtained, but to make rules at serious variance with the customs of the past and to give them retro-active effect can only tend to complicate botanical language. For if we depart from the nomenclature of former writers, we can by no means avoid the constant necessity of using their works.

"The result of any serious change would be the necessity of acquiring two sets of names instead of one. One of the most essential features of an efficient botanical nomenclature is its cosmopolitan character. It is very unlikely, therefore, that any lasting or satisfactory modifications of the present system can be effected without international agreement." Some excellent remarks on the same subject by the past and present Directors of Kew Gardens are quoted in the *Journal of Botany*, 1896, pp. 114–116.

* This genus being imperfectly characterised could not be maintained.

EXTRACTS FROM CONSULAR REPORTS.

The Cultivation of Colocynth (*Citrullus colocynthis*) is likely to become an important industry in several of the villages of Cyprus. The fruit is collected from June to August, and is spread in the sun, being stirred two or three times a day that it may dry uniformly and quickly, after which it is peeled by the women of the villages, who are trained to the work. For this purpose the dried fruit is sprayed the previous day with a little water. A woman can peel about 500 fruits within a day, and is paid 3½ to 4½ c.p. a day and her food. Peeling is a delicate work and requires great care in order that the naturally friable fruit may not be broken and rubbed, otherwise its value is lowered. The colocynth of Morphon and Papho is considered to be of a higher quality than from some other parts of the island. The dried, peeled, and sound fruits form the first quality, and are called "apples." They are sold to the merchants, who export this product, at 12 to 20 c.p. per oke, whilst the broken and somewhat badly peeled pieces of fruit, which are called "psicha," represent the inferior quality, and are purchased by the merchants at 6 to 10 c.p. per oke.

The Production of Essential Oils in Cyprus is receiving attention at the hands of the Director of Agriculture, Mr. P. Gennadius. Cyprus formerly was famous for its perfumes, the preparation of which, according to tradition, was introduced in the island by Venus, the goddess of beauty, and Mr. Gennadius is hopeful that its fame for perfumes may be restored. That the ancient fame of perfume-making in Cyprus is justified, he thinks, is shown not only by the fact that the Cypriotes were very rich and much advanced, but also by the fact that the flora of the country is rich in aromatic plants. In addition to the native aromatic plants which abound in Cyprus, the following are very common and grow almost without any special treatment:—Violet, jasmine, citrus trees, *Pelargonium odoratissimum*, Damascus rose, lavender and rosemary plants, the essential oils of which form in other places one of the principal reasons of their propagation and cultivation. Taking the foregoing facts into account, Mr. Gennadius hopes that the development, in certain villages at least, of the perfume industry will be of advantage. With this object in view, last year he prepared samples of essential oils which were sent to England and submitted to various wholesale houses for examination as to their quality and value, the reports on which are

published in a recent report on agriculture in Cyprus. Judging by the total results of his effort, Mr. Gennadius is of opinion that there are in the island all the elements to found an important and profitable industry.

As a Guarantee of His Good Faith in the project, it may be mentioned that Mr. Gennadius has agreed with the villagers of Kambos to prepare this year for his account as large a quantity as possible of oil of marjoram—one of the kinds most favourably reported on by the London dealers—for which he will pay them at the rate of 4*s.* 4½*d.* c.p per oke (about 3 lbs.). The oil will then be filtered and properly packed, and sent to London, where he hopes to get from 6*s.* to 9*s.* per oke. If there is any surplus from the sale, it will be distributed to the villagers proportionally to the quantity of oil which each has supplied.

ANALYTICAL NOTES.

Delicate Reaction for Tannin.—Gold salts are reduced by the barest trace of tannin, giving rise, in very dilute solutions, to a red colour. So delicate is the reaction that after standing for about thirty minutes it will indicate the presence of tannin in red wine when diluted so that its colour is not visible.—*Pharm. Central.*, 40, 75.

Adulterated Light Calcium Carbonate.—P. Hamburger has detected the presence of magnesium carbonate in commercial light calcium carbonate, certain samples containing as much as 15 per cent. This impurity may be detected as follows: 1 Gm. of the sample is shaken repeatedly for five minutes with ammonium chloride solution, 10 C.c., and solution of ammonia, 1 C.c. After standing, the mixture is filtered. The resulting filtrate should develop only a slight opalescence on the addition of 8 drops of sodium phosphate solution.—*Oest. Zeit. für. Pharm.*, £4, 36, after *Pharm. Centralh.*

Assay of Pomegranate Bark.—According to Ewers, the fresh bark of pomegranate contains from 0 5 to 0 7 per cent. of total alkaloids. When the bark is kept this percentage decreases to 0·33 or 0·4. The powdered bark deteriorates more rapidly. The root bark is slightly richer in alkaloids than that of the stem, but the difference is not very great. To determine the total alkaloids, Ewers employs the method of Keller for the determination of nicotine in tobacco. Six Gm. of the powdered bark are placed in a flask and treated with 120 Gm. of a mixture of equal parts by weight of ether and of petroleum ether, 10 C.c. of solution of soda or of potash are added, and the mixture is shaken thoroughly several times in half an hour. It is then set aside for four hours, when 100 Gm. of the solution is filtered off. A few drops of methyl-orange solution are added to this filtrate, a known excess of $\frac{1}{20}$ normal sulphuric acid is then run in, and the uncombined acid titrated back with $\frac{1}{50}$ normal soda solution, each addition of the latter being followed by vigorous shaking. The number of C c. of $\frac{1}{20}$ normal acid used up by the alkaloids × 0·007375 gives the quantity of total alkaloids contained in 5 Gms. of bark. To determine the amount of pelletierine and isopelletierine present in these alkaloids, the solution, after the titration of the total alkaloids, is treated with just sufficient $\frac{1}{20}$ normal H_2SO_4 solution to render it faintly acid, and then with 2 Gm. of $NaHCO_3$; the mixture is thoroughly agitated, set aside for thirty minutes, when 90 Gm. of the ethereal layer are removed and again titrated with $\frac{1}{20}$ normal acid. The number of C.c. required is divided, 0·9, and the quotient obtained deducted from the number of C.c.'s used for the titration of the total alkaloids, the difference multiplied by 0 00705 gives the quantity of pelletierine and isopelletierine in 5 Gm. of bark. In ordinary practice the determination of the total alkaloids is sufficient.—*Journ. de Pharm. d'Anvers*, 55, 154, after *Oest. Zeit. für Pharm.*

Modification of Liebig's Process for Determining Prussic Acid.—Lextriet recommends the use of C4B blue as an indicator of the alkalinity of the solution to be titrated with silver nitrate in Liebig's process for determining HCN. This colour is perfectly neutral to hydrocyanic acid and the alkaline cyanides, but gives a red tint in the resence of caustic alkalis.—*Journ. de Pharm.* [6], 9, 323.

SELECTED PRACTICAL FORMULÆ.

Ointment Gelatins.

M. Pelagatti recommends ointment gelatins for the treatment of skin diseases, prepared as follows:—White zinc gelatin, 30; glycerin, 20; water, 50; pure lanoline, 48; zinc oxide, 20. The lanoline is mixed warm with the gelatin dissolved in water, and poured into moulds. When cool, the ointment gelatin is easily taken out of the moulds and stored in boxes, or in paraffin paper; it does not become hard. If needful, as much as 40 per cent. of metallic mercury can be incorporated with the basis by first triturating 16 parts of mercury with 8 parts of lanoline; the same process is followed with resorcin, salicylic acid, and litharge. Before use, the preparation is dissolved on the water bath, painted thinly on the affected skin, and well dusted over with lycopodium; in five minutes the application will be quite dry.—*Pharm. Central.*, 40, 76, after *Monatsh. f. prakt. Dermat.*

Purified Coal Tar.

Coal tar is purified for pharmaceutical purposes by being dissolved in three parts of acetone or benzene, and filtered. The solvent is distilled off, leaving about 80 per cent. of purified tar. The purified preparation is a thick fluid in the cold, less dense when warm, having the peculiar tarry odour and is of a brownish black colour. It mixes readily with vaseline, lanoline, etc.—*Pharm. Centralh.*, 39, 933.

A Complex Laxative.

The following recipe is a fine example of the polypharmacy which still prevails to a considerable extent in French medicine. Its author, Bardet, states that it gives excellent results as a laxative in cases of chronic constipation. It is composed of:—Cassia pulp, 60; tamarind pulp, 60; mannite, 80; hydrated magnesia, 70; sodium phosphate, 60; powdered senna, 40; sulphur, 20; powdered jalap, 20; resin of scammony, 10; leptandrin, one-half part; baptisin, one-fifth part; euonymin, 2; podophyllin, 5; amorphous quassin, 2; extract of *Rhamnus catharticus*, 8; extract of *Rhamnus frangula*, 2; alcoholic extract of cascara, 20; extract of nux vomica, one-fifth part; aqueous extract of belladonna, one-fifth part. Mix and mass; divide into cachets or boluses of 1 Gm. each. The dose is 3 to 4 Gm.—*Bull. gen. de Therap.*, 68, 426.

Syrup. Calcii et Guaiacoli Chlorohypophosph.

(1) Calcium phosphate, 60; water, 120; hydrochloric acid, 70. (2) Balsam tolu, 15; alcohol, 75; water, 75. (3) Guaiacol, 10; glycerin, 150; simple syrup, 90; arrack, 30; Malaga wine, 60. The three solutions are mixed, the mixture set aside for five to six days and filtered.—*Oest. Zeit. für Pharm.* 53, 210.

To Whiten the Hands.

Lanoline, 30; glycerin, 20; borax, 10; eucalyptol, 2; essential oil of almonds, 1. *The Quart. Therap. Rev.* recommends a mixture of these ingredients to be rubbed on the hands, which are then covered with gloves during the night.—*Deutsch. Am. Apoth. Ztg.*, 19, 157.

Preparations for Chilblains.

(1) For broken chilblains: Zinc sozoiodolate, 1; vaseline, 10; m. f. ungt. (2) Resorcin, ichthyol, tannic acid, of each, 2; distilled water, 10. D.S.: To be shaken up before use and rubbed into the affected parts. For frost bites: Pine needles are boiled for two to three hours, the decoction strained, and the frozen limbs bathed in it three times per diem. The bath should be luke warm and last ten to fifteen minutes.—*Deutsch. Am. Apoth. Ztg.*, 19, 157.

A Pick-Me-Up.

Valerian, 6; cardamoms, 2; coriander, 20; cinnamon, 6; orris root, 1; are coarsely powdered and boiled with water, 300. The decoction is strained, and the residue digested for two days with alcohol, 300. The tincture is filtered, and mixed with the first decoction. Coca leaves, 30; green tea, 6, are infused for thirty minutes with hot water, 100, strained, and the residue digested for twenty-four hours with alcohol, 100. The infusion and tincture are mixed and finally both mixtures are united and filtered.—*Deutsch. Amer. Apoth. Zeit.* 19, 157, after *Nat. Drugg.*

NEW REMEDIES.

Calcium Santonate.—This preparation is a white tasteless powder, insoluble in water. It is obtained by saturating santonin with milk of lime and drying the product. In consequence of its insolubility and slow absorption, it is recommended by Bombelon as a substitute for santonin as an anthelmintic.—*Oest. Zeitschr. für Pharm.*, 53, 215, after *Apoth. Ztg.*

Ferrichthol.—Under this name an almost odourless and tasteless combination of iron with sulphichthiolic acid has been introduced as a remedy for anæmia and chlorosis. It is prescribed in tablets containing 10 Cgm. each.—*Journ. de Pharm. d'Anvers*, 55, 147, after *Oest. Zeitschr. für Pharm.*

Wintergreen Oil in Chorea.—By means of the local application of wintergreen oil, F. Luigi has cured several cases of chorea. The oil, mixed with an equal quantity of vaseline, was applied locally with gentle friction to the affected parts, which were afterwards enveloped with impermeable dressing. The application was repeated daily for fifteen days.—*Bull. Comm.*, 27, 132.

Chloroform Water to Obviate the Secondary Effects of Chloroform Narcosis.—Weber states that by treating the patient for as long as possible before operation with daily doses of chloroform water, a complete immunity may be obtained from the distressing and often dangerous secondary symptoms, such as nausea and excitement, which follow chloroform narcosis. So marked is the benefit derived, that he advocates the treatment in all cases when this anæsthetic is to be used in surgical operations. In order to mask the taste of the chloroform, to which some patients have a great repugnance, he advises the employment of the following mixture:—Chloroform water, 200 Gm.; oil of peppermint, oil of anise, of each 4 drops. Mix, set aside for twelve hours, and filter.—*Bull. de Therap.*, 137, 488.

Napelline as a Remedy in Morphinomania.—In a communication to the Société de Therapeutique de Paris, Rodet states that the "napelline" of H. Duquesnel is a most useful remedy in the treatment of morphinomania. A two per cent. solution in sterilised water is employed, in the form of a subcutaneous injection, the dose being 3 to 5 C.c., equivalent to from 6 to 10 Cgm. of the alkaloid. [It should be borne in mind that this so-called "napelline" has been shown by Dunstan and Harrison (*P.J.* [3], 23, 625) to be a mixture of amorphous aconite alkaloids, and is distinct from the base isoaconitine, $C_{33}H_{45}NO_{12}$, isolated by them and named napelline. The "napelline" of Duquesnel is a mixture of this base with aconine.]—*Bull. Gen. de Therap.*, 137, 451.

Phenosal and Pyrosal.—*Phenosal* or para-phenetidine aceto-salicylic acid is a white crystalline powder, sparingly soluble in water and in alcohol, melting at 182° C. *Pyrosal*—antipyrine aceto salicylate, $C_9H_8O_5{\cdot}C_{11}H_{12}N_2O$—is also a crystalline powder, and is sparingly soluble in water. It melts at 146-150° C. Both pyrosal and phenosal have antipyretic and antineuralgic action. They have given good results in articular rheumatism, cystitis, sciatica, and migraine. The dose is 50 Cgm. twice to six times per diem.—*Merck's Report*, 1898, 127.

Pyrantine.—Pyrantine or para-ethoxyphenyl-succinimide was obtained by Piutti in 1898 in the form of brilliant prisms, melting at 155° C., sparingly soluble in water, but soluble in alcohol and in acetic acid. Gioffredi finds that, in small doses, pyrantine is without effect upon the heart or respiration of the larger animals. Larger doses cause a slowing down of both, and materially lessen the blood pressure. Small non-toxic doses cause a lowering of the temperature. The therapeutic action of pyrantine has not yet been fully worked out.—*Nouv. Rem.*, 15, 153.

Uvæ Ursi Salol Pills.—Oscar Werler prescribes the following pills in diseases of the bladder and urinary organs. Extracti uvæ ursi sicci, saloli, āā 5.0 m. f pilulæ No. 30. Sprinkle with pulv. aromat.; 1 to 3 pills three times per diem, after meals. The dry extract of uva ursi is obtained by evaporating the fluid extract on the water-bath. 5 Gm. of dry extract are obtained from 15 Gm. of the fluid preparation. The action of these pills is disinfectant, astringent, and tonic.—*Pharm. Centralh.* 40, 164.

The Therapeutic Value of Iodvasogen.—T. Floras reports on 144 cases treated with iodvasogen in which favourable results were obtained with the remedy in stomatitis and gingivitis, the diseased parts being rapidly healed. The action of the remedy was equally favourable in various cases, both acute and chronic, of retro-nasal and pharyngeal catarrhs. In vomiting of pregnancy the author recommends doses of 5 to 7 drops of iodvasogen in milk three times per diem. The compound is without action in phthisis and whooping cough, but chronic bronchial catarrhs are favourably influenced, especially where there is increased secretion. The treatment is supplemented with external applications of the remedy on the chest and back. Rapid cure is effected on chronic pleuritis and in pleuritic pains generally. Favourable results followed the internal administration of the remedy in scrofulous affections of children and in chronic rheumatism and synovitis.—*Wien Klin. Rundschau*, 13, 178.

Fluorphenetol-Difluordiphenyl and Fluor-Rheumin.—Fluor-rheumin is a name given to an ointment containing the above in the proportion of 1:15. It is used for rheumatic affections, and is composed of fluorphenetol, 1 Gm.; difluordiphenyl, 1 Gm.; anhydrous wool fat, 85 Gm.; vaseline ointment, 10 Gm.—*Merck's Report*, 1898, 71.

Lactose.—In addition to its well known diuretic action, milk sugar is reported by G. Klein to possess the valuable property of accelerating parturition. Twenty to twenty-five Gm. of lactose are dissolved in half a pint of milk, and, if necessary, a similar dose is repeated after an interval of one or one and a half hours. As a diuretic in heart disease, G. See orders 100 Gm. dissolved in 2 litres of water, which must form the exclusive drink of the patient.—*Merck's Report*, 1898, 96.

Zinc Stearate in Burns.—In treating burns, B. Werner first bathes the wounds in 2 to 5 per cent. carbolic acid solution, which is then washed off with physiological salt solution, and the wound well dusted with a mixture of zinc stearate, 5, and acetanilide, 1. Lister's protective and wet sublimate gauze are used as bandages.—*Merck's Report*, 1898, 154.

Pure Theobromine.—Brissemoret recommends the use of trisodium phosphate for dissolving theobromine. By means of this salt 2 per cent. aqueous solutions may be obtained, which has the advantage over diuretine that it does not irritate the mucous membrane. For use the following formula is recommended:—Pure theobromine, 1 Gm.; trisodium phosphate, 4·5 Gm.; dried egg albumin, 0 5 Gm.; distilled water, *q.s.* to 80 Gm. To be taken three to four times per diem in warm milk.—*Merck's Report*, 1898, 146.

PROCEEDINGS UNDER THE PHARMACY ACT.

Pharmaceutical Society *v.* Boundary Chemical Co., Ltd.

At Liverpool Police Court, on Wednesday, before Mr. W. J. Stewart, stipendiary magistrate, the Boundary Chemical Company, Ltd., carrying on business at the Railway Arches, Luton Street, Liverpool, was charged, at the instance of the Pharmaceutical Society of Great Britain, with having, on May 29, "unlawfully sold a poison which is in the first part of Schedule A of the Pharmacy Act, 1868, to wit, arsenic, to one Harry Moon, he being a person unknown to the seller thereof, and not being introduced by some person known to the seller."

Mr. C. E. Nield conducted the prosecution, and Mr. J. H. Glover appeared for the defendants.

Mr. Glover said the defendants pleaded guilty. The thing was done in ignorance, but, of course, that was not a good defence. The defendants had never been summoned before, and they would take care the offence was not repeated.

Mr. Nield thought the Court should hear the analyst's report, as the offence was a very serious one. According to that report, the tin sold by the defendants on the occasion in question contained 1 lb. 14 ozs. of a powder consisting chiefly of arsenic and soda, the arsenic being present in the proportion of 61·5 per cent. The total amount of arsenic in the tin was, therefore, 1 lb. 2½ ozs., a quantity sufficient to kill over 4000 adult persons.

The Stipendary imposed a fine of £1, and also ordered the defendants to pay £4 4s. costs.

THE STUDENTS' COLUMNS.

ZOOLOGICAL NOTES FOR PHARMACISTS.—XVI.

Glands Forming Materia Medica (Continued).

Liver.—A two-lobed, highly vascular body, situated towards the right side, immediately below the diaphragm, consists of small masses of cells or "lobules," intersected by minute blood-vessels and bile passages. It secretes "bile," which is collected finally into special hepatic ducts and so poured into the intestine, where it assists the digestive and assimilative process, or stored up temporarily into a special receptacle—the gall bladder. The liver also secretes glycogen or animal starch, and is the seat of urea formation. Bile as found in the gall bladder is somewhat more concentrated than that flowing direct from the cells into the intestine.

Pancreas.—A branching mass of tubules whose main duct opens into the anterior portion of the intestine. Secretes a special fluid containing four ferments, which act on starch, proteids, fat, and milk respectively. In the lower forms the liver takes on the double duty of a liver and a pancreas.

Sebaceous Glands.—Small sacs lying beneath the epidermis having ducts which open close to the surface into the hair pits or follicles. Secrete a fatty substance which acts as a lubricating material for the hairs. In animals where the hairs are extremely numerous and close set, as the sheep, this secretion, "wool fat," is abundant.

Odour-secreting Glands.—Found in many animals, their secretion being in some cases a source of attraction, as in the musk-deer, and in others a source of repulsion, as in the skunk. In the musk-deer and beaver these glands occur on the inner surface of special sacs placed in the region of the preputial opening. Moschus possesses one sac, and in the male animal only; Castor, both male and female, carries two. In the latter case the whole sac is used, in the former the secretion only should be employed.

EXPLANATORY NOTES ON THE B.P., 1898.

Phosphorus.—For the detection of arsenic occurring as an impurity in phosphorus the Pharmacopœia directs the phosphorus to be boiled with nitric acid, and "the resulting solution should yield no characteristic reaction with the tests for arsenium." The phosphorus is thereby converted into phosphoric acid, and any arsenic present will also be oxidised to arsenic acid. In applying the official (see B.P. Appendix III., p. 418) or other tests for arsenic the student must carefully bear in mind the conditions under which he is working. For instance, the solution to be tested contains some undecomposed nitric acid, in addition to the phosphoric acid. If, now, sulphuretted hydrogen be passed through the solution the nitric acid present will react with the sulphuretted hydrogen and produce a yellowish precipitate of sulphur, which might be mistaken for arsenic sulphide. Before applying the stannous chloride test it would be advisable to evaporate the solution to a small bulk to remove the excess of nitric acid. This evaporated product, after redilution, should give no precipitate with sulphuretted hydrogen, but it should be remembered that arsenic in the condition of arsenic acid must be reduced to arsenious acid before a precipitate of arsenious sulphide is obtained. This reduction is accomplished by the sulphuretted hydrogen itself, but may be more quickly produced by the addition of sulphurous acid. Compare these notes with the information to be found in your text-book of analytical chemistry. In applying the special tests for arsenates the similarity of phosphates and arsenates must be remembered. With nitric acid and ammonium molybdate a yellow precipitate is produced by both. Ammonio-magnesium phosphate and the corresponding arsenate are also indistinguishable in appearance and are produced under similar conditions. The colour of the silver salts is, however, very different, but a trace of arsenate of silver would hardly be detected by this means in presence of a large excess of phosphate of silver, which would also be precipitated at the same time.

FLORAL CALENDAR FOR JULY.

Alismaceæ.—*Butomus umbellatus, Alisma plantago, Actinocarpus damasonium.*

Araceæ.—*Acorus calamus* (*P.J.* [3], **7**, 1060).

Aristolochiaceæ.—*Aristolochia clematitis* (*P.J.* [3], **7**, 1060).

Asclepiadaceæ.—*Asclepias syriaca.* B.G. *A. vincetoxicum.* B.G.

Boraginaceæ.—*Borago officinalis* (*P.J.* [3], **8**, 63). *Echium vulgare, E. violaceum, Lithospermum purpuro-cæruleum, Mertensia maritima, Symphytum officinale.*

Cactaceæ.—*Anhalonium Williamsi.* B.G.

Chenopodiaceæ.—*Chenopodium olidum.*

Cistaceæ.—*Helianthemum vulgare, H. polifolium.*

Compositæ or Asteraceæ.—*Carduus benedictus.* B.G. *C. marianus. Carthamus tinctorius.* B.G. *Cichorium intybus, Eupatorium purpureum.* B.G. *Guizotia cleifera.* B.G. (*P.J.* [3], **7**, 1059), *Inula helenium* (*P.J.* [3], **8**, 63), *I. conyza* (*P.J.* [3], **7**, 1057), *Lactuca virosa, Liatris spicata, Matricaria parthenium* (*P.J.* [3], **7**, 1060), *Pyrethrum cinerariæfolium.*

Convolulaceæ.—*Convolulus scammonia.* B.G.

Coriariaceæ.—*Coriaria myrtifolia.* B.G.

Crassulaceæ.—*Cotyledon umbilicus, Sedum acre.*

Cruciferæ.—*Brassica juncea.* B.G.

Cucurbitaceæ.—*Ecballium officinarium.* B.G. (*P.J.* [3], **8**, 65.)

Cupuliferæ.—*Castanea vesca.*

Cyperaceæ.—*Carex holoschœnus, C. vesicaria, C. grayi.* B.G. *Scirpus sylvaticus.*

Droseraceæ.—*Drosera rotundifolia, D. intermedia.*

Ericaceæ.—*Pyrola minor, Vaccinium vitis-idæa, Monotropa hypopitys.*

Filices.—*Aspidium filix-mas, Ceterach officinarum.*

Gentianaceæ.—*Chlora perfoliata, Erythæa centaurium* (*P.J.* [3], **8**, 61), *Gentiana lutea.* B.G. *Limnanthemum nymphæoides.*

Iridaceæ.—*Iris versicolor, Sisyrinchium anceps.*

Labiatæ or Lamiaceæ.—*Ajuga iva.* B.G. *Hyssopus officinalis.* B.G. *Lavandula vera, Leonurus cardiaca, Marrubium vulgare, Origanum vulgare, Stachys germanica, Teucrium botrys, T. chamædrys. T. polium.* B.G.

Leguminosæ.—*Glycyrrhiza glandulifera, Lathyrus aphaca, L. nissolia, L. sativus* (*P.J.* [3], **8**, 65).

Lentibulariaceæ.—*Pinguicula vulgaris, Utricularia vulgaris.*

Liliaceæ.—*Asphodelus albus, Allium sphærocephalum, Veratrum album, V. viride. Hemerocallis flava.* F.

Malvaceæ.—*Malva sylvestris, Althæa officinalis* (*P.J.* [3], **8**, 63).

Nymphæaceæ.—*Nymphæa alba* (*P.J.* [3], **10**, 62).

Orchidaceæ.—*Liparis loesellii, Orchis pyramidalis, Epipactis latifolia.*

Papaveraceæ.—*Argemone mexicana.* B.G. *Glaucium luteum, Papaver somniferum, P. rhœas* (*P.J.* [3], **7**, 1057).

Polygalaceæ.—*Polygala vulgaris.*

Primulaceæ.—*Anagallis arvensis, Lysimachia vulgaris, L. thyrsiflora.*

Ranunculaceæ.—*Aconitum anthora, A. paniculatum, A. lycoctonum, Nigella damascena* (*P.J.* [3], **7**, 60).

Rosaceæ.—*Agrimonia eupatoria, Gillenia trifoliata.* B.G. *Potentilla rupestris, P. fruticosa, Spiræa ulmaria* (*P.J.* [3], **9**, 1054), *S. filipendula.*

Rubiaceæ.—*Asperula cynanchica, Rubia peregrina, R. tinctorum.* B.G.

Saxifragaceæ.—*Heuchera americana.*

Scrophulariaceæ.—*Gratiola officinalis.* B.G. *Scrophularia nodosa, Verbascum thapsus, Veronica officinalis, V. virginica.*

Simarubaceæ.—*Quassia amara.* B.G. (*P.J.* [3], **7**, 1060).

Solanaceæ.—*Datura stramonium.* B.G. *D. tatula.* B.G.

Tiliaceæ.—*Tilia europæa.*

Umbelliferæ or Apiaceæ.—*Angelica officinalis.* B.G. *Astrantia major, Bupleurum rotundifolium, Conium maculatum* (*P.J.* [3], **7**, 1058), *Coriandrum sativum.* B.G. (*P.J.* [3], **8**, 65). *Eryngium campestre, Ferula tingitana.* B.G. *Fœniculum capillaceum, Hydrocotyle asiatica.* B.G. *Imperatoria ostruthium Levisticum officinale.* B.G. *Peucedanum graveolens.* B.G.

Urticaceæ.—*Parietaria officinalis Morus nigra.*

Valerianaceæ.—*Valeriana officinalis.*

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A DEGREE FOR PHARMACISTS.

THE question of granting a university degree to pharmacists has once more been raised, this time in connection with the establishment of the proposed university for Birmingham. The text of a circular which has been sent to all registered chemists in the Midlands—with the object of interesting them in the subject—was published in the *Pharmaceutical Journal* a fortnight ago. In that document is briefly outlined a scheme of pharmaceutical education for which, we understand, Mr. JOHN BARCLAY is more or less responsible, and in which Professor HILLHOUSE, of Mason College, is greatly interested. The scheme involves a voluntary curriculum extending over six to nine months, the classes to be attended during the day, and the aim is to provide for Birmingham an institution similar to the School of Pharmacy at Bloomsbury Square. If such a scheme could be carried into effect, it is believed that the Senate of the University of Birmingham which it is proposed to call into existence would not be disinclined to entertain a suggestion for granting a degree to pharmacists, after examination in chemistry, botany, and materia medica, the title of the proposed degree being that of Bachelor of Science. So far as the general outline of the scheme is concerned, it accords closely with one which has been under consideration by the authorities of the Victoria University for some time past, and to which allusion was made in this Journal more than twelve months ago. But, in that case, we believe it has been stipulated that an additional subject should be taken by candidates for the degree, the scientific subjects included in the pharmaceutical syllabus—chemistry, botany, and materia medica—counting as two only in the degree examination. In connection with the reconstituted University of London, something may also be done in the matter of granting a degree to pharmacists, but the first step in that direction would probably be the affiliation of the School of Pharmacy with the University, and recognition of the courses of instruction at that institution as qualifying *pro tanto* for admission to the degree examination.

But in the case of each of the three universities referred to, it is probable that the utmost concession obtainable at the outset will be the acceptance of evidence of certain courses of instruction having been taken at recognised institutions, as entitling candidates for the degree of Bachelor of Science to submit themselves for examination in those subjects at the degree examination. There will be no question, at first, of granting a degree in pharmacy, and if ever there should be, it is exceedingly doubtful if the passing of the Pharmaceutical Society's examinations will be taken into consideration, by being allowed to reckon *pro tanto*, unless and until the passing of those examinations is preceded by a definite curriculum similar to that which is now compulsory in the case of candidates for medical registration. If candidates for the Pharmaceutical Society's qualifying examination were compelled to produce evidence of having been registered as students for three or more years, and of having, in addition, attended courses of day lectures and laboratory instruction in all the subjects of the examination, during nine months or more, there might be something to be said in favour of asking universities to grant degrees in pharmacy and to accept the subjects of the qualifying examination *pro tanto*. As things are, however, anything of the kind is quite out of the question, for no British university could be expected to devote serious consideration to such a suggestion. The degrees of British universities are, fortunately, not granted except for sufficient reason, even those of the existing University of London requiring an expenditure of time and energy which is far in excess of that necessary in the case of the pharmaceutical qualification. If, therefore, a degree in pharmacy is to be of any real value, and on a par with existing university degrees, it must not be granted except the recipient has proved his fitness in an equal degree with those upon whom other degrees are conferred, and that he cannot at present do by simply passing the examinations conducted by the Pharmaceutical Society.

On the other hand, a formal protest must be entered against any attempt to establish other qualifications in pharmacy than that which is obtained by passing the examination conducted by the Pharmaceutical Society, under the control of the Privy Council. It must be borne in mind that, when statutory authority for registering all chemists and druggists was granted in 1868, provision was immediately made by the Pharmaceutical Society for examining candidates from any part of Great Britain. The capacity of the Society to perform the work of examination has never yet been overtaxed and no conceivable extension of the work is likely to find the statutory examining body in any but a fit condition to cope with it. Whatever courses of instruction may be established, therefore, and however provincial enterprise may supplement the work of the Pharmaceutical Society in so far as the provision of educational facilities is concerned, legal qualification of the chemist and druggist must continue to be based upon the results of the Society's Minor examination. It may possibly be urged that the two examination centres are equally remote and inconveniently situated for students residing in certain parts of the country, but if that difficulty should ever prove of such importance as to require the adoption of special measures to meet it, the obvious remedy would be multiplication of the Society's examination centres rather than delegation of its statutory duties to other bodies. It may be taken for granted, therefore, that examinations conducted by university authorities can no more replace those conducted by the Pharmaceutical Society than the latter can be accepted as qualifying for a university degree. If ever a degree in pharmacy should be conferred by any properly constituted body in Great Britain, it must be supplementary to the legal qualification, and it ought not to be granted except the conditions fulfilled by the recipient are fully as onerous as those which are associated with the acquirement of the ordinary degrees now granted. At the very least a candidate for such a degree should have attained the same standard of general education as a bachelor of arts or science, have passed the Major examination and also a special degree examination in some scientific subject—such as general biology or zoology—which is not included in the subjects pharmacists are at present required to study. That is the least which can justify the conferment of a degree worth receiving.

ANNOTATIONS.

CARBOLIC ACID appears at last to be in a fair way to become a scheduled poison in Great Britain, Sir J. Leng, the member of Parliament for Dundee—who, we understood, was prompted by Mr. William Cummings, chemist and druggist, Dundee—having obtained from the Secretary of State for the Home Department what may be regarded as a satisfactory answer to his question of which notice was given last week. Sir John asked whether the attention of the Home Secretary had been called to the large number of painful deaths by poisoning from carbolic acid, and whether he was aware that coroners had repeatedly urged that carbolic acid should only be sold as a scheduled poison, whilst the Pharmaceutical Society had, in accordance with Section 2 of the Pharmacy Act of 1868, applied to the Privy Council to add it to the list of poisons controlled by that Act, but without effect. He further asked whether carbolic acid had been scheduled as a poison in Ireland, and could only be sold there by qualified persons, and if he could explain why the Privy Council had refused to schedule carbolic acid in Great Britain, also whether it was proposed to deal with the subject in any other way? Sir M. W. Ridley, in reply, said he was aware that a considerable number of deaths yearly are due to carbolic acid poisoning, and that it has frequently been suggested that the sale of carbolic acid should be placed under restrictions such as apply to poisons named in the Schedule to the Pharmacy Act of 1868. Some years ago, he continued, the Pharmaceutical Society did apply for the insertion of carbolic acid in that Schedule, but it was considered that the gain to the public would not be commensurate with the inconvenience arising from the proposed restrictions on the sale of the article. The Irish Government had scheduled carbolic acid, but that was done without consulting the Privy Council in this country. Continuing, the Home Secretary said that the objections to scheduling carbolic acid in Great Britain had now been lessened by the fact that regulations for the keeping, dispensing, and selling of poisons within the meaning of the Pharmacy Act of 1868 have recently been prescribed by the Pharmaceutical Society; and the Privy Council is prepared to consider whether carbolic acid can advantageously be dealt with in some way, though no action can be taken except upon a resolution of the Pharmaceutical Society. Such a resolution will, we understand, be again formally passed at the meeting of the Council on Wednesday next.

THE SALE OF BENZENE is the subject of an inquiry by a correspondent (see p. 23) who has been visited by an inspector under the Petroleum Acts. The London County Council, under the authority of which the inspector acts, is only putting in force the provisions of the Petroleum Acts, which provide that no petroleum that gives off an inflammable vapour at a temperature of less than 73° F. shall be kept on unlicensed premises—either for private use or for sale—unless it is kept "in separate glass, earthenware, or metal vessels, each of which contains not more than a pint, and is securely stopped." It is also provided that the aggregate amount kept, "supposing the whole contents of the vessels to be in bulk," must not exceed three gallons. We have always understood this to imply that benzene or benzoline must be purchased in closed bottles containing not more than a pint each, and that those bottles must not be opened by the retailer but sold as received into stock. The object of the exemption in Section 7 of the Petroleum Act, quoted above, was to enable chemists and others to keep and sell bottles of light petroleum, without the necessity of obtaining a licence, and it is obvious that the intention of the Legislature would be defeated if it were allowed to retail the spirit in small quantities or to purchase it in bulk and bottle it on unlicensed premises. We understand that correspondence is now in progress between the Pharmaceutical Society and the proper licensing authorities under the Petroleum Act with a view to securing for chemists and druggists reasonable concessions in respect to the storage, bottling, and retailing of benzene. The London County Council, it may be stated, is not desirous of harassing chemists and druggists in any way, but it must make regulations stringent enough to prevent the possibility of a pint bottle of spirit being partially emptied and then left about unstoppered. The result of the present negotiations will be published in the *Pharmaceutical Journal* in due course. With regard to the question of labelling, Section 6 of the Petroleum Act, 1871, provides that where petroleum (*i.e.*, benzene, etc.) is sold or exposed for sale, the vessel containing it shall have a label in conspicuous characters, stating the description of the petroleum, with the words "highly inflammable" and the name and address of the vendor.

IN CONNECTION WITH THE PLYMOUTH CONFERENCE, we are again asked to impress upon our readers the necessity of securing accommodation at once if they intend being present at the meeting. It is pointed out in the Pink Circular that though the Royal Hotel, Plymouth, has been selected as the nominal headquarters, only a very limited number of rooms have been secured there. In addition, as two other associations will be holding conferences at Plymouth the same week as the B.P.C., the other hotels in the town will be unusually full. Accordingly, pharmacists who intend visiting Plymouth during the last week of this month should write at once to the Hon. Local Secretary—Mr. J. Davy Turney, 15, Leigham Terrace, Plymouth—specifying what accommodation they require. Another point to which prominence is given in the Pink Circular has reference to the issue of tickets for the luncheons, excursions, etc. In order to make the local arrangements as complete as possible and so insure the comfort of visitors, it has been definitely decided that no applications for tickets can be entertained after Monday, July 17. The prices of the books of tickets are as usual, *i.e.*, ten shillings and sixpence each. No. 1 book will admit to the sessions of Conference and also cover the cost of luncheons at the Corn Exchange on the Tuesday and Wednesday (July 25 and 26), a steamer trip along the Cornish coast to Looe on Tuesday, afternoon teas on Tuesday and Wednesday, and the smoking and drawing-room concerts on the Wednesday evening. On production of this book of tickets also, admission may be obtained to the Aquarium of the Marine Biological Association. The No. 2 book of tickets covers the steamer fares on Thursday, July 27, the visit to Mount Edgcumbe, access to the promenade pier, luncheon in the pier pavilion, and afternoon tea on board the steamer. The restriction of the time during which the tickets may be obtained is an innovation but, at the same time, it is very necessary, and it is satisfactory to learn that it is intended to adhere strictly to the time limit mentioned. Whoever may apply, no tickets will be obtainable after Monday, July 17.

A HANDBOOK TO PLYMOUTH is in course of preparation, on the lines of similar books published in connection with the meetings at Oxford, Bournemouth, and Liverpool, and copies will be presented by the local executive committee to all who attend the Conference. There will be a descriptive and historical account of Plymouth, notes on the flora and geology of the district, hints for cyclists and photographers, lists of places of interest in the vicinity, and much useful information regarding trains, trams, mails, etc. A map of the Three Towns—Plymouth, Devonport, and

Stonehouse—and a number of attractive illustrations will also add to the utility of the work and to its interest as a souvenir. The title of the book, 'Plymouth Revisited,' recalls the fact that it is twenty-two years since the Conference visited Plymouth. The late Professor Redwood was President on that occasion, and the Vice Presidents were Messrs. T. H. Hills, R. Reynolds, A. P. Balkwill, and J. Williams. This second visit to the historic town will doubtless, as suggested in the Pink Circular, revive many old and pleasant associations, in addition to still further strengthening, especially in the West of England, the interest felt by pharmacists in the aims and objects of the Conference. From the days of "Good Queen Bess" to the present, it is pointed out, Plymouth may be said to have grown steadily in importance. To-day it is one of the chief ports in the United Kingdom, though war rather than commerce is the object of most of the vessels which resort there. The town yields to none in the variety and beauty of its surrounding scenery, and the sight of its magnificent harbour—bordered on the western side by the wooded heights of Mount Edgcumbe, and on the east by the equally imposing cliffs of Staddon and Mount Batten—will come as a revelation to many whose acquaintance with picturesque seaports is limited. By the way, the local press is already going astray in its remarks on the approaching meeting, the *Western Mercury* having published a reference to the "forthcoming meeting of the Pharmaceutical Society at Plymouth." Such a slip, however, is excusable, having regard to the inappropriateness of the word "Conference" as the designation of a permanent association.

The Dispensing Grocer Suggestion has not called forth an alarming number of expressions of opinion from the vendors of sugar and spices. One such person informs his none too eager fellows, in the columns of the *Grocer*, that about eight or ten years ago he added a drug department to his business and employed a "qualified chemist," but after a time he found that the profits on the poisons which the "qualified chemist" alone could sell "were not enough to pay the extra salary, although he helped in the grocery department." The "qualified chemist," therefore, received his marching orders and, since he left, the grocer has carried on his drug department with the assistance of his wife, "who makes all ointments, etc.," but he has sold only those goods which do not need to be handled by a qualified chemist. As to results, this enterprising grocer has not found his profits appreciably increased by this addition to his business. He pathetically remarks, however, that if he had not added the drug department his returns might have been less. Continuing, he states that he and his wife can put up an ordinary prescription which is "plainly written," but such do not present themselves once a month. In conclusion, he makes the naïve confession that "it requires some time to master the ordinary work of the department, and also some reading up," but "it is all right if you have a qualified friend to whom you can go with any difficulties and get help with formulas, etc." This is interesting, but far from creditable to the "qualified friend." Incidentally, it might be asked, what is the qualification of a friend?

Another Contribution to the Discussion is, appropriately enough, signed "Saponis." That individual has never before heard of a "dispensing grocer," and seems curious to know what he dispenses with. He also proffers much really useful advice to giddy plunging grocers who may be disposed to sample the seemingly inexhaustible stores of wealth in the pharmaceutical Klondike, and reach the frozen pass of bankruptcy in the attempt. As he sagely remarks, "Medicine is not like jam; people do not swallow it unless they are absolutely obliged. The demand is only small, and surely the source of supply is already large enough." He also suggests that it would be much better if the discoverer of this supposed source of wealth would advise other grocers to stick to their own legitimate trade in which they have been brought up, and not dabble with a business of which they have, generally speaking, only a crude knowledge, or attempt to take away the bread out of the mouth of the chemist, who has spent so much time and money in studying his business. But perhaps, he surmises, the latter sentiment is of very little importance in these days of "every man for himself." If that be so, perhaps the very best thing the avaricious and grasping grocer can do is to proceed forthwith to burn his fingers by attempting to rival the poor chemist in maintaining a professional status on a labourer's income, and being content to slave from early morning till late at night in the vain hope that a grateful (?) public will hasten to spend enough on physic to pay for the gas, etc., consumed. The British public is a safe client to depend upon if one can afford to appear independent of it, and perhaps also if it is self-evident that one's capacity to perform certain duties is unexceptionable. But Heaven help the grocer who invests much capital in a drug department and then seeks to persuade the British public that he is competent to dispense medicines!

The Explosion from a Chloroform Still which occurred at the chemical works of Messrs. Duncan, Flockart, and Co., Edinburgh, on January 13 last, has been reported on by the Board of Trade, which recently held an inquiry into the matter. It appears that the bolts by which the bottom of the still was attached to the cylindrical portion gave way. The upper portion was lifted from the bottom in a slanting direction, and, striking a wall, fell back again in an upright position. There was a great rush of steam from the broken steam pipes, but the pressure dropped to zero within a couple of minutes. The explosion seems to have been caused by the accumulation of vapour, until a pressure was reached that the still was unable to withstand, but how such accumulation arose is not clear from the evidence of those in attendance at the time. No one was injured by the explosion. In commenting on the matter, Mr. A. N. Peacock, of the Board of Trade Surveyors' Offices, Leith, states that it is not usual to fit stills of this description with safety-valves; but, as they are liable to be subjected to internal pressure if condensation be stopped, or if the vapour pipe becomes choked, he thinks it is very desirable that efficient arrangements should be provided to prevent accumulation of pressure. Mr. Peter Samson, Engineer Surveyor-in-Chief, also thinks it should be impressed upon users of this and similar apparatus that the omission of such fittings as safety-valves or alarms involves considerable risk to those employed near to them, as explosions which are attended with serious loss of life not infrequently occur from vessels of this description, working under somewhat similar conditions, notwithstanding that in all probability they are looked after by intelligent attendants.

The Wellcome Club and Institute.—At the annual excursion of the employés of Burroughs, Wellcome and Co. last year Mr. Wellcome mentioned that he was making arrangements to carry out an idea he had long cherished of establishing a club, with pleasure grounds, etc., for the use of those engaged in the firm's works. That liberal project has now been accomplished, and a fine old manor house adjacent to the works, as well as a former mill and other buildings, handsomely fitted up for the purpose. This year's annual excursion was made the occasion for the opening, which took place last Saturday, and, in addition to the staff and employés of the firm, a large number of visitors were present at the ceremony (see page 12*b*).

AUSTRALIAN INDIGENOUS VEGETABLE DRUGS.*

BY J. H. MAIDEN,

Government Botanist and Director of the Botanic Gardens, Sydney.

PART I (*Concluded*).

MYRTACEÆ.

Eucalyptus.

The medicinal properties of this extensive Australian genus are to be attributed mainly, and perhaps entirely, to its essential oils and kinos, and in my introductory remarks to this paper I have stated that I will defer reference to these, as a matter of convenience.

I have a very large number of bibliographical references in regard to the genus and I am preparing them for publication, as in their collected form I feel sure they would be valuable for workers and inquirers, as a really useful digest of Eucalyptus Materia Medica and Therapeutics can scarcely be compressed within the limits of a 'Gazette' article.

Eugenia jambolana, Lam.

A vinegar prepared from the juice of the ripe fruit is an agreeable stomachic and carminative; it is also used as a diuretic in India. The bark is a useful astringent. The expressed juice of the leaves enters into Indian medicine in various ways. The seeds are said to be a powerful remedy in diabetes, but their true value has not yet been assigned. New South Wales and Queensland.

Leptospermum.

The leaves and young shoots of all species of *Leptospermum* are at least of the same service to the urinary organs and against gravel as those of the European *Uva ursi* (Dr. Lauterer, 'Proc. R.S., Qd.,' 10, 101).

Melaleuca leucadendron, Linn.—"Broad-leaved Tea-tree," or "Native Cajeput."

The young leaves are bruised in water and drunk for headaches and colds, and general sickness; the bark is also used for bedding, etc. (E. Palmer.)

Western Australia, New South Wales to Northern Australia.

Melaleuca uncinata, R.Br.—A "Tea tree."

According to Mr. J. G. O. Tepper ('Proc. R.S., S.A.,' 3, 174), the leaves of this plant, if chewed, are very useful in alleviating and curing ordinary catarrh. This observation is well worth repeating, especially as this particular species is widely distributed, and as there is no reason to suppose that this property is confined to this species.

Western and South Australia, Victoria, New South Wales, and Queensland.

MELASTOMACEÆ.

Melastoma malabathricum, Linn.

The leaves are used in India in cases of diarrhœa and dysentery. (F. M. Bailey.)

From New South Wales to Northern Australia.

LYTHRARIEÆ.

Ammannia indica, Lam.—Perhaps introduced.

The whole plant has a strong aromatic smell. The leaves are acrid, and are commonly used by the natives of India to raise blisters in rheumatic pains, fevers, etc. The fresh leaves bruised perform their office effectually in half an hour. (F. M. Bailey.)

Queensland and North and South Australia.

ONAGREÆ.

Epilobium tetragonum, Linn.

The Rev. Dr. Woolls mentions that this small swamp plant is used in rustic medicine in certain urinary disorders.

All the colonies.

* From the *Agricultural Gazette of New South Wales.*

CUCURBITACEÆ.

Bryonia laciniosa, Linn. (Syn. *Bryonopsis laciniosa*, Naud.)

I invite my readers to peruse an article entitled, "A Fatal Case of Poisoning by the Fruits of a Native Climbing Plant, *Bryonia laciniosa*, Linn.," in the 'Gazette' for July, 1896. These fruits caused the death of a four-year old girl at Lismore. The article in question contains some notes on the poisonous properties of *B. dioica* of Europe. The genus contains bryonin, which is a very bitter amorphous glucoside, yielding sugar and bryonetin. See Sohn, p. 114.

New South Wales to Northern Australia.

Cucumis trigonus, Roxb.

This is an aboriginal food (see "Foods"), but I am unaware of its use in the colonies as a medicine.

"The fruit is of the size and shape of a small egg, and marked with green and yellow streaks, like colocynth. It is very bitter, and at the feast of the Diwali, or New Year of the Hindus, is brought to market for sale. The Hindus of Bombay have a custom at this season of breaking the fruit under the foot, and then touching the tongue and forehead with it, with the idea that having tasted bitter of their own accord, they may hope for preservation from misfortune during the year. It is not eaten, but is used medicinally in the same way that *Citrullus amarus* is used in Sind." (Dymock, 'Materia Medica of Western India.') See also 'Pharm. Indica,' part 3, p. 65.

A bitter principle, melonemetin, and a glucoside, prophetin, have been found in some species of *Cucumis*. See Sohn, p. 46.

New South Wales, Queensland, Northern and Western Australia.

Lagenaria vulgaris, Seringe.—"Bottle Gourd."

This plant, so plentiful along the tropical coast of Queensland, is said to be a dangerous poison. It is said that some sailors were killed by drinking beer that had been standing for some time in a bottle formed of one of these fruits. (F. M. Bailey.)

According to Capt. P. P. King ('Narrative of a Survey,' etc., 1, 203) each native of the Endeavour River had one of these gourds, in which he carried water.

See also 'Pharm. Indica,' part 3, p. 67.

Queensland.

Luffa ægyptiaca, Mill., var. *peramara*, Bailey, in 3rd 'Suppt. Qd. Flora.'

Upon tasting the fruit there is experienced an intensely bitter sensation, which in a few minutes disappears, but leaves a distressing acridity in the throat, which is not at its worst until several hours afterwards. An extract is very poisonous, and contains two principles, a bitter substance and a saponin. Dr. T. L. Bancroft ('Proc. Linn. Soc., N.S.W.' [2], 4, 1062). It is used on the Mitchell River to poison fish when green, according to Mr. E. Palmer.

Northern Queensland.

FICOIDEÆ.

Mesembryanthemum æquilaterale, Haw.—"Pig's Face."

Many species, and especially *M. acinaciforme*, Linn., from which this species scarcely differs, are used in South Africa. There the expressed juice of the succulent leaves taken internally checks dysentery, and acts as a mild diuretic, while it is also, for its antiseptic property, used as an excellent gargle in malignant sore throat, violent salivation, and aphthæ, or in the form of a lotion in burns and scalds. (Bailey, in 'Syn. Qd. Flora.')

Near the coast in all the colonies.

UMBELLIFERÆ.

Hydrocotyle asiatica, Linn.

In anæsthetic leprosy good results have followed the use of this

herb, but it possesses no claim to the character of a specific attributed to it by some. It has been found more useful in secondary or constitutional syphilis, especially in those cases where the skin and subjacent cellular tissue are principally affected. In non-specific ulcerations, and in skin diseases, it is of value, both as an internal and as a local remedy. ('Pharm. of India.')

Credited locally as valuable when applied to wounds or sores in the form of a salve or poultice. (G. M. McKeown, Wollongbar.) See 'Agric. Gazette' for May, 1894, p. 306.

Lepine ('Journ. Pharm.' [3], 23, 47) has found in this plant a yellow, oily, neutral, bitter principle, to which he has given the name of vellarin.

In all the colonies.

Trachymene incisa, Benth.—"Wild Parsnip."

In the 'Gazette' for October, 1894, is an article on this plant, which had been accused of poisoning stock. In that article, and also 'Gazette' for January, 1897, p. 14, I suggest an examination of the Australian species of *Trachymene* (*Didiscus* of some authors).

In all the colonies.

Panax.

The most celebrated remedy of the Chinese is ginseng, the root of *Panax ginseng*, which is purchased at prices which seem extraordinary to our ears, especially when it is considered that it contains no active principle of importance. Not that, by the way, considering the faith our own people put in secret remedies and quack medicines, we can afford to smile at the Chinese in the matter. The Americans also have a species of ginseng (*P. quinquefolium*), and the root of this plant is exported in large quantities to China. It is also systematically cultivated to supply the demand. Between 1883 and 1893 the trade in American ginseng amounted to between 600,000 and 1,000,000 dollars annually. The species of ginseng used are small plants, usually below 30 inches in height. We have several species of *Panax* in the Coast district larger than these (though whether the size of the species affects the quality of the ginseng I do not know). But I do think the matter is worthy of attention by residents of the Coast districts in which species of *Panax* abundantly grow, and if selected roots are sent to me I will engage to procure the opinion of Chinese merchants upon them. A second edition of an admirable brochure on American ginseng has recently been published by the Department of Agriculture of the United States.*

Garrigues ('Ann. Chem. Pharm.,' 90, 231) has found a bitter principle, to which he has given the name of panaquilon, in American ginseng, and at the outset it should be looked for in our Australian species of *Panax*.

LORANTHACEÆ.

Loranthus quandang, Lindl—"A Mistletoe."

The leaves are bruised in water and drunk for fevers by Queensland aborigines.

In all the colonies except Tasmania.

RUBIACEÆ.

Morinda citrifolia, Linn.—"Indian Mulberry."

The Cochin-Chinese place this amongst their medicinal plants, believing the fruit to be deobstruent and emmenagogue. In Bombay the leaves are used as a healing application to wounds and ulcers, and are administered internally as a tonic and febrifuge. (Dymock.)

Psychotria.

In Pereira's 'Materia Medica and Therapeutics' it is stated that the roots of *P. emetica*, Mutis, form the striated ipecacuanha of commerce. He states that it contains emetia, and that in its medicinal qualities it resembles the true ipecacuanha, but it is less powerful. We have several species of *Psychotria* in Queensland, of which two also occur in New South Wales, *P. loniceroides*, Sieb., being specially abundant. It is desirable that it be ascertained whether the roots of any of these plants contain the active principle of ipecacuanha.

Sarcocephalus cordatus, Miq.

It has a bitter bark, long known to bushmen, and used by them occasionally in the form of an infusion for ague, in default of quinine, but with no good results, as far as I could ascertain. Extract of the bark, which is very bitter, had apparently no effect on frogs. Tincture of the bark is somewhat fluorescent; I used it medicinally in cases where simple bitters were indicated; it appeared to be as useful as calumba. Some commercial use, such as a bitter for beer, might be made of this bark, which could be obtained in any quantity; when dry it is extremely light, and is apparently free from tannin. It is physiologically almost inert (Dr. T. L. Bancroft, 'Pharm. of Some Queensland Plants,' 1889, p. 2).

Mr. N. Holtze points out that the wood is also very bitter, and would make excellent "bitter-cups."

Queensland and Northern Australia.

COMPOSITÆ.

Walz ('N. Jahrb. Pharm.,' 13, 176) has found a bitter principle, called by him "crepin," in *Crepis fœtida*. It might be looked for in our *Crepis japonica*.

Cymbonotus lawsonianus, Gaud.

In the southern parts of New South Wales the country people prepare a salve, used for wounds, etc., by extracting the medicinal properties (if it possesses any) of this plant by means of melted lard. Alternate layers of lard and leaves are made, the mass is allowed to cool slowly, and afterwards the lard is run out and is ready for use. Some country folk are loud in their praises of its quick healing effects. Mr. Bäuerlen tells me they copied this use of the plant from the Chinese. Recently I have received it from New England, where also it is believed to contain healing properties. Although this humble plant is found in all the colonies, it does not extend to China, so the Chinese probably first used it in an empirical manner.

All the colonies.

Elephantopus scaber, Linn.

The leaves of this plant are used in Travancore, boiled and mixed with rice, for pains in the stomach, and swellings in the body. ('Treasury of Botany.')

Queensland and Northern Australia.

Gnaphalium luteo-album, Linn.—Native name, "Kai-kai."

Used medicinally for general sickness, as a drink, by Queensland natives. (E. Palmer.)

In all the colonies.

Myriogyne minuta, Less. Syn. *Centipeda orbicularis*, Lour.; *C. cunninghamii*, F. v. M.—"Sneezeweed."

The following letter from the Rev. Dr. Woolls (then of Richmond) appeared in the 'Sydney Morning Herald' on Christmas Day, 1886:—

"Some weeks since, the Rev. S. G. Fielding, of Wellington, called my attention to a weed (known to botanists as *Myriogyne minuta*), which he stated had been used with success in case of blight. Being anxious to test the efficacy of the remedy, and to ascertain whether any bad effects would arise from its application, I placed some of it in the hands of Dr. Jockel, of this town, who has furnished me with the following remarks:—'I have much pleasure in testifying to the efficacy, in cases of ophthalmia, of the plant which you so kindly sent me. A case came under my notice

* 'American Ginseng: Its Commercial History, Protection, and Cultivation.' G. V. Nash and M. G. Kains. Bulletin No. 16. Division of Botany.

a few days ago of a drover who was suffering from a severe form of purulent ophthalmia, contracted up the country. I had an infusion of the plant according to directions, and the first local application seemed to have almost a magical effect. The man expressed himself as relieved at once of the intense smarting which he had previously suffered. He had got on so well that in two days he was able to start back up country again, and could hardly express his gratitude for the very great relief afforded.—Louis C. Jockel.'

"I find, from a communication of Baron Mueller, that for some time past he has had an idea that *Myriogyne* might be utilised for medicinal purposes, and that he had actually submitted it to Dr. Springthorp, an eminent physician in Melbourne, for the purpose of experiment. The Baron, however, was not aware of its efficacy in simple ophthalmic inflammation, and he regarded the discovery as interesting. I mention this as a matter of justice to Dr. Jockel, who, I believe, is the first medical man in Australia who has proved the value of *Myriogyne* in a case of ophthalmia. This weed, growing as it does on the banks of rivers and creeks, and in moist places, is common to all the Australian colonies and Tasmania, and it may be regarded as almost co-extensive with the disease it is designed to relieve. It is described in the 'Flora Australiensis,' 3, p. 553, and figured amongst Baron Mueller's plants of Victoria. In the document relating to the Intercolonial Exhibition, 1866-67, it is noticed as remarkable for its sternutatory properties, and recommended for the manufacture of snuff; and I find that Endlicher, in alluding to the species of the genus of *Myriogyne*, characterises them as *herbæ ramosissimæ acres sternutatoriæ* ('Genera Plantarum,' p. 440)"

I find this use of the plant as a cure for sandy blight is fairly well known in the Colony; how long it has been known I cannot say. It was packed in tins by one enterprising firm and sold as "Magic Ophthalmia Cure," with what business results I do not know. It can be said of this remedy that if its effects are not beneficial in any particular case, they can scarcely be injurious.

The Rev. Mr. Hartmann says (Brough Smyth's 'Aborigines of Victoria,' 2, 173) that this plant is used as medicine by the aborigines of Lake Hindmarsh, but he does not say for what complaint.

It is also found in India, Madagascar, and Japan. The natives of India consider it a hot and dry medicine, useful in paralysis, pains in joints, and special diseases; also as a vermifuge. ('Cyclop. of India.')

In all the colonies.

Pterocaulon glandulosus, Benth. and Hook., f.

Used for medicine in fevers by Queensland natives. (E. Palmer.)

Queensland and Northern Australia.

Senecio.

An extract is prepared from the plant and roots of the European *Senecio vulgaris* (common groundsel), which is used medicinally in some ailments peculiar to women. See Dalché and Heim ('Nouv. Remèdes,' 1896, pp. 409 and 697), 'Therap. Monatshefte,' 1897, p. 275; also Merck's 'Ann. Report,' 1897, p. 65.

Our native species of *Senecio* are numerous and widely diffused; here is a suggested line of research for some of our medical practitioners.

Vernonia.

See 'Pharm. Indica' (part 3), 241 and 243.

Heckel and Schlagdenhauffen have found an amorphous white glucoside (called by them vernonia) in *V. nigritiana*, from West Africa. See Sohn, p. 103. It might be looked for in our Australian species of this genus.

FORMULÆ, METHODS, AND REACTIONS.

KNOWN BY THE NAMES OF THEIR AUTHORS.

(Supplementary List).*

Kolisch (Kreatinin).—The precipitant consists of mercuric chloride, 30; sodium acetate, 1; in absolute alcohol, 125 Gm.; to which 3 drops of acetic acid are added.

Kopp (Nitric Acid) is a solution of diphenylamine sulphate; it is prepared by the addition of a little concentrated sulphuric acid to a few crystals of diphenylamine and then a little water; finally the solution is diluted with more concentrated sulphuric acid; 0·55 Gm. of the reagent are put on a watch glass, and a drop of the fluid to be examined is allowed to fall in the middle, the presence of nitric acid is indicated by the appearance of a blue circle; numerous other bodies, such as sulphurous acid, hypochlorites, ferrous salts, give a similar colour. Diphenylamine sulphate solution is also known as Pollet's reagent.

Kossel (Hypoxanthine).—The solution to be examined is treated with zinc and hydrochloric acid, then made alkaline; the presence of hypoxanthine is indicated by a ruby red colour, changing to brown.

Krasser (Albumin).—Alcoholic solution of alloxan gives a bright red colour with albumin.

Kubli (Carbon Dioxide Test for Quinine).—Quinine is precipitated from a saturated solution by means of sodium carbonate. The precipitate is dissolved on the addition of sodium bicarbonate. Carbonic acid gas is then introduced, and quinine carbonate precipitated. Carefully conducted, the result gives an indication of the purity of the quinine salt under examination.

Kubli (Water Test for Quinine).—This test is based on the solubility of hydrated quinine, obtained by precipitating the alkaloid with soda and observing the amount of water necessary to dissolve the alkaloid thus liberated. The associated cinchona alkaloids are less soluble in water than quinine, consequently in their presence a larger amount of that solvent is required to produce a solution.

Kuehne (Stain for Typhoid and Cholera Bacillus).—A cold saturated solution of methylene blue is mixed with one per cent. solution of ammonium carbonate. Preparations are immersed in the stain for five or ten minutes, then well washed and placed in 1 per cent. solution of hydrochloric acid.

Kunz-Krause (Glycotannoids). — Those glucosidal tannins which are derivatives of oxycinnamic acids are rapidly decomposed in the cold after a few days with the formation of a considerable amount of prussic acid, on being treated with Liebemann's reagent. (A solution of potassium nitrate, 6 Gm., in concentrated sulphuric acid, 100 Gm.)

Lagrange (Glucose). — This is a modification of Fehling's solution, containing neutral copper tartrate (? acetate), 10 Gm., and sodium hydrate, 40 (? 400) Gm., dissolved in water, 500 C.c. It gives a red precipitate with glucose.

Laillier (Olive Oil).—Characteristic colour reactions are produced on shaking 1 volume of aqueous chromic acid solution (1 in 4) with 4 volumes of oil. Or, the simple chromic acid solution may be replaced by a mixture of chromic acid, 9, water, 30, and nitric acid (s. g. 1·185), 80.

Landerer (Strychnine).—A violet colour is produced on heating gently with iodic acid or an iodate and sulphuric acid.

Landott (Paraffin in Beeswax).—Strong sulphuric acid attacks beeswax at once, but only very slowly affects paraffin.

Lang (Taurine).—Taurine gives a white precipitate when a solution is mixed with freshly precipitated mercuric oxide.

* After Wilder, Schneider, Altschul, etc. Continued from last vol., p. 553.

Langbeck (Indicator).—Nitrophenol is colourless in very dilute acid and neutral solutions, but alkalies turn it yellow.

Laronde (Iodine).—On treatment with petroleum and nitric acid, the former is coloured violet by the iodine.

Lasaulx (Iron).—Particles of metallic iron separated from a powdered substance with a magnet, and treated with tungstic acid solution, are seen under the microscope to have blue margins. Organic matter must be absent, as well as zinc and copper.

Lassaigne (Flour).—Mineral substances in flour are detected by shaking with chloroform and examining the sediment.

Lassaigne (Gum Arabic).—A transparent, gelatinous, yellow precipitate is thrown down on adding solution of ferric sulphate.

Lassaigne (Iodine).—(1) Solution of palladium nitrate or chloride gives a brown or blackish colour. (2) On treatment with chlorine water, iodine colours starch paper blue.

Lauth (Paratoluidine).—On adding nitric acid to a solution of paratoluidine in sulphuric acid, the colour changes from blue to violet, then to red and brown.

Lauth (Sulphuretted Hydrogen).—Paraphenylene-diamine in slightly acid solutions gives, on the addition of ferric chloride, a violet colour in the presence of sulphuretted hydrogen. If a few grains of para-amido-dimethylaniline sulphate are substituted for the paraphenylene-diamine a reaction due to methylene blue is it obtained. (Caro Fischer's reaction.)

Lea, Carey (Hyposulphites).—See Carey Lea.

Lebbin (Formaldehyde).—Solutions containing formaldehyde are heated to boiling for thirty seconds, with a solution of resorcine in sodium hydrate. Formaldehyde gives a reddish tint, but the presence of albuminoids interferes with the reaction; chloroform produces a similar colour.

Leers (Quinine).—A green colour is produced on shaking quinine in fine powder with ether, then adding chlorine water and ammonia.

Leewenthal-Lenssen (Hydrochloric Acid).—In the presence of a protochloride, free hydrochloric acid gives off chlorine on treatment with lead peroxide.

Leffmann (Urine).—Drinking water containing urine is coloured brown with silver nitrate solution.

Lefort (Morphine).—A yellow to yellowish-brown colour is produced on adding iodic acid solution and then ammonia.

Lefort (Strychnine).—A violet colour is produced with sulphuric acid and potassium bichromate.

Legal (Acetone).—The red colour produced on adding sodium nitroprusside solution turns green on adding potash.

Lenz (Alkaloids).—Certain alkaloids give characteristic colour reactions when heated to redness with caustic potash, containing so much water that it is solid at ordinary temperature, but melts when heated on the water bath. Quinine and quinidine give a green coloration. Cinchonine and cinchonidine a greenish blue, cocaine a greenish yellow.

Leonhardi (Alcohol in Essential Oils).—Fuchsine dissolves in alcohol, but not in the pure oils.

Lepage (Alkaloids).—A white or yellowish precipitate is thrown down by a solution of cadmium iodide, 10, and potassium iodide, 20, in water, 60 to 80.

Lepage (Potassium Iodide).—Test the purity of potassium iodide by dissolving in 30 per cent. alcohol and examining the residue, if any.

Lepel (Magnesium Salts).—The violet colour of a solution of alkaninin in a mixture of alcohol, 2, and ether, 1, is changed to blue.

Letheby (Aniline).—1. A blue to purple colour with sulphuric acid and lead or manganese peroxide. 2. A blue to purple colour with sulphuric acid and potassium ferricyanide. 3. A bronze-blue to pink colour on adding diluted sulphuric acid, placing two drops on platinum foil and passing a current from a Grove's battery.

Letheby (Arsenic).—Cause the evolution of arseniuretted hydrogen and pass it into silver nitrate solution, which is coloured brown to black.

Leube (Quinine).—A red colour is produced with chlorine water, potassium ferrocyanide and ammonia.

Leuchs (Water in Essential Oils).—On shaking with petroleum spirit, milkiness will be produced.

Lex (Ammonia).—A green colour is produced on adding phenol and a few drops of solution of chlorinated lime, and changes to blue on warming.

Lidoff (Textile Fabrics).—Silk is readily soluble in powdered oxalic acid (on melting). Cellulose is less soluble and wool fibre insoluble.

Lieben (Alcohol).—Iodoform is produced on adding a crystal of iodine and just sufficient potash to make a clear solution.

Liebermann (Albuminoids).—When treated with fuming hydrochloric acid, albuminoids gives a bluish-violet colour.

Liebermann (Phenol)—Is a solution of potassium nitrite in concentrated sulphuric acid.

Liebermann (Sulphurous Acid in Wine).—(1) Reduce to sulphuretted hydrogen with sodium amalgam and hydrochloric acid; (2) distil and shake the distillate with a few drops of iodic acid solution and a little chloroform. The latter is coloured violet.

Liebermann (Textile Fabrics).—The fibres are dyed for half an hour in fuchsin solution, then washed out to a slight yellow colour with caustic soda solution, and subsequently washed with water. Silk is coloured dark red, wool light red, flax pink, while cotton remains colourless.

Liebig (Aldehyde).—A mirror is formed on adding ammoniacal solution of silver nitrate.

Liebig (Coniine).—A purplish-red to blue colour is produced on passing dry chlorine gas over coniine.

Liebig (Determination of Cyanides).—Titrate in a slightly alkaline solution with decinormal silver nitrate solution until a permanent opalescent precipitate occurs. 1 C.c. of decinormal silver nitrate = 0·0054 Gm. of hydrocyanic acid.

Lightfoot (Tarry Matter in Acetic Acid).—On neutralising with sodium or potassium carbonate and adding a few drops of potassium permanganate solution, the pink colour is discharged in a few minutes.

Lindo (Elaterin).—A crimson to scarlet colour is produced on adding 1 or 2 drops of phenol and then 2 or 3 drops of sulphuric acid.

Lindo (Glucose).—A yellow colour which changes to an intense blue is produced on adding a solution in soda or potash of the yellow substance obtained by the action of nitric acid on brucine.

Lindo (Morphine).—An emerald green colour is produced with ammonio-cupric sulphate solution, prepared by dissolving copper sulphate, 1, in water, 10, and adding sufficient ammonia to make a clear solution.

Lindo (Nitric Acid).—A deep-brown to red colour is produced on adding 8 or 10 drops of phenol mixed with 30 drops of a cooled mixture of sulphuric acid, 2, and water, 1.

Lindo (Phenol).—See Lindo's test for nitric acid.

Lindo (Santonin).—On dissolving in sulphuric acid, without heating, and adding a very dilute solution of ferric chloride in

small successive quantities, a red to purple or violet colour appears after agitating.

Lipowitz (OLIVE OIL).—The purity of the oil is estimated by noting the colour, degree of emulsification, etc., on rubbing it with one-eighth its weight of chlorinated lime.

Lloyd (WATER IN SPT. ÆTH. NIT.).—Milkiness is produced on shaking with chloroform or (? and) castor oil.

Loeffler (FLAGELLA STAIN).—Gallic acid solution 1 in 4, 10 C.c. cold saturated of ferrous sulphate, 5 C.c., and alcoholic fuchsine solution, 1 C.c. Fischer's modification of this consists of tannin solution 1 in 10, 20 C.c.; ferrous sulphate solution 1 in 2, 4 C.c.; and alcoholic solution of fuchsin, 1 C.c. The sections are macerated in this in the warm, washed in water, then stained with concentrated aqueous solution of fuchsin.

Loewe (GLUCOSE).—(1) Dissolve by the aid of heat hydrated copper oxide, 15·305 Gm. (= crystallised copper sulphate, 40 Gm.) in glycerin, 30 Gm., sodium hydroxide solution (s. g. 1·34), 80 C.c., and water, 160 C.c. Dilute the solution to 1155 C.c., and 10 C.c. will then = 0·05 Gm. of anhydrous glucose. (2) To a solution of copper sulphate, 16 Gm., in water, 64 Gm., add gradually (so as to avoid heating) sodium hydroxide solution, 80 C.c., and glycerin, 6 to 8 Gm. (3) Hydrated copper oxide, 6; glycerin, 6 to 8; water, 50; sodium hydroxide solution, 56.

Longi (NITRIC ACID).—An aqueous solution of paratoluidine sulphate gives with a solution containing nitric acid on the addition of an equal volume of concentrated sulphuric acid, a red zone, which later changes to yellow. In the presence of chlorates, bromates, iodates, chromates and permanganates, a blue colour is produced. Nitrous acid gives a yellow reaction afterwards changing into red.

Loubian (INDICAN) is a modification of Hammarsten's reaction, in which hydrogen peroxide is substituted for calcium hypochlorite to convert indican into indigo. Two C.c. of urine are mixed with an equal volume of chloroform and 1 C.c. of 5 to 10 p. c. solution of hydrogen peroxide. Concentrated hydrochloric acid, 2 C.c., are then added, and the mixture warmed and well shaken; the presence of indican is shown by the deep blue colour of the chloroform layer.

Luck (CARBON BISULPHIDE IN MUSTARD OIL).—Distil the oil in a water-bath and add to the distillate alcoholic potash solution, a slight excess of acetic acid, and copper sulphate solution. A lemon-yellow precipitate indicates the presence of carbon bisulphide.

Luck (INDICATOR).—Phenolphthalein solution is colourless with acids, but becomes purplish-red with alkalies.

Ludwig (MERCURY).—Organic substances suspected to contain mercury should be mixed with zinc dust or finely-divided copper and the mercury distilled off.

Luff (URIC ACID IN BLOOD).—Fresh blood is allowed to flow direct into its own volume of rectified spirit, with which it is thoroughly agitated; the mixture is then evaporated on the water-bath until the mass can be reduced to a coarse powder, which is dried in the water-oven and afterwards finely powdered. The admixture of the blood with the spirit precipitates the albuminous matters in a granular form, so that when dried the blood can be reduced with ease to a fine powder. One part of the dried blood is taken as being equal to five parts of liquid blood. For the extraction and estimation of uric acid in blood from 50 to 100 Gm. of the powdered blood should, if possible, be taken. The extraction is effected by adding 100 Gm. of the powdered blood to 1 litre of boiling distilled water, and allowing the mixture to boil for half-an-hour, during which time it is frequently agitated. It is then filtered, first through glass-wool and afterwards through filter-paper, and evaporated down to 50 C.c.; this liquid is filtered, allowed to cool, and then submitted to the Gowland Hopkins process for the determination of uric acid. See the *Journal of Pathology and Bacteriology*, 1893, 1., p. 451.

Lunge (BICARBONATES IN CARBONATES).—To a weighed quantity of solid bicarbonate add an excess of semi-normal ammonia, followed by excess of baric chloride. The whole is made up to a known volume and a definite portion filtered through a dry filter. This is then titrated with normal acid. The alkalinity indicated represents the amount of carbon dioxide existing as bicarbonate in the quantity of liquid taken.

Lunge (INDICATORS).—(1) Tropæolin or methyl-orange is changed from yellow to crimson by mineral acids, but it is indifferent to carbon dioxide and sulphuretted hydrogen. (2) Phenacetolin, obtained by heating for several hours 1 equivalent each of carbolic, sulphuric, and glacial acetic acids, is turned from brown to red by alkalies.

Lux (INDICATOR).—The colourless alcoholic solution of flavescin, an extract from half-charred oak-wood, is turned yellow by alkalies.

REVIEWS AND NOTICES OF BOOKS.

KING'S AMERICAN DISPENSATORY. By HARVEY WICKS FELTER, M.D., and JOHN URI LLOYD, Phr.M., Ph.D. Eighteenth edition, third revision, in two volumes. Vol. I. Pp. 950. Price $4.50. Cincinnati: The Ohio Valley Company. (London: Potter and Clarke.)

No more convincing proof can be required of the high estimation in which King's 'American Dispensatory' is held than the fact that it has now reached the third revision of the eighteenth edition. Indeed, it may be doubted whether the term "revision" is correctly applied to the task that Dr. Felter and Dr. Lloyd have performed, since the latter remarks in the Preface that the "pharmacy and chemistry of the book could not be revised but must be re-written."

A work of this nature must, as Dr. Felter remarks, be largely a compilation. A dispensatory is not intended to voice the author's opinion and experience only, but, whilst alluding to the principal investigations of the past, to clearly show to what point the work has been carried, to reflect, that is, the present state of our knowledge of each subject dealt with in the work.

The labour of revising the first volume of the dispensatory may be gauged partly by the size of the volume, which includes over 900 pages of closely-printed matter, and partly by the variety of subjects dealt with. These include the botany, chemistry, pharmacognosy, pharmacy, physiology, and therapeutics of the drugs considered. From the preface the reader learns that Dr. Lloyd is responsible for pharmacy and chemistry, whilst Dr. Felter has revised the botany, botanical history, and botanical descriptions in addition to the entire medical section.

The revision of the chemical section of the work has, on the whole, been fairly well accomplished. The description of each preparation includes its formula, synonyms, history and source, preparation, description and tests, action, medical usage and dosage, specific indications and uses. The United States Pharmacopœia, the National Formulary, and the British Pharmacopœia are largely quoted, and it is unfortunate that the new edition of the last-named work was not published sufficiently early to be available. There are, however, many statements that exhibit an inaccuracy in the facts that should certainly be corrected in a subsequent revision. Thus, hydrocyanic acid is said to be found "in the seeds, barks, leaves, and flowers (of the suborders Amygdaleæ and Pomeæ) existing uncombined largely in the fluid portions of the plant. It is this acid which gives to

almonds and to peach seeds and leaves their pleasant and characteristic flavour." It may well be doubted, too, whether the process for preparing hydrochloride of cocaine, which was contained in the British Pharmacopœia, is ever used, and amongst the tests for its purity one would have expected to find Maclagan's, which is now generally used.

The pharmacy of the work has also been revised in a commendable manner, although this section bears evidence of having been done under a pressure not consistent with the production of work of the highest class. The article on "emulsions," for example, consists practically of a reprint of the corresponding article and formulæ of the National Formulary, and in such a work as the Dispensatory might well have been extended so as to enter somewhat more into detail, and to consider the subject at rather more length. This objection applies less to the article on extracts, although here, too, quotations from the United States Pharmacopœia and National Formulary figure largely.

The medical section, which is by far the largest, appears to have been very carefully done, the action and uses of the drugs being detailed at great length. The review of this portion of the Dispensatory must, however, be left in the hands of a competent medical authority.

The part of the work that appears to be least satisfactory is the pharmacognosy, which shows evidence of having received very unequal attention. The article on ergot, for example, extending over eleven pages, presents a lucid and concise but at the same time comprehensive review of the subject, including the researches of Jacoby in 1895 and 1897. The details of the process of assay and the results of the assays that have been made by Keller, Beckurts, and others, which are both interesting and important, might perhaps have been with advantage added. With this article that on belladonna, which is quoted largely from Dr. F. B. Filmer, compares very unfavourably; in the latter there are inaccuracies in the statements, and a looseness of expression that reflects little credit on their author. Stramonium leaves are said to be distinguished by the hairs, which are shorter, with a many-celled apex, by the numerous cells containing a large single crystal of calcium oxalate, and the lamina which does not taper into a petiole, all of which statements are incorrect, whereas the odour, venation, and outline, all of which are distinctive characters, are not mentioned. As examples of an unhappy diction, not confined, unfortunately, to the article under consideration, the following may be cited:—"Scopolia is a rhizome and resembles the genus Atropa in containing peculiar crystal-like contents, but they are less prominent. . . . Belladonna scopolia is also a rhizome, and, like Japanese belladonna, may be distinguished from true belladonna, which is a root. Where a preparation claims to represent the Pharmacopœia, which explicitly calls for true belladonna, this drug should not be used." (!) Nor is the following description of the transverse section of belladonna to be commended either for accuracy or clearness:—"At the periphery of the fundamental tissue of the pith are yellowish vascular bundles scattered apparently indiscriminately. These finally disappear beyond the cambium." The illustrations also in this section should have been referred to their true source (Professor Vogl's 'Anatomical Atlas') and not credited to Dr. Filmer. Considering also the attention that has lately been paid to the assay of potent drugs and to the large amount of work that has been done in this drug in particular, one might well have expected something more than the apparently casual statement that 0·82 per cent. of alkaloid has been found in the root. A similar neglect is conspicuous in the article on hemlock, in which the valuable investigations of Wright and Farr, that must have been easy of access, have been totally ignored, and the only statement as to the percentage of alkaloid present is that Wertheimer (1856) found 0·2 per cent. in the fresh seeds. The recent investigations on balsam of Peru, balsam of tolu, asafetida, ammoniacum, etc., also remain unnoticed.

It would seem that the labour of revising so comprehensive a work as the Dispensatory has made a demand upon the time of the revisers greater than could be complied with, and the question remains whether, in the event of another revision being required that labour should not be undertaken by a larger number of experts, in order that all sections of the work may receive sufficient critical revision.

PHARMACEUTICAL SOCIETY.

SCHOOL OF PHARMACY EXAMINATIONS.

SESSION 1898-99.—ELEMENTARY COURSE.

PRACTICAL CHEMISTRY.

PROFESSOR J. NORMAN COLLIE.

Friday, June 23—From 11 a.m. to 1 p.m.

1. The chloride of sodium in box A is supposed to be impure; detect the impurity.
2. The solution given you contains two substances. Find out what they are.

PRACTICAL CHEMISTRY.

PROFESSOR J. NORMAN COLLIE.

Friday, June 23—From 2 p.m. to 5 p.m.

The solution of sodium carbonate you are given was made in the following manner:

25 grammes of a solution of sodium carbonate of specific gravity 1·11 (at 15° C. was diluted to one litre.

1. Calculate its strength in grammes per litre.
2. Determine the strength of the oxalic acid solution that you are supplied with.
3. Determine also the strength of the permanganate of potassium solution that you are supplied with.

Data.—Na=23 C=12 O=16 K=39 Mn=55.

Amount of sodium carbonate in a solution of known specific gravity (at 15° C).

Sp. Gr.	per cent. Na_2CO_3
1·100	contains 9·43.
1·108	contains 10·19.
1·116	contains 10·95.

CHEMISTRY.

PROFESSOR J. NORMAN COLLIE.

Saturday, June 24—From 10 a.m. to 1 p.m.

1. How would you prepare pure calomel from metallic mercury, pure sodium chloride from sea salt, chloral hydrate from alcohol; and what are the usual impurities in commercial iodide of potassium, subnitrate of bismuth, and oxalic acid?
2. Compare the points of similarity and difference in the simpler compounds of sulphur and chromium.
3. Give examples explaining the terms: Allotropy, Isomorphism, Molecule, Diffusion of Gases, and Dialysis.
4. Why is it that the molecular weight of any gas is twice the density of that gas (compared with hydrogen)?
5. Describe in detail the method you would employ to obtain a specimen of pure alcohol from grape sugar.
6. Calculate the pressure of the atmosphere in lbs. per square inch at the bottom of a mine where the mercury stands at 40 inches.
7. Describe Nicholson's Hydrometer, and explain with the help of a numerical example how it may be used to determine the specific gravity of a liquid.

MATERIA MEDICA.

PROFESSOR HENRY G. GREENISH.

Monday, June 26—From 10 a.m. to 1 p.m.

1. From your experience in identifying leaves indicate the characters to which particular attention should be paid in examining and describing leaves. Illustrate your answer by instances taken from official leaves.
2. What is myrrh? How is it obtained, and what are its chief constituents? Give the botanical and geographical source. By what means would you seek to distinguish the genuine drug from any other that might be substituted for it?
3. Write a short account of musk.

4. (*a*) Compare alder buckthorn bark with cascara sagrada, both as regards their physical characters and chemical constituents.
(*b*) Compare similarly Vera Cruz jalap with Tampico jalap.

PHARMACY.

PROFESSOR GREENISH.

Monday, June 26—From 2 to 5 p.m.

1. Suggest a process for the preparation of a liquid extract from each of the following drugs:—
(*a*) Rhizome of *Agropyron repens*,
(*b*) Leaf of *Piper angustifolium*,
(*c*) Guarana.
In each case give the reasons upon which your suggestion is based.

2 (*a*) Describe the processes of ordinary, fractional, and destructive distillations, alluding particularly to the differences between them.

(*b*) What is the most suitable temperature for drying fresh henbane leaves? Adduce evidence in support of your answer.

3. The following is a basis suitable for making the official lamellæ:—

Transparent Gelatin	180 grains.
Glycerin	15 minims.
Distilled Water	2 ounces.

Describe exactly how you would proceed to make 100 lamellæ of cocaine hydrochloride, each of which shall weigh about 1/20th gr. and contain 1/75th gr. of cocaine hydrochloride.

4. Describe the official processes for making
(*a*) Unguentum Zinci Oleatis,
(*b*) Extractum Pareiræ Liquidum,
(*c*) Tinctura Pruni Virginianæ.
Explain the various steps in each process.

NORTH BRITISH BRANCH.

A meeting of the Executive of the North British Branch was held in the Society's House, 36, York Place, Edinburgh, on Friday, June 23, at 11.30 a.m., Mr. J. LAIDLAW EWING in the chair. Messrs. Boa, Bowman, Burley, Cowie, Currie, Ewing, Fisher, Gilmour, Henry, Kerr, McAdam, McLaren, Russell, Strachan, and Tocher were also present.

ELECTION OF CHAIRMAN.

Mr. MCADAM moved that Mr. Peter Boa, Edinburgh, be elected Chairman for the ensuing year, and the motion having been seconded by Mr. BOWMAN, and unanimously agreed to,

Mr. BOA took the chair. He said he felt very much honoured by the confidence they had shown in him. While he highly appreciated this mark of confidence, he must also say the position was not one he at all coveted. He should very much have liked if an arrangement could have been made for placing Mr. Currie in the chair, but that appeared to be impracticable. He hoped they would be able to carry on the business with efficiency and good fellowship among themselves.

Mr. CURRIE, Vice-Chairman, said he desired at this stage to propose a very special vote of thanks to the retiring Chairman, Mr. Ewing. During the eight years he had been their Chairman, the work had gone on very smoothly, and a great deal of work had been done. It was due to his untiring efforts and the able way in which he represented their case in London that they had been enabled successfully to complete the commodious and well-equipped premises they now occupied in Edinburgh. In all the other work of the branch Mr. Ewing had shown great devotion and had spent a great deal of time, and for these services he deserved the best thanks of every member of the Executive. He would express the confident hope that so long as he occupied a seat on the Executive he would place his services and his experience at the disposal of the Society.

Mr. EWING thanked Mr. Currie very heartily for the kind way in which he had spoken of him, and the Executive for the hearty reception they had given to his suggestion. Eight years was a long time to be in such a position as he had occupied, and he began to feel that a change should take place. He could only say that during these years he had had great pleasure in the work, and it was chiefly owing to the support he had received from past and present members of the Executive that he had been able to accomplish anything. A good deal had been done to the Society's House, and he had pleasure in handing it over to his successor in excellent condition. He would have very great pleasure at all times in doing his best in the interests of the Pharmaceutical Society and the Executive. He could not have done so much if it had not been for the support he received from the Assistant-Secretary, Mr. Hill. He had been at all times willing to give him that aid which his great knowledge of pharmaceutical affairs in Scotland enabled him to do, and he placed them at his service, and he found them invaluable.

ELECTION OF VICE-CHAIRMAN.

Mr. MCLAREN moved that Mr. Robert McAdam, Glasgow, be elected Vice-Chairman for the ensuing year. They had a large constituency in Glasgow, and Mr. Currie, who was near Mr. McAdam, would doubtless give the assistance of his experience in carrying on the work.

Mr. CURRIE, in seconding the motion, said that during the four years he had held office as Vice-Chairman he had seen a good deal of the internal working of the Executive, and it had always been very delightful to him. He would vacate the vice-chair with great pleasure in favour of Mr. McAdam.

Mr. MCADAM accepted, and, having taken the vice-chair, said he could not promise to do the social part of the work so successfully as Mr. Currie had done.

Mr. KERR, Dundee, moved a vote of thanks to Mr. Currie for the able manner in which he had performed the duties of Vice-Chairman. The motion was seconded by Mr. C. F. HENRY, and cordially agreed to, after which Mr. CURRIE expressed his thanks.

WELCOME TO NEW MEMBERS.

The CHAIRMAN then formally welcomed the new members of Executive—Messrs. Burley and Cowie, Edinburgh; Gilmour, Dunfermline; and Tocher, Dumfries—who thanked the Executive for the welcome accorded to them.

APPOINTMENT OF COMMITTEES.

The CHAIRMAN intimated that the next business was the appointment of the General Purposes Committee.

Mr. RUSSELL here raised a question on a point of procedure. He asked who was responsible for the billet of the meeting, and having been informed that it was the retiring Chairman, he pointed out that the Chairman's position terminated at the expiry of the year.

The ASSISTANT-SECRETARY, however, said the Chairman of the Executive held office till his successor was appointed, and

Mr. EWING said the Assistant-Secretary could himself call an Executive meeting at any time that might be desired.

Mr. RUSSELL asked if it was the Council which was to conduct the affairs of the Executive or was the Executive to conduct its own affairs? He quite saw that the Assistant-Secretary acted as such to the Council and the Council provided them with his services, but it must be the Executive which determined the manner in which its business was conducted.

After some discussion,

Mr. GILMOUR moved that the Chairman, Vice-Chairman, and resident members of the Executive be appointed a General Purposes Committee to attend to any business arising between meetings of Executive or remitted to them by the Executive.

Mr. FISHER having seconded the motion, Mr. RUSSELL said, in order to raise his point, he would move as an amendment that they do not appoint this Committee. It had always been determined beforehand that the business of the Executive should be conducted in a particular manner, and that, he thought, was going behind the Executive.

The amendment, however, was not seconded, and the motion was declared carried.

Mr. FISHER next moved, and Mr. MCLAREN seconded, that Mr. Currie be appointed a member of the Committee for the nomination of examiners in room of Mr. Kermath, resigned.

Mr. GILMOUR moved, and Mr. BURLEY seconded, that Mr. Ewing be appointed a member of the Committee.

It was then unanimously decided that the Chairman and Vice-Chairman, and Messrs. Bowman, Currie, Ewing, Kerr, Storrar, and Strachan be appointed a Committee for the nomination of Examiners and to consider any names that may be submitted to them, and to report to a meeting of Executive to be held prior to the meeting of the Council in November. It was also decided to continue to hold evening meetings of the Society in Edinburgh on the third Wednesday of each month from November to April inclusive, and it was remitted to the General Purposes Committee to arrange for an opening address and to take charge of the other meetings.

The Chairman, Vice-Chairman, and Messrs. Burley, Cowie, Currie, Johnston, and McLaren were appointed delegates to attend the Plymouth meeting of the British Pharmaceutical Conference in July.

LETTERS TO THE EDITOR.

NOTICE TO CORRESPONDENTS.—All Communications for the 'Pharmaceutical Journal' must be Addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received, if specially arranged for, as late as Thursday morning. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C., and Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

The Sale of Benzene.

Sir,—I have recently been paid a visit by one of the inspectors under the Petroleum Acts. He gave me to understand that in future I must not retail benzene for cleaning purposes in small quantities, only in bottles which I must obtain from my wholesale house. Since then I have been informed it is compulsory that the bottles, in addition to the name and address of the bottlers being upon them, must also have my name and address affixed as the seller. Can you tell me if this is correct?

East Dulwich, June 24, 1899. F. W. Sandy.

*** The subject of this letter is commented on at page 14.—[Ed. *P.J.*].

What is a Profession?

Sir,—When one considers the interpretation of the words "profession" and "trade," it should not present any real difficulty to differentiate between the two. If a profession is something better and beyond mere trade, and the business calling of a pharmacist is held to be beyond a trade, the inference to be drawn is that pharmacy is professional, since its work is of a technical and professional nature. A youth bent on a pharmaceutical career must spend three years compounding medicines, but he has not done then; in fact, he has done very little indeed towards his training. He must find money and brains for a college training, and after fagging hard for some months, and I may say some years (in some cases), he must present himself for his Minor, and when he has done this and qualified, must it not appear more than a grievance to know that, after all his expenditure and study, his social status is equivalent to that of a grocer or a draper? That the calling of a pharmacist is a profession no one can deny. The pharmacist is guilty of conduct of a retrograde nature, and I may say of such a nature calculated to lower his standing and also to deprive him of that respect and sympathy due to him from the general public. As one passes through the back streets in large manufacturing towns one sees in the windows of little shopkeepers bottles labelled "sweet nitre," tincture of rhubarb, Epsom salts, syrup of squills, etc., and a host of medicaments. Who is to blame for this? Does this kind of thing tend to improve the social standing of the true pharmacist? These little shopkeepers would not undertake the sale of these drugs (being ignorant of their composition), but the "wholesale druggist" assures them of the profit attending these drugs, and this is an inducement to sell. Now, Sir, the majority of people reason that if these little shops sell drugs, and the bigger shops sell drugs, both are chemists. I have read articles in the Journal to the effect that all drugs should be sold by the pharmacist. If the "wholesale druggist" would confine the sale of drugs to the pharmacist, then the latter would not be bracketed socially with ordinary tradesmen. The medical profession is spoken of as a sister profession—so it should be, but the existing feeling between the two is no proof. Is it not well known that the majority of the members of the medical profession treat the pharmacist much the same as they do grocers? The Pharmaceutical Society has helped the Medical Council in the matter of company trading, and it is only natural that the latter body should work side by side with the Pharmaceutical Council in helping to raise their status as a professional body, instead of which they "decline respectfully," fearing rebuff. In face of all these grievances, why do not the members of the Pharmaceutical Society demand what is just and legal independently? They are a strong body, and as professional men they should enjoy the privilege their qualification gives them, and distinguish between the individual who practises pharmacy and the drysalter who is the tradesman pure and simple.

Sheffield, June 20, 1899. B. Ellis.

The National Photographic and Allied Trades' Exhibition, 1900.

Sir,—Will you kindly permit me to announce through the columns of your valuable Journal that the second Trade Exhibition of Photographic and Scientific Apparatus and Sundries will be held early next year. The Portman Rooms, Baker Street, London, W., have again been secured, and the exhibition will open on Friday, April 27, and close Saturday, May 5. Arrangements have been made for increased space, and some thirty or more stalls, in addition to the spaces occupied last year, will be available for exhibits. The entertainments, lectures, and musical arrangements, which proved so attractive on the last occasion, will be repeated, and special attention is being given to this department in order to make the exhibition, if possible, even more attractive to the outside public. The magnificent suite of rooms are specially adapted to a display of technical apparatus, and the Portman Rooms are easily accessible from all points of the Metropolis. Any suggestions from your readers will be much appreciated and, if practicable, will probably be adopted. Most of the firms who exhibited last year have already intimated their intention to again take space, and several firms have also expressed a desire to be represented. The prospectuses and application forms for space will be issued shortly, and space will be allotted strictly in rotation as applications are received, the only exception being that former exhibitors will have first refusal of the spaces previously occupied by them. I trust that an early announcement of these dates will prevent clashing with any other exhibition, and that exhibitors will thus be free from the inconvenience of having two displays to attend to at the same time. It is of the utmost importance that intending exhibitors should reply to the prospectus immediately upon receipt of same, in order to avoid disappointment.

15, Harp Alley, Farringdon Street, London, E.C., June 21, 1899. Arthur C. Brookes, *Secretary.*

Chemists and the Southport Election.

Sir,—You have several times alluded to the action of the chemists of the Southport Parliamentary division in the recent bye-election, and though you commend them for their activity, you believe they were wrong in selecting and recommending one particular candidate when both replied favourably to the questions put by the deputation. I think it desirable that the circumstances should be briefly explained for the information of those who may soon have an opportunity to press the questions involved in prospective legislation on the practice of pharmacy upon their would-be representatives. In the first instance it was decided to strenuously oppose one of the Lord Chancellor's Bills and to endeavour to amend the other as we wished, and to do our utmost to secure the return of the candidate who would best represent our interests in Parliament. The unsuccessful candidate replied to our questions favourably, provided "the selling of poisons by unqualified persons would be prevented and the status of chemists be raised," but though the difference between "selling" and "keeping open shop for the sale of" poisons had been explained to him, he appeared to evade the point. This, taken in conjunction with the drift of his questions and the general tenor of his remarks at the interview, impressed every single member of the deputation with the belief that his sympathies were not wholly with us. Sir George Pilkington, on the other hand, was perfectly familar with the subject, and outspokenly pledged himself in most definite terms, not only to do his best to fulfil our wishes, but to keep a watchful eye on legislation affecting the interests of pharmacy. He objected to the assumption of titles belonging to individuals by unqualified com-

panies, and to any legislation which would tend to crush cut the individual chemist and bolster up company monopoly. These being the circumstances, I maintain the Southport chemists were right. The decision arrived at by the deputation was unanimcus; not one of the twelve dissented. On the general question as to whether or not it is wise to select a candidate, I am convinced it should be done unless both candidates are so nearly equal in their attitude that there is no room for choice. I fail to see the advantage to be obtained from interviewing the candidates in the heat of a contested election unless we endeavour to obtain definite pledges, and to do that we must be prepared to give or withhold our votes. Nor need we fear disfavour from the new member if he happens to be the man we opposed. It is certain that the votes of a hundred or more constituents who have the courage of their opinions and will give effect to them on the polling day will be valued more than those of men who appear to be wanting in backbone, and it will not be forgotten that those votes may be useful in another election.

Liverpool, June 26, 1899. JOHN SMITH.

The Question of Title.

Sir,—It is interesting to read Mr. W. J. Rawling's letters which have been published in the Journal. He appears to be possessed of light and common sense on the one hand, but to show darkness and ignorance on the other. The former is readily seen in his statement of the case; the latter in his remarks on the constitution of the Council and on the members of the Society. Have not the whole affairs of the Society for the past seventeen years been practically over-ruled by the President and Secretary? Has not the presidential chair been filled for the same period by men who contravene the spirit and letter of the 1868 Pharmacy Act? What, and how many, members of the Council at the present day are violating the spirit and letter of the Pharmacy Act? How stupidly blind the members of the Society are to place on the Council men whose first interest is in the wholesale trade, who belong to "limited" drug businesses, who carry on business under dead men's names, are in league with outside proprietors, nostrum-mongers, and grocers' associations! Would it not be absurd in the extreme to expect these men to go against their personal interests? Can retail pharmacists expect any petition for a remedy of their grievances to receive from that Council any other reply than *Non possumus*? Let the Council be constituted of retail pharmacists. Is not a man out of place on that Council who is a member of a wholesale drug house or a member of a limited liability drug company with outside capital, or one who carries on business under an unregistered name? Should not such persons resign their seats on the Council forthwith and be struck off the Register of members for conduct derogatory to and subversive of the best interests of the Society? What is required in the present day is a Cromwellian President, and a Council of good men and true, who will go straight for our legal rights on the points of justice and equity. The whole evil of unqualified company pharmacy arises out of the action of the Secretary of the Board of Trade granting certificates to unqualified persons to carry on company pharmacy in contravention of the 1868 Act, made and provided for public safety. If the Secretary of the Board of Trade is not bound by the provisions of the Pharmacy Act, 1868, neither is any other person. If seven or more unqualified persons can get a certificate for pharmacy, why not anything else, any other Act notwithstanding? If so, then the Secretary of the Board of Trade is above any Act of Parliament and those who make the Acts.

Sheffield, June 24, 1899. G. ELLINOR.

Detection of Methyl Alcohol.

Sir,—During the preparation of some liquor calcis saccharatus, a bottle was used which had contained methylated spirit, but which had been washed until it smelt quite clean. On the addition, however, of the lime, sugar and water, the odour of the methyl became very apparent. On trying this with some methylated spirit, the odour of which had been sweetened by shaking up with animal charcoal, the same effect was produced on the addition of the liquor calcis saccharatus. This seems to me to be a useful means of detecting the methyl in preparations containing it. The above operation was carried out in the laboratory of Mr. F. H. Allcock, of Birmingham, and it is at his suggestion that I venture to send this letter to you.

Lichfield, Staffs, June 26, 1899. FRANK OAKLEY.

Unqualified Opinion.

"A DOWN-TRODDEN CHEMIST" (191/38) replies to the letter of "Qualified" (see *P.J.*, June 17), but no good purpose can be served by publishing anonymous letters which introduce personalities.

Chemists and Dentists.

"J. T. S." (191/30) has a grievance against certain persons who, he alleges, "do all kinds of dental work under the cover of the title 'chemist,'" and suggests that the Council of the Pharmaceutical Society should take action against them under Section 26 of the Pharmacy Act, 1868. As it happens, however, the Privy Council alone is competent to put that Section in force.

The Company Trading Question.

"ASSISTANT, M.P.S." (192/2) sends a letter on this subject, in which he makes a charge that would require, at least, to be authenticated by the publication of his name.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Botanical (E. P.—30/26)—Buckbean or bogbean, *Menyanthes trifoliata* (Gentianaceæ).

Prescription (T. G. W.—30/34).—East Indian oil is intended, *Ostindien* being the German for East Indies.

Water Softener (B. & Co.—30/24).—Mix slaked lime, 1, and dried sodium carbonate, 2, both in fine powder.

Terebene (L. O —30/27).—You will find articles on the subject in the *Pharmaceutical Journal* [3], **16**, 611; **17**, 124, 274, 275.

Gray's Supplement (E. B.—30/30).—You might dispose of it if you advertised it in the *P. J.* "Exchange." We cannot say what price the book would command.

Veterinary Surgeon (A K. M. L.—30/28).—We have no information on the subject, and would suggest that you should apply to someone in the profession.

Sale of Non-Alcoholic Drinks (T. G. W.—30/33).—Unless you have a refreshment house licence you must not sell non-alcoholic drinks after 10 o'clock at night or before 5 o'clock in the morning. It is also illegal to sell refreshments of any kind during prohibited hours, *i.e.*, the hours during which licensed public-houses must be closed.

Lead Intensifier (E. C.—30/19).—Your trouble with the lead intensifier, as modified by Hirschfeldt (see last volume, p 492*e*), may be due to the use of common tap water or, more probably, your negative was not sufficiently washed free from hypo. Making the solution slightly acid with nitric acid ought to prevent the deposit. Thanks for your expressions of appreciation.

Manufacture of Indiarubber (J. E. M.—30/7).—The crude caoutchouc, as imported, is first cleansed by being cut into small pieces, washed with water, and then dried. The purified product is next ground or kneaded with water by special machinery, during which process a heat is evolved, both rubber and water becoming very hot. The kneaded mass is then ground dry in another machine, with a little lime, when it finally assumes the brown ductile appearance as met with in "stationers' rubber."

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

COLOURING MATTERS OF DYER'S BROOM AND HEATHER.

A. G. Perkin and F. G. Newbury find that *Genista tinctoria* contains two colouring matters, the first identical with the luteolin of weld (*Reseda luteola*), and the second, a new colouring matter, *genistein*. The latter has a composition corresponding to the formula $C_{14}H_{10}O_5$, colourless needles, and yields an acetyl derivative, $C_{14}H_7O_5(C_2H_3O)_3$, m.p. 197—201°, and a tetrabromo-compound, $C_{14}H_6Br_4O_5$, colourless needles melting above 290°. On decomposition with alkali, it gives phloroglucinol and an acid of the formula $C_8H_8O_3$, m.p. 147—149°; this, with fused alkali, forms parahydroxybenzoic acid, and appears to be *parahydroxyphenylacetic acid*. *Genistein dimethylether*, colourless leaflets, m.p. 137—139°, is insoluble in alkaline solutions, but forms a *monacetyl derivative* of the formula $C_{14}H_7O_3(OCH_3)_2.Ac$, fine needles, m.p. 202—204°. A second product of the methylation, formed in minute quantity, melts at 187—189°, and appears to be isomeric with the above ether. In dyeing property, genistein closely resembles apigenin and vitexin, and to it the constitution of a *trihydroxyphenylketocumaran*, $(OH)_2.C_6H_2\langle{}^{\cdot O\cdot}_{CO}\rangle CH.C_6H_4(OH)$, has been provisionally assigned. The colouring matter of heather, *Calluna vulgaris*, is quercetin, and there is also present a catechol-tannin in small quantity.—*Proc. Chem. Soc.*, **15**, 179.

COLOURING MATTERS OF COTTON FLOWERS AND KAMALA.

A. G. Perkin also finds that the flowers of the cotton plant, *Gossypium herbaceum*, contain as glucoside a new colouring matter, *gossypetin*, $C_{16}H_{12}O_8$, soluble in alkalis with an orange-red colour, becoming green on oxidation. The *hexacetyl* compound, $C_{16}H_6O_8Ac_6$, colourless needles, m.p. 212—216°; the *sulphate*, $C_{16}H_{12}O_8,H_2SO_4$, the *hydriodide*, $C_{16}H_{12}O_8,HI$, orange-red needles, and the *monopotassium* salt, $C_{16}H_{11}O_8,K$, a crystalline powder, have been prepared. Gossypetin contains no methoxyl groups, and on fusion with alkali yields phloroglucinol and protocatechuic acid. It is probably a member of the flavone group of colouring matters. Gossypetin is similar to, but not identical with, thujetin, which is present in *Thuja occidentalis*. In a note on rottlerine, the same investigator states that the decomposition products of rottlerine, $C_{33}H_{30}O_9$, a colouring matter of kamala, *Mallotus phillipinensis*, previously described (*P.J.* [3], **24**, 159; *Trans. Chem. Soc.*, **67**, 230), are with fused alkali acetic and benzoic acids, and with nitric acid *o*- and *p*-nitro-cinnamic acids. It is now found that fused alkali at 220—240° yields also phloroglucinol.—*Proc. Chem. Soc.*, **15**, 161.

THE MACLAGAN TEST.

In reference to the statement by Dr. Fr. Günther that a salt of pure cocaine does not answer to the Maclagan test, and that the formation of a crystalline precipitate in that test is due to the presence of another base melting at 111° C., Messrs. Boehringer and Son point out that it amounts to saying that all cocaine which answers the test is impure and contains the other base to which Günther refers. They have therefore endeavoured in various ways to obtain evidence of the existence of that base in a large quantity of coca leaves operated upon especially for that purpose. One portion of the crude basis obtained was treated so as to ascertain the presence of an ethyl-alcohol residue, with a negative result. Another portion was converted into hydrochloride by partial neutralisation and re-crystallised in fractions, as directed by Günther, while the mother liquors of cocaine hydrochloride were also subjected to the same treatment. The only instance in which any evidence was obtained of a base having a higher melting point than cocaine was in the mother liquor of cocaine hydrochloride which yielded a very small quantity of base, melting at 104° to 106° C. Examination of the mother liquors obtained in the synthetic preparation of cocaine and of ordinary commercial cocaine salts, as well as chemically pure cocaine prepared from benzoylecgonine and pure methyl alcohol, gave similar results. No base melting at 111° C. could be obtained, and the extremely small quantity (0·00006 per cent.) of the base melting at 104° to 106° C. was quite insufficient to account for the crystalline precipitate in Maclagan's test, for in place of obtaining 20 kilo. in ten weeks, Messrs. Boehringer estimate that they would not obtain a kilo. in the course of a year, and they therefore conclude that the objections made to the Maclagan test are quite destitute of foundation.—*Pharm. Centralh.*, **40**, 393.

CHANGES IN CELLS OF DROSERA TENTACLES.

Miss Lily H. Huie has continued her observations on the changes produced in the tentacles of *Drosera* by feeding them with various food-materials. She finds that very characteristic alterations are obtained both in the colour reaction and in the morphology of the cell. In five seconds white of egg causes both the cytoplasm and the nuclear plasm to become more eosinophil, while pure amphopeptone increases their susceptibility to blue stains. White of egg quickly causes great impoverishment of the cytoplasm and nucleoplasm, while the first effects of pure peptone are to increase the bulk and density of these ingredients of the cell. They both give rise to an enormous increase in the chromatin element of the nucleus. While the cytoplasm is the constituent of the cell that is most rapidly and most constantly affected by external stimuli, the nucleus is the seat of metabolic activity, and the state of the nuclear organs indicates whether or not the food-supply was of service to the metabolism of the plant.—*Quart. Journ. Micros. Science*, **42**, 203.

PHYSIOLOGY OF GRAFTING.

M. L. Daniel distinguishes two stages in the anatomical processes which take place in grafting herbaceous or woody plants—the preliminary and the definitive stages. The former stage extends up to the moment when the functions of the outer and inner generating layers, interrupted by the operation of grafting, are resumed. The definitive stage may again be divided into two periods—the formation of the cellular tissues which fill up the vacancies caused by the wound, and the differentiation of the vessels and sieve-tubes in the healing tissues produced by the activity of the inner generating layer, and the formation of bark and phelloderm.—*Bonnier's Rev. Gén. de Bot.*, **11**, 78.

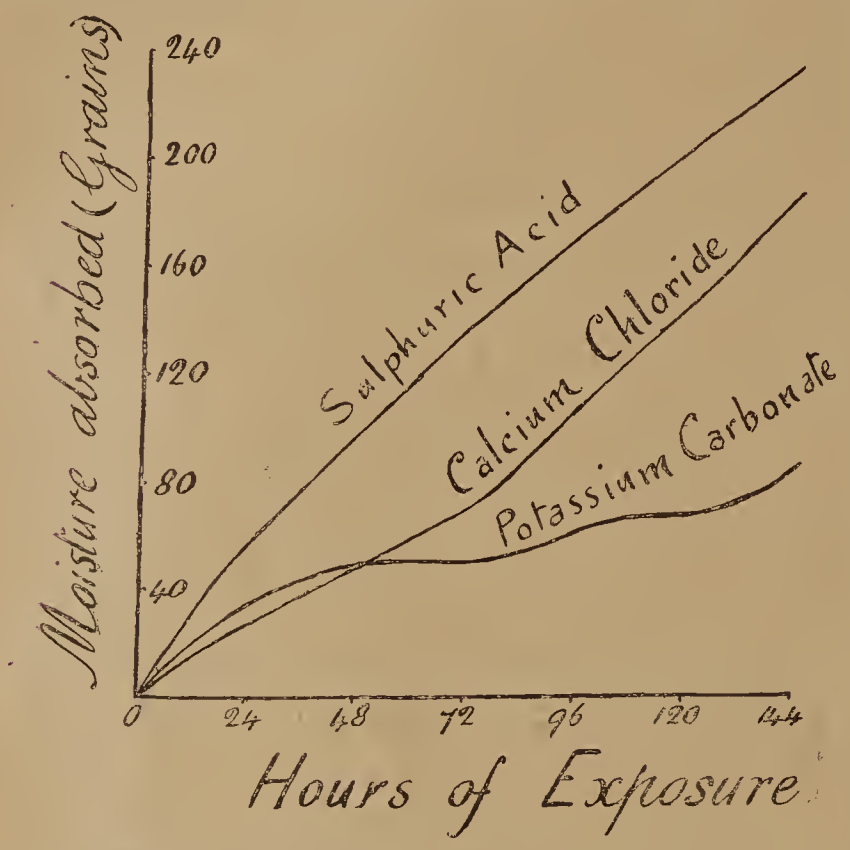
BIOLOGY OF POLLEN.

Further evidence is adduced by Herr B. Lidforss in favour of his view that moisture is not necessarily destructive to the germinating power of pollen-grains. The power of resistance of pollen-grains to moisture is much influenced by the surrounding conditions, and is greatly increased in moist air. The connection between the exposure of the pollen and its power of resisting moisture is illustrated in a large number of cases. As a general rule, those pollen-grains which are unable to resist moisture germinate very rapidly. The pollen-grains of anemophilous plants are, as a general rule, characterised by their comparatively small size. The proportion in them of starch is usually smaller, that of nitrogenous substances larger, than in the pollen of entomophilous plants.—*Pringsheim's Jahrbucher*, **33**, 232.

A NOTE ON DESICCATING AGENTS.

BY W. ELBORNE, M.A.

The relative behaviour of three substances (sulphuric acid, sp. gr. 1·843, fused calcium chloride, and dry potassium carbonate) commonly used in desiccators as drying agents—that is, substances used for absorbing aqueous vapour from the superincumbent air—is illustrated by the following curves. Equal weights of the respective substances were simultaneously exposed under similar conditions to the action of the atmosphere of the laboratory, and their respective increase in weight (regarded as being due to absorption of moisture) frequently ascertained. The horizontal numbers (abscissæ) indicate in hours the duration of exposure, the ordinates, or vertical numbers, the increase of weight in grains. Of the three, sulphuric acid is the most efficient agent.



Quantity of substance taken (in grains).	Approximate weights per 24 hours during exposure.					
Sulphuric Acid 258	315	356	397	432	464	494
Calcium Chloride 258	285	307	331	368	406	448
Potassium Carbonate 258	293	308	310	322	328	345

A NOTE ON THE PHARMACOPŒIA TEST FOR ADEPS LANÆ.

BY W. ELBORNE, M.A.

Operating upon one of the best brands of Adeps Lanæ on the market, the melting point was found to be 38°C (uncorr.), specific gravity compared with water at the same temperature 0·913 at 45°C. 50C.c. of the melted wool-fat poured into 100C.c. of ether sp. gr. 0·720, and the mixture heated to boiling yielded a clear solution; on setting aside in a tall glass cylinder to cool, at 15°C. it became very turbid, and after the lapse of four hours the sediment occupied half the total volume, the supernatant liquid being clear and bright. The official test says, "readily soluble in ether." . . . "10 grammes. dissolved in 25C.c. of ether, etc."—heat is required to effect a clear solution. Wool-fat is certainly very soluble in chloroform—"the solution in chloroform poured gently over the surface of sulphuric acid acquires a purple red colour"; in this form the test is not very striking, but, when performed in a different way, an additional phenomenon occurs constituting a delicate and characteristic reaction for Adeps Lanæ, either alone or mixed with other ointment bases. The procedure is as follows:—To the solution in chloroform contained in a test-tube gently and slowly add an equal volume of sulphuric acid; within two or three minutes the latter (the lower acid layer) assumes a beautiful green fluorescence by reflected light, in intensity proportional to the wool-fat present; the chloroformic layer assumes a blood-red colour by transmitted light, best seen at the junction of the liquids. This green fluorescence is due to the cholesterin of the wool-fat, and, in fact, is a known characteristic reaction of cholesterin itself (in chloroformic solution).

Adeps Lanæ, worked into a paste with sulphuric acid, assumed a very dark red colour; the mass subsequently kneaded in running water until free from acidity "appeared" not to have suffered at all by the treatment, yielding a yellowish-white product sensibly indistinguishable from Adeps Lanæ Hydrosus. 50C.c. of melted wool-fat poured into 500C.c. of light petroleum (b.p. 60°C.) and the mixture warmed to 20°C. afforded a clear solution; on cooling to 15°C. it became cloudy, and ultimately afforded an abundant sediment. Dried wool (direct from the fleece) exhausted with such hot light petroleum, yielded 31 per cent. of fat.

THE VALUE OF CONCENTRATED FOODS.

In the second Baillie lecture, delivered at St. George's Hospital by Dr. W. Howship Dickinson on the 18th ult., the subject of "Concentrated Foods" was dealt with by the lecturer in the following terms:—"I might make a short chapter like that 'Concerning Snakes in Iceland,' and say that there are no such things. For 'human nature's daily food' are required certain weights of nitrogen, carbon, oxygen, and hydrogen which are ultimate forms of matter and not capable of concentration or further reduction to essential principles. An ox cannot be got into a teacup by any other process than by leaving the greater part of the animal outside. The stomach of the average man demands every twenty-four hours twenty-one grammes of nitrogen, or about three-quarters of an ounce; 307 grammes of carbon, or about eleven ounces; twelve grammes of hydrogen, not quite half an ounce; besides sulphur and salts. This is required to make up for the waste—to restore what leaves his body in various shapes. Three-quarters of a pound of carbon cannot be got into less than three-quarters of a pound. The nutritive effect cannot be separated from the bulk. The man must have his pound of flesh. He has to find fuel and to replace waste—charcoal to burn and nitrogen for repairs. If he does not get the necessary poundage he will dwindle, peak, and pine. His account of profit and loss must be adjusted according to weight. A drachm of Liebig's extract cannot supply more than a drachm. Quality cannot supply the place of quantity. The chief nourishers of life's feast are not creatin and creatinin, but albumin, myosin. fat, gluten, starch, and sugar. None of these are capable of being administered otherwise than in their natural bodies and corporeal bulk. A sick person who is presented with Valentine's food in teaspoonfuls when he should have milk in pints has as much right to complain as I should have if I were to ask for a steak in the luncheon-room and be put off with a minute quantity of Liebig out of the shop. I might object that whatever the virtues of the Liebig it was not filling at the price. But we cannot reckon concentrated extracts as entirely useless, though they are not, properly speaking, food. They contain little or no albumin—some little, some none—no fat, and of the vegetable carbohydrates none. They contain salts and extractives which may be accessories to food, but are not food itself. Perhaps they may be regarded as complementary or supplementary to the essentials of food, and may in special circumstances have special use. I have long been in the habit of using them to help to make up for the loss by suppuration, and so prevent or re-

tard the consequent lardacity. So far as pus carries off the salts meat extracts cannot fail to supply the means of replacing them. These extras are, of course, only to be employed as superadditions to a diet abundant in other respects, not as substitutes for any part of it. They cannot take the place of nutriment in bulk. Beside their power of supplying salts and extractives which under special circumstances may be wanting it is supposed that they have some stimulant action. But the utility of concentrated foods has been greatly exaggerated in practice; they are additions to the essential diet, not substitutes for it. It is possible that a pennyworth of milk may be worth more to the patient than a shillingsworth of Liebig's extract."—*Lancet.*

AUSTRALIAN INDIGENOUS VEGETABLE DRUGS.*

BY. J. H. MAIDEN,

Government Botanist and Director of the Botanic Gardens, Sydney.
(Corresponding Member of the Pharmaceutical Society of Great Britain.)

PART II.

CORNACEÆ.

Marlea vitiensis, Benth.

"Preparations of this plant apparently kill frogs by bringing the heart to a standstill in diastole. Motor nerves and muscles are unaffected if death takes place rapidly, but if delayed they are found in a state of paralysis. This paralysis is due, in part at any rate, to stasis of blood circulation, for the heart beats very feebly from an early period of the poisoning. Vomiting is a remarkable symptom.

"Frogs, when poisoned with this substance, become less irritable to a stimulus of any kind. The active principle is an alkaloid, easy of preparation. It is insoluble in chloroform, ether, benzine, and turpentine, slightly soluble in water and in aqueous alcohol. So far I have not been successful in getting it or any of its salts in a crystalline form. It appears not to be emetine, although it probably belongs to the group of poisons of which emetine is the type." (Dr. T. L. Bancroft, *Proc. Linn. Soc., N.S.W.* [2], iv, 1062.)

Queensland.

GOODENIACEÆ.

Goodenia spp.

A species of Goodenia is supposed to be used by the native gins to cause their young children to sleep while on long journeys, but it is not clear which is used, or how it is administered. (Bailey.) Many plants of this Natural Order contain a tonic bitter which does not seem to have been critically examined. Perhaps in the possession of this bitter principle affinity to the Gentianeæ is indicated, as suggested by Mueller many years ago.

Dr. Thomas Bancroft informs me that this genus is physiologically inert, or practically so.

Throughout the Colonies.

CAMPANULACEÆ.

Lobelia purpurascens, R. Br.

I have a note in the *Agricultural Gazette* for July, 1894, p. 473, on this plant as a reputed antidote for snakebite, to which reference may be made. I asked for scientific evidence in this matter, but have received none.

All the Colonies except Western Australia and Tasmania.

EPACRIDEÆ.

Astroloma sp., near *dilatata.*

Dense shrub, 2 ft. 3 in. high, at King George's Sound, Western Australia. Called "Native Sarsaparilla," having much the taste of that plant. The decoction, which is thick and black, and of a sweet taste, acts powerfully on the urinary organs. Various other medicinal properties are attributed to the plant, but they require confirmation. (Oldfield.)

Western Australia.

* From the *Agricultural Gazette of New South Wales.*

PLUMBAGINEÆ.

Plumbago zeylanica, Linn.

In India, a tincture of the root-bark has been employed as an antiperiodic. Dr. Oswald states that he has employed it in the treatment of intermittents with good effect. It acts as a powerful sudorific. (*Pharm. of India*) It is a common medicine for dyspepsia in India. It is also frequently used as a poultice for abscesses, etc.

New South Wales to Northern Australia.

MYRSINEÆ.

Ægiceras majus, Gærtn.

The River Mangrove. The bark has an extremely nauseating, acrid taste due to saponin, which is present in large amount. (T. L. Bancroft.)

New South Wales to Northern Australia (coast only).

SAPOTACEÆ.

Achras laurifolia, F.v.M. (Syn. *Sideroxylon richardi*, F.v.M.)

This bark has a remarkably sweet taste, but is at the same time astringent. Dr. J. Bancroft suggests that lozenges made of an extract of it might prove useful in throat diseases. Following is a proximate analysis by Mr. Staiger:—

Extract (containing glycyrrhizin)	30.0
Tannin	12.0
A substance intermediate between indiarubber and gutta-percha	0.25
Woody fibre	50.0
Moisture	7.75

New South Wales and Queensland.

Achras sapota, Linn. (Sapodilla Plum) and *Argania sideroxylon*, Rœm. and Schult (Argan tree) both belong to this Natural Order. From the latter S. Cotton (*J. Pharm.* (v.) 18, 298) has separated a glucoside, arganin, apparently identical with Michaud's sapotin from the same plant. From the kernels of the former an alkaloid, sapotine, has been separated by Bernon. (*See* Sohn. 1.)

JASMINEÆ.

Chionanthus picrophloia, F.v.M. (Syn. *Mayepea picrophloia*, F.v.M.)

The intensely bitter bark of this tree may be administered in intermittent fevers.

Queensland.

APOCYNEÆ.

Alstonia constricta, F.v.M. "Fever Bark"; "Bitter Bark."

This yellowish-brown, often thick and deeply-fissured bark, is intensely bitter, and possesses valuable febrifugal and tonic properties. It is regularly quoted in London drug lists. A decoction is sometimes sold in the colonies as "bitters." Mr. Christy states that it is used by some English brewers of pale ale for export, as it produces neither headaches nor other ill effect of hops. I have heard of its use by foreign brewers. It tastes remarkably like cinchona bark, and seems to partake somewhat of the properties of both quinine and strychnine. This drug is undoubtedly worthy of careful experiments by medical men. (See *A. scholaris.*)

From a pamphlet prepared by Dr. Joseph Bancroft, of Brisbane, for the Colonial and Indian Exhibition, 1886, I cull the following particulars in regard to his observations. He obtained the bark from near Dalby, Queensland, some time after 1868. "It gives out to water and alcohol a yellowish principle, intensely bitter, and not easily made to assume any crystalline form. When the tincture is poured into water, the mixture becomes fluorescent, and excepting a slight yellowness, is not easily distinguished either by colour or taste from a solution of quinine. Its utility as a general tonic is established beyond all doubt. Indeed, if any powers are left, a debilitated stomach will respond to Alstonia. Alstonia has been used in the earlier stages of typhoid fever with considerable success. No unfavourable symptoms are produced by it, but patients complain of a bitter taste in the mouth, remarking that they consider themselves bilious. After fifteen years' experience of the use of Alstonia,

the writer is of opinion that there is no better or more generally useful tonic. The tincture made with 3 oz. of the bark to a pint of proof spirit is the form generally used, the dose being from five to ten drops. The powder in grain doses, made up with extract of liquorice, forms a convenient tonic pill. An alcoholic extract made by Mr. Staiger is a much more powerful remedy, but experiments are wanting to determine its special utility."

This action of *Alstonia* bark is described in a letter from Dr. A. W. Bixby to the *Therapeutic Gazette* (Detroit, U.S.A.), December, 1880, p. 369, as follows:—*Alstonia constricta* (F.v.M.), has a wide range of application and action as a medicine. Its action resembles in many respects the combined action of quinine and nux vomica. It is an antiperiodic of the highest type, giving better satisfaction, to my mind, than quinine or cinchonidine. It is a cerebro-spinal stimulant and tonic; acts positively upon the great sympathetic nerve centres, and consequently increases positively and permanently the vital forces of the entire system. I prepare the system for its use by the administration of the proper sedative; then *Alstonia* seldom fails. Where quinine fails in chronic cases, *Alstonia* often effects a speedy cure." He further states:—"In typhoid, synochal, and puerperal fevers, where an antiseptic and nerve tonic is demanded, it answers well. I used it in the treatment of about seventy-five such cases last fall, and with the happiest results. In recent colds or coryza it is an excellent remedy.

"At the beginning of an attack of this annoying trouble two grain doses of the powder every two hours gives prompt relief. The whole system is soon reinvigorated; the secretions and excretions, which have been more or less suppressed, are re-established, and the patient is all right and feels well." He concludes:—"I believe it will become a favourite with all who test it."

I have heard that the bark of *A. constricta* has been used as a remedy for worms in sheep with splendid results.

The bark contains, according to C. Palm, *Kopp u. Will Jahresb.*, 1863 ("Rinde eines australischen, der Familie der Apocyneen angehörenden Baumes"). Wolff, *Aschen Analysen*, i., 128.—A neutral resinous bitter principle, called by him *alstonin*, similar to *cailcedrin* and *tulucunin*, a volatile oil, smelling like camphor, an iron-greening tannin, gum, resin, fat, wax, protein substance, oxalic acid, and citric acid. The ash amounted to 6.06 per cent. of the bark, and an analysis of it is quoted in Watts' *Dict.*, vi., 1st suppt., 101.

Mueller and Rummel, in Wittstein's *Organic Constituents of Plants*, gives the following account of *Alstonin*, the alkaloid of the bark of *Alstonia constricta*:—"*Alstonin* differs from *ditamine* chiefly by its behaviour towards concentrated acids, and by its fluorescence, which has not been recorded of the other alkaloid."

The correctness of the above results has been disputed by Hesse, who expressed the opinion that the supposed alkaloid was a mixture of *chlorogenine* and *porphyrine*. (*Ber.* 1878, p. 2175.)

In June, 1879, Oberlin and Schlagdenhauffen* announced the isolation of two alkaloids from this bark, a crystallisable and an amorphous one. They found the bark to be soluble in ether to the extent of 1.038 per cent., and to this ethereal extract their attention was confined. In *Pharm. Journ.* [3], ix., 1059, is an abstract of their paper, and an account is given not only of the method of preparing these alkaloids, but also of their physical and chemical properties. The crystalline alkaloid occurring in silky tufts of brilliant, colourless, isolated, or stellate crystals, is styled *alstonine*†, while an amorphous nitrogenous residue, possessing alkaloid properties, obtained by spontaneous evaporation from the mother liquor, which yielded *alstonine*, is provisionally termed *alstonicine*.

In 1881 an exhaustive research on this bark was contributed by Hesse to the *Annalen der Chemie*, ccv., 360, of which a careful abstract appears in the *Pharm. Journ.* [3], xi., 775. Palm's *alstonin* (notwithstanding the alleged absence of nitrogen) was shown by Hesse to consist essentially of an alkaloid which he had obtained from the bark, and called *chlorogenine*; but as Palm's name had priority, Hesse called the alkaloid *alstonine*; but unfortunate confusion has arisen in Mueller and Rummel and Oberlin and Schlagdenhauffen (*vide supra*) also having given so descriptive a name to substances of different composition. The abstract above referred to gives a very lucid account of the overlapping of various researches, and shows how the different products obtained by different observers may be reconciled. After this necessary preliminary statement, Hesse gives a full account of the preparation and properties of the alkaloids found by him. They are:—

1. *Alstonine* (synonymous with *chlorogenine*, and probably identical with Palm's *alstonin*). It is a brown, amorphous mass, which can be rubbed to a brownish-yellow powder. Merck (*Bulletin*, i., 5) speaks of this alkaloid as forming white, lustrous, silk-like crystals, easily soluble in ether, chloroform, or alcohol. It is nearly insoluble in cold water, somewhat soluble in hot water, to which it imparts an intensely bitter taste. It is an antiperiodic, antiseptic, and stimulant, thus uniting the properties of quinine and strychnine. It is employed in typhoid and lacteal fevers.

2. *Porphyrine*, a white powder found in very small quantity.

3. *Porphyrosine*, the examination of which is not yet complete.

4. *Alstonidine*, consisting of colourless, concentrically grouped needles.

Hesse believes that this list by no means completely enumerates the alkaloids obtainable from this interesting bark.

Hesse has since worked at the bark, and it is to him that we mainly owe our accurate knowledge of its constituents and derivatives. It is one of the very few Australian barks which have, up to the present, been exhaustively examined. For a list of his researches on the subject see p. 21 of my "Bibliography of Australian Economic Botany." (1892.)

There is also a paper in *Annalen der Chemie*, ccv., 360—371, abstracted in *Year-book of Pharmacy*, 1881, p. 172.

There are a few references in more recent medical and pharmaceutical literature.

The list of substances obtained from Alstonia barks (including *A. scholaris*) are enumerated by Sohn at pp. 7 and 108, and comprise the alkaloids Alstonine, Ditamine, Echitamine, Echitenine, Porphyrine, and Alstonidine; also the non-alkaloidal, non-glucosidal Echitin, the wax-like Echicerin, and the aromatic body Echiretin.

New South Wales and Queensland.

Alstonia scholaris, R.Br. "Devil Tree" of India; "Dita Bark."

The powerfully bitter bark of this tree is used by the natives of India in bowel complaints. (*Treasury of Botany.*) It has proved a valuable remedy in chronic diarrhœa and the advanced stages of dysentery. It has also been found effectual in restoring the tone of the stomach and of the system generally in debility after fevers and other exhausting diseases. (*Pharm. of India.*) It is officinal in the Pharmacopœia of India as an astringent tonic, anthelmintic, and antiperiodic. It is held in the highest repute in the Philippine Islands. For further information see Dymock (*Materia Medica of Western India*). Most writers who refer to it at all speak of it in terms of high praise.

See also Jobst (J.) and Hesse (O.) "Ueber die Ditarinde, *Annalen der Chemie*, clxxviii., 49; *Journ. Chem. Soc.*, xxix., 276; *Pharm. Journ.* [3], vi., 142; Watts' *Dict.*, viii. (1), 688." A later research by Hesse, "Ueber die Alkaloide der Ditarinde," will be found in *Annalen der Chemie*, cciv., 144; *Pharm. Journ.* [3], xi., 331. These two papers contain a full account of the chemistry of the bark.

Northern Queensland.

(To be continued.)

* *Journal de Pharmacie et de Chimie.*

† Probably Hesse's *porphyrine*.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, JULY 5, 1899.

Present:

Mr. W. Martindale, President.

Mr. G. T. W. Newsholme, Vice-President.

Messrs. Allen, Atkins, Corder, Cross, Glyn-Jones, Grose, Harrington, Harrison, Hills, Savory, Storrar, Symes, Warren, and Young.

The minutes of the last Council meeting were read and confirmed.

The Inaugural Address.

The President announced that Prof. Leech, of Manchester, had kindly consented to deliver the inaugural address on October 2 next. Prof. Leech was the representative of the Victoria University on the General Medical Council, and one of the honorary members of the Society. He had taken great interest in the subject of the revision of the Pharmacopœia. They would have an excellent address from Prof. Leech, which he trusted the students would appreciate.

The President said he had received letters from Mr. Bateson and Mr. Park regretting their inability to be present. The latter said he was very much occupied with the arrangements for the forthcoming Conference, and expressed the hope that as many members of the Council as could make it convenient would attend the meeting.

Election of Members.

The following persons having tendered their subscriptions for the current year, were elected "Members" of the Society:—

Alexander, John; Aberdeen
Bentley, Joseph; Barrow-on-Humber
Blakemore, John Bowen; Smethwick
Bright, William Henry; Bath
Cowley, Harry James; London
Davies, Philip Percival; Southsea
Drackley, Thomas; Market Bosworth
Dye, Charles Page; Marlow
Freeland, James; Dunoon
Goodwin, James; Atherstoue
Hall, Alfred William; Herne Hill
Harries, John Davies; Milford Haven
Heaton, Wallace Evans; Leyburn
Henderson, Andrew W.; Aberdeen
Hindmarch, Thomas Forster; Lytham
Howorth, Henry Cook; Hong Kong
Jenuings, Henry G. H.; Birmingham
Johnstone, William S. L.; Coventry
Jones, Stephen; Cardiff
Kaye, Alexander; Perth
Kershaw, James; Bradford
Milner, Jonah; Greenwich
Murray, Robert; Rhynie
Stavert, Walter; Selkirk
Taylor, John; Rochdale
Vernon, Walter; North Ormesby
Walker, George; Penang
Walter, William; Southampton
White, Herbert; Rock Ferry
Whitton, Andrew C.; Pietermaritzburg
Wildgoose, John G.; Nottingham

Election of Student-Associates.

The following persons having passed the First Examination, and tendered their subscriptions for the current year were elected "Student-Associates" of the Society:—

Cammell, Horace Watson; Hull
Chesworth, Colin Percy; Levenshulme
Daunt, Mary; Nottingham
Grout, Harry Fred.; London
Marsland, Alfred; Ashton-under-Lyne
Sampson, John William, Heckington
Thomson, Alexander; Aberfeldy
Venn, John Archibald; Devonport
Weiss, Richard; London
Whitehouse, Alexander; Nottingham

Restorations to Membership.

Several persons were restored to their former status in the Society.

The North British Branch Executive.

The Secretary read a letter received from the Assistant-Secretary in Scotland, reporting the election, on June 16, of the members of the Executive for the ensuing year. The names have already been published (see *P. J.*, June 24, p. 581).

Finance Committee.

The Secretary read the report of this Committee, which recommended various accounts for payment.

The President, in moving the adoption of the report and recommendations, remarked that the fees received for examinations were larger than usual and left the Society with a fair amount of cash in hand. The number of candidates entered for the examinations now going on in London and Edinburgh was altogether 663, which was, he believed, far in excess of any number recorded.

The motion was at once agreed to.

Benevolent Fund Committee.

The Vice-President moved the adoption of the report of this Committee, which included the recommendation of grants amounting to £65 in the following cases:—

A registered chemist and druggist (55), who has had one previous grant. He is a hopeless invalid, and dependent upon a sister who is in poor circumstances. (Edinburgh.)

The widow of an associate (49), who has had three previous grants. She is in ill health, and has no one to look to for assistance. (Towyn.)

A registered chemist and druggist (71), and occasional subscriber to the Fund. Has had five previous grants, and is now past work. (Liverpool.)

A registered chemist and druggist (43), who had a grant last year. He is suffering from spinal sclerosis, and is quite an invalid He has two children dependent. (Crayford.)

Widow of a member and subscriber (66), has had three previous grants. She has an invalid step-daughter dependent on her. (Motherwell.)

A former associate (44), who has had four previous grants, and requires assistance owing to having been without employment for some time past. (London.)

The Vice-President said there was nothing unusual to refer to, excepting that on this occasion there were two applications from North of the Tweed, both of which cases were relieved. This was unusual, and it was sometimes said that Scotland did not always get as much money as it ought, but he might say that whenever the Committee had a case from Scotland, it was always dealt with in the same liberal spirit as a case from anywhere else. The resolution was carried.

The Vice-President then moved that the name of Mr. S. R. Atkins be added to the Committee. Mr. Atkins had taken the very greatest interest in the work of the Benevolent Fund Committee, and if he were to remain off the list of members it would be a distinct loss to that Committee.

Mr. Cross seconded the motion.

The President, in putting the resolution, said they all knew the great interest which Mr. Atkins had taken in the Benevolent Fund. Mr. Atkins was known throughout the country as a representative pharmacist, and as one who took much interest in ascertaining the details of the necessitous condition of the candidates, and it would be a great loss to the Committee if he were not a member of it.

The resolution was carried.

Mr. Atkins, in thanking the Council for his election, said he had taken great interest in the work of the Benevolent Fund Committee, and should regret to be out of touch with it.

Library, Museum, School and House Committee.

The President moved the adoption of the report of this Committee, which stated that the Librarian had presented his usual report, including the following particulars regarding attendance:—

Attendance.	Total.	Highest.	Lowest.	Average.
May	400	24	7	15

Circulation of Books.	Total.	Town.	Country.	Carriage paid.
May	159	84	75	16s. 7½d.

Several donations to the Library and Museum had been

received (see *Ph. J.*, June 17, page 559), and the Committee had directed that the usual letters of thanks be sent to the respective donors.

Library.—The Committee recommended that the undermentioned Books be purchased:—

For the Library (London)—

De Tabley, Flora of Cheshire.
Solereder, Systematische Anatomie der Dicotyledonen.
Greenish, Materia Medica.
Whitla, Pharmacy, 7th Edition.

For the Library (Edinburgh)—

Greenish, Materia Medica.
Whitla, Pharmacy, 7th Edition.

Museum.—The Curator's report had also been received, and included the following particulars:—

Attendance.	Total.	Highest.	Lowest.	Average.
May	756	44	20	29

The Salters' Fellowship.—A communication had been received from the Clerk to the Salters' Company stating that the Court of Assistants preferred to leave the selection of a candidate for this Fellowship in the hands of the Research Committee, and an advertisement had, therefore, been inserted in the *Pharmaceutical Journal*, inviting applications.

Gibraltar Pharmacy Ordinance.—The Committee had considered the communication from the Colonial Office on this subject, and the Secretary was instructed to reply that in the opinion of the Council the Pharmacy Ordinance of 1898 should stand without amendment, but if this were thought impracticable, an amendment bringing it into line with the English law might be recommended, and a draft of an amendment for this purpose was submitted.

School Prospectus. — At an adjourned meeting of the Committee on July 4, a proof of the revised School Prospectus was submitted and approved, and an application from the Bell scholars, asking permission to continue their studies next session was acceded to under certain conditions.

The PRESIDENT said the report and recommendations did not call for any special comment. The applications for the Salters' Fellowship would be considered at the next meeting of the Council.

The motion was unanimously agreed to.

Correspondence.

The PRESIDENT reported the receipt of the following communications:—

A letter from Mr. T. Bowen, Bolton, suggesting an amendment for insertion in the Companies Bill now before the House of Lords—"that the word person include a Company."

A letter and resolution from the North-East Lancashire Chemists' Association, in support of the policy of the Council in respect to the question of company trading.

A letter and resolution from the Western Chemists' Association in support of the policy of the Council with regard to Sections 2 and 3 of the Companies Bill.

A letter from the Edinburgh District Chemists' Trade Association, with a resolution embodying suggestions for a new Pharmacy Bill. These have already been published.

A memorial by chemists in the Aberdeen district urging the Council to secure an amendment of the law for the purpose of effectually stopping the practice of pharmacy by companies.

The PRESIDENT moved that all the communications be referred to the Law and Parliamentary Committee for consideration.

This was at once agreed to.

Meeting of the Conference at Plymouth.

The PRESIDENT moved that the following members of the Council be appointed delegates to attend the meeting of the Pharmaceutical Conference at Plymouth;—The President Vice-President, Messrs. Atkins, Cross, Glyn-Jones, Grose, Harrington, Hills, Park, Warren, and Dr. Symes, and that the Secretary be also instructed to attend.

Dr. Symes said he hoped there would be a good attendance at the Conference. He knew that the Local Committee was doing its utmost to provide for the carrying out of the business of the Conference, and also for the pleasure of those who attended. The President of the Conference and the Hon. Secretaries were most anxious to do their utmost to make the Conference a thorough success.

The resolution was carried.

Appointment of School Staff.

The PRESIDENT proposed that the following gentlemen be appointed on the School Staff:—

Botany—Professor J. R. Green.
Chemistry—Professor J. Collie.
Materia Medica and Pharmacy—Professor H. G. Greenish.
Assistant Lecturer in Chemistry—Dr. A. Lapworth.

The resolution was carried.

General Purposes Committee.

The report of this Committee included reports on the prize examinations.

Professor GREEN had reported that the work done in the botany class was, on the whole, very satisfactory.

Professor NORMAN COLLIE'S report simply gave the results of the class examinations.

Professor GREENISH had reported that forty-five students, a number above that of last year, had attended the materia medica class, and their conduct had been satisfactory. The same number had attended the pharmacy lectures, and the work had been well maintained.

In accordance with the above reports, the Committee recommended that the following awards be made:—

Botany.

Bronze Medal	Sara Annesley.
Certificate of Honour	Horace Finnemore. Percy B. Gray.

Chemistry.

Bronze Medal	Thomas W. Maddison.
Certificate of Honour	John F. S nook. George A. Taylor.

Practical Chemistry.

Bronze Medal	Thomas W. Maddison.
Certificates of Honour	Cyril H. Baker. William T. Ransom.

Materia Medica.

Bronze Medal	Horace Finnemore.
Certificates of Honour	Percy B. Gray. Newell E. Melbourn.

Pharmacy.

Silver Medal.....	Thomas W. Maddison.

The PRESIDENT moved the adoption of the above portion of the report, which was at once carried.

The Sale of Carbolid Acid.

The report of the General Purposes Committee also stated that a recommendation from the Watch Committee that carbolic acid should be added to the Poison Schedule had been considered, and it was recommended that the Council should formally resolve that the following articles ought to be deemed poisons within the meaning of the Pharmacy Act, 1868:—Carbolic acid in crystals, commercial carbolic acid and other liquids containing more than 3 per cent. of phenols.

The PRESIDENT moved, in accordance with the above recommendation, that the above-named articles be formally declared poisons within the meaning of the Pharmacy Act, 1868, and placed in

Part 2 of Schedule A. They were all aware that a question was recently asked in the House of Commons, by Sir John Leng, why carbolic acid was not scheduled as a poison, although it was so scheduled in Ireland. The Home Secretary replied that the Pharmaceutical Society had applied to the Privy Council no the subject, but had not done so recently. The fact was that the Council had twice passed resolutions, and four times made application to the Privy Council asking that carbolic acid might be placed in Schedule A, Part 2, viz., in February, 1882; February, 1886; October, 1888; and February, 1891; and his predecessor in the chair, when in communication with the Privy Council, had reminded that body of the matter. It was quite evident therefore, that the charge of neglect could not be laid at the door of the Pharmaceutical Council, but that it was owing to the opinion of the Privy Council that it was not desirable to restriot the sale of carbolic acid, as the advantage would not be commensurate with the inconvenience of interfering with the free sale of carbolic acid as a disinfectant. Nevertheless, the deaths from this substance increased from 94 in 1891 to 258 in 1895, though in 1897, which was the last year of which there were complete records, there was a slight decrease. Now that regulations had been passed with regard to the keeping and dispensing of poisons, there appeared to be a likelihood of a resolution being received by the Privy Council more favourably. Mr. Bateson, who had always taken a great interest in this question, had written him a letter in which he spoke of carbolic acid as the "demon poison," a term which he thought was quite justified, for it had caused more deaths within recent years than any other poison, or than the whole series of opiates taken as a group. On the day following the question in Parliament a letter was received from a London Coroner, Dr. Danford Thomas, enclosing a rider added by a jury to a verdict of "suicide while of unsound mind." It was to the effect that the attention of the Pharmaceutical Council should be called to the fact that carbolic acid is not in the schedule of poisons, and suggesting that an application be made to the Privy Council on the subject. They also drew attention to the fact that the poison was procured n an ordinary bottle from an oil shop without label of any kind. That was further evidence of the necessity for placing restrictions on the sale of such substances, and those who knew anything of the corrosive nature of the acid and the painful death which it caused would agree that it ought to be sold only under proper restrictions, and by persons who were aware of its nature. He had seen Sir John Leng both before and after he put his question, and his opinion was that there was now an opportunity of approaching the Privy Council with more hope of success. The Committee had carefully considered the matter, especially the definition of carbolic acid which should be adopted, the most dangerous substances which contained the dangerous homologues, and a series of bodies which had not been examined chemically. It was necessary that the restriction should be wide enough to include these poisonous bodies, but it would not include the disinfecting powders which were largely sold; and which it was hardly wise to restrict the sale of. The restriction would also include carbolic acid lotion, the 1 in 20 strength, which was largely used as an antiseptic lotion, and was a dangerous poison which acted quickly on the heart. It was intended to go for the registration of carbolic acid alone, and not to hamper the matter by the addition of other poisons which might be advisedly added, but which would be reserved for a future occasion. It was necessary that the application should be made at once while the subject was still in the minds of the Privy Council and the public.

Mr. Atkins seconded the resolution. It ought to be very clearly understood by chemists and the public that it was not the fault of the Society that carbolic acid had not been added to the schedule years ago. Some eighteen or twenty years ago he was one of those who went to the Privy Council to urge on Lord Carneford the introduction of carbolic acid into the schedule; but that noble Lord seemed to think it would be in restraint of trade. The Society had again and again approached the Privy Council on the subject, and it was within their cognisance that not only the President's predecessor but his predecessor had taken every opportunity of urging the necessity of the inclusion of carbolic acid in the schedule in the interests of the public safety. It ought to have been done years ago; but it had been now forced upon the public conscience by the fact that the poisoning by carbolic acid exceeded that by all other poisons put together.

Mr. Harrison said it was impossible that there could be any difference of opinion at that table as to the advisability of including carbolic acid in the Schedule. He suggested that when the communication was sent to the Privy Council a letter ought to be sent showing that their attention had been called to the matter by the recent reply made by the Home Secretary in the House of Commons. On the last occasion that a request was made to the Privy Council for the inclusion of carbolic acid, the answer given by them was that it would be undesirable in the interests of public health that there should be any restriction placed on the facility of obtaining carbolic acid in remote country districts where no chemists could be found. Now that the Home Secretary had clearly indicated in his reply to the House of Commons that there had been some neglect on the part of the Pharmaceutical Society in making application, they would do well to at once approach the Privy Council, and stating that they do so in consequence of what had been stated in the House of Commons. They wished to make it clear to the public at large that the failure to include carbolic acid in the schedule had not been on account of want of activity on the part of the Council, but was due solely and entirely to the refusal of the Privy Council.

Dr. Symes wished on the part of the Council to repudiate any suggestion of neglect on their part. He had himself moved a resolution on a former occasion, and the Council were unanimous on the subject. At that time not a week, and scarcely a day, passed but there was a death in Liverpool and district from carbolic acid. It became so serious that he had approached the sanitary authorities on the subject. Coroners all over the country had sent recommendations, and yet for some extraordinary reason the Privy Council had persistently refused to acknowledge the desirability of adding carbolic acid to the schedule. It was supposed by those who did not understand the Act that putting carbolic acid in the Poison Schedule would prevent local sanitary authorities distributing carbolic acid gratis to the poor in their districts, though in his opinion it would certainly be a good thing if they distributed it much more carefully. He hoped that the next time the Council met they would have the satisfaction of knowing that this very dangerous poison had been added to the schedule.

Mr. Hills said as reference had been made to his predecessor and himself he should like to corroborate the statement that they had maintained a certain amount of relationship with the Privy Council on this matter, and he was glad to think that there was a possibility now of carbolic acid in its most dangerous form being added to the schedule of poisons. He could not altogether agree with Mr. Harrison; he thought the most dignified way would be to send the resolution as the previous ones had been sent. The Privy Council would know perfectly well why they were acting at the present moment, and were well aware what had taken place in Parliament during the last few days. This question of adding carbolic acid had been under the consideration of the General Purposes Committee, who also considered the desirability of adding other dangerous articles; but he was very glad that the Committee had come unanimously to the conclusion that at the present moment carbolic acid should be deemed to be a poison within the meaning

of the Act. The objections hitherto raised by the Privy Council had been to a certain extent removed. If the resolution were confirmed by the Privy Council carbolic acid in a more or less innocuous form might still be supplied in remote country districts where there was no registered chemist. He wished it to be distinctly understood that he had evidence that up to very recently the Privy Council held the same opinion as they had held for a great many years—viz., that it was not desirable that carbolic acid should be deemed a poison. He quite realised that during the last few months the society had taken a very important step fn passing poison regulations, and that might, in the opinion of the Privy Council, make it more advisable that carbolic acid should be deemed a poison.

The resolution was carried.

Dispensing by Unqualified Persons.

The SECRETARY then read a further paragraph from the report of the General Purposes Committee referring to dispensing by unqualified persons. After considerable discussion the Committee agreed to defer the further consideration of the matter until after the report of the General Medical Council thereon shall have been made public.

The PRESIDENT said this matter was discussed for a long time, with the result which had been read. The General Medical Council had appointed a Committee to investigate and report upon a matter which concerned medical men more than pharmaceutists, because in the Apothecaries Act, 1815, there was a compounder's clause which made it penal for anybody to dispense or compound medicines for an apothecary without holding the assistants' qualification of the Apothecaries' Society. Anything concerning dispensing of medicines concerned pharmaceutists, but the Committee thought it best to wait and see what the General Medical Council had to say on the matter. It must also be remembered that chemists had to train apprentices themselves, and he feared a *tu quoque* argument might be applied, and in the interest of the public they thought it would be better to wait. If nothing came from the General Medical Council it might be necessary for some steps to be taken in the interests of public safety. Sir Walter Scott said: "Should he mix hellebore who doth not know how many grains to the mixture go?" They wanted to see that it was done by some one who possessed the proper qualification, and took care that the dose was not too great.

Mr. GLYN-JONES having intimated a desire to raise the question of taking some immediate action,

The Council went into committee for a short time to settle the form in which the question should be raised.

On resuming, the PRESIDENT moved that the question of dispensing medicines by unqualified persons be deferred until after the report of the Medical Council on the subject.

Mr. ATKINS seconded the motion.

Mr. GLYN-JONES then moved, as an amendment: "That a communication be sent to the General Medical Council respectfully requesting that their Committee appointed to consider the question of the dispensing of medicines in surgeries should hear this Council, either by deputation or letter, before arriving at a definite conclusion." In doing this he was, perhaps, taking an unusual course, but it was not unprecedented, as was shown by the recent action of Sir Richard Thorne at the General Medical Council with regard to the report of the Committee appointed to consider the Midwives Bill. Deferring this matter until after the report of the General Medical Council was a most serious step, and to his mind amounted to relinquishing their right to consider any question concerning the dispensing of medicines. The Committee of the General Medical Council was, to all intents and purposes, a Government Committee, and after the report had been presented it would be practically too late to make suggestions which ought to have been made before. He certainly thought that if they passed this resolution they deprived themselves of the right to approach the General Medical Council on the subject afterwards. They knew the matter was under consideration, and, what was equally as serious, the General Medical Council knew that that Council had the matter under consideration, and any step taken that day would be with the cognizance of the General Medical Council. The resolution practically gave them a free hand, and relinquished any claim of the Pharmaceutical Society to consideration; according to the old proverb, it would be too late to shut the stable door after the horse was gone. He was sorry to hear the President refer to two arguments which might be used against them. In the first place, he said there was a certificate which qualified a man to act as dispenser to a certain branch of the medical profession. An apothecary was a man who held an L.S.A. certificate, and an apothecaries' assistants' certificate was only a qualification to act as assistant to an apothecary, not to a L.R.C.P. The whole conditions of medicine and pharmacy had changed since 1815. At that time it was quite reasonable that a qualification of that kind should be given to an apothecary's assistant, because then the apothecary was the chemist and dispenser, and was in a position to train his pupils; but he did not admit that such a certificate was sufficient to-day to qualify a man to dispense for medical men in general. The other argument, the *tu quoque*, was one which ought not to be considered for a moment. This was a question above all feeling as between medical men and chemists; it was a question of the public safety, and if the General Medical Council were to sanction the practice of employing unqualified men, which had been proved to be dangerous, he did not think they would stoop to use the argument—keep your own house in order before you speak to us. But there was not much force in the argument anyhow. He did not believe there was much dispensing carried on in chemists' shops except by qualified men or under the direct supervision of a qualified man. The Society insisted that there should be a qualified man in every shop; but did the Medical Council insist that there should be a qualified dispenser in every surgery? It was one thing to employ a man who was not qualified to dispense under the supervision of the pharmaceutist, and another thing for a medical man, who might be away for six hours at a time, to leave medicines to be dispensed by a surgery boy. Only last week there was a report of an accident to a dispenser himself, who turned out to be the surgery lad. He failed to see anything, however, in the *tu quoque* argument, and even if there were he did not believe the General Medical Council would stoop to make use of it. Now was the time to take action, if at all and he submitted that if the Council had come to the conclusion that it could not interfere in any way with medical dispensing, it would be much fairer to chemists and druggists generally to say so straight out. The Council was holding out certain hopes which he did not think it was justified in doing unless it was prepared to take some action. Were they true to the principles of the founders of the Society in simply sitting still and taking no action when the matter had been brought so prominently to their attention? Would Jacob Bell or William Allen have allowed such a thing to go on quietly without putting in some claim to be considered? After quoting a passage from a petition in connection with the Bill of 1851, cited in the 'Progress of Pharmacy,' p. 208, Mr. Glyn-Jones went on to say that the course now proposed was not progressive, but retrogressive. Again, was it fair to the annual meeting to simply lie by and do nothing? A resolution was brought forward, of which due notice was given, for approaching the General Medical Council, and an amendment was moved that the whole question be referred to the Council, which was carried, but he doubted if it would

have been carried if the mover of it had stated that the Council did not intend to do anything until the General Medical Council had reported. The amendment was carried by fifty-six votes to forty-eight, and if he deducted the fifteen members of the Council who voted for the amendment there was a majority of independent members in favour of his resolution. If, then, the Council did not act something in the spirit of the evident feeling of the unofficial members of the Society, he should submit that it was open to the charge, at any rate, of over-riding the wishes of the members. Another point, which was a somewhat delicate one, was this: he owed his seat on the Council to the fact that a great number of the members believed that this was the proper course to take. He made it a prominent plank in his platform, and he was the only one out of six new candidates who was returned.

The PRESIDENT said Mr. Glyn-Jones's resolution was rejected, not carried. The members of the Council had as much right to vote as any other member.

Mr. GLYN-JONES said he was referring to the evident feeling of the independent members of the Society.

The PRESIDENT said all the members were independent.

Mr. GLYN-JONES said he would use the word "unofficial" apart from the vote of the Council.

Mr. ALLEN said the members of the Council knew most about the matter.

Mr. GLYN-JONES said his point was that the unofficial members had shown in several ways that they were anxious for something to be done on the lines of his amendment. He would ask his colleagues to consider the position of the rank and file of the trade; 80 or 90 per cent. of the members hardly saw a prescription a week. It was not a question merely of trade interest; he put it on the higher ground of the public safety, the question which underlay the whole of the Pharmaceutical Act. But having gone to the trouble and expense of training and qualification, if anything could be done to prevent people who had not gone to the trouble and expense of doing their work, it should be done. It had been said that the members of the Council did not suffer very much from lack of dispensing, and there was a great deal of truth in it. They were generally men fortunate enough to own the best business in their district, and they did not feel as strongly as some others the pressure of the question whether they were qualified to dispense medicines and sell poisons, or simply to sell poisons. In fact, many men spent fifteen months in study and went to almost as much expense as was necessary to enter the medical profession, simply to qualify them to sell Battle's Vermin Killer, or a penny-worth of red precipitate. That was the position of a great many men, through no fault of their own, but simply because other persons who had had no training were allowed to dispense medicines. He felt that if nothing were done now, it would be a colossal error, from which he wished to dissociate himself, and an error which would be irretrievable. If the view was that the General Medical Council was at all likely to tell them to mind their own business, he thought that would be much more probable if they waited until the report of the Committee had been presented, than if they made a representation at once. What risk did they run? He listened on the previous evening very carefully to the arguments of men of greater experience than himself, and perhaps more wisdom, but he failed to gather one argument against approaching the General Medical Council respectfully, and asking to be heard. The cheap dispensary, which was as dangerous to the public as it was inimical to the interests of the medical profession and of pharmaceutists, could not be conducted if the men who ran it had to keep qualified men. There were hundreds of such places in London, where human beings were treated with less consideration—both as regarded diagnosis and dispensing—than pet animals. He protested against that kind of thing going on, without raising a finger, or asking to be heard before the General Medical Council came to any conclusion.

Mr. YOUNG seconded the amendment in order that the question might be discussed. He did not agree with all that Mr. Glyn-Jones had said, but rather shared the view that it would be injudicious to do anything which might savour of an interference with the rights and privileges of such an ancient body as the Society of Apothecaries.

Dr. SYMES said that they would all agree with Mr. Glyn-Jones that it was undesirable that medical men should employ unqualified assistants, but the present time was inopportune for taking action. He thought the Medical Council were in earnest, and the best way would be to first hear what they had to say. No doubt they would look at it from a medical point of view, but still with an open mind. He did not wish to vote against the desirability of taking an interest in the question, but only against doing it now at what he thought an inopportune moment.

Mr. CROSS said the question was largely one of administration. The Pharmaceutical Council had to administer the laws affecting pharmacy, whereas the Medical Council had to administer the law as far as the practice of medicine was concerned, and he declined to assume that the General Medical Council was not as keenly alive as they were to the necessity of the extremist cautions in the preparation of medicine. To that responsible body the question had been referred by the Government, and he thought it was not opportune for the Council, when the General Medical Council had gone so far as to appoint a committee to go into the matter, to interfere with its proceedings. It would be unwarrantable on their part to offer advice at the present moment, or to sue for a hearing, and it would be unworthy of the position which they held as administrators of their own affairs. Why should they accentuate their ability to dispense medicines; all the world knew that, and no one better than the General Medical Council. It had been said that a feeling of irritation might exist at the subject ever being raised at all by the medical profession, but he could not believe that that would be so.

MR. STORRAR said they were all indebted to Mr. Glyn-Jones for bringing forward the arguments he had brought forward, and even for his amendment, which gave them an opportunity in open council of stating their opinions on a very important question. Although he was in sympathy with Mr. Glyn-Jones's objects, he could not agree with many of his arguments. In the first place, the Council were in no way in the position of delegates; they were sent there by their constituents to use their own judgment, and to act on their own responsibility. With reference to what Mr. Glyn-Jones had said about the result of the elections to the Council, he would point out that the old Council would returned with but one exception. They were there for the purpose of carrying out an Act of Parliament, and the constitutional way to interfere in this question was to prosecute unqualified dispensers whenever they had the power to do. They should, if possible, get into touch with the Medical Council on the question. He thought, perhaps, the decision come to by the General Purposes Committee was a little too strict, and that the Watch Committee should have power to approach the Medical Council if they saw fit even before a report was presented. He should suggest that something be added to the General Purposes Committee's report to that effect.

The PRESIDENT said there was a distinct resolution and an amendment to that resolution before them.

Mr. HILLS said the state of pharmacy in this country would never be satisfactory until the prescribing of medicines and the dispensing of medicines were in different hands. It was thought that the dispensing of medicines, whether in private or open surgeries, or in chemists' shops, should only be carried out by those who held the Pharmaceutical Society's qualification, unless they

were actually carried out by a man holding a medical qualification. He regretted that public departments did recognise other qualifications, which made the matter more difficult to deal with. He could not agree with Mr. Glyn-Jones that the General Medical Council was at all on a par with any Special Committee of the House of Commons. There were many reasons, which it would be impolitic to bring forward, which did influence the General Purposes Committee in coming to the resolution it had after hearing the views which Mr. Glyn-Jones had expressed with considerable ability.

Mr. ATKINS said he admired the compactness and cogency with which Mr. Glyn-Jones presented his case, and his intense earnestness; but he could not altogether agree with him. He thought it would be impolitic, certainly at that moment, to address the General Medical Council, and he was afraid that some gentlemen took rather too much for granted their rights as to dispensing. He agreed with Mr. Hills that the ideal was that one class of persons should prescribe, and another class should dispense; but they, as a Society, had only a record of some fifty years, while the medical profession had existed for centuries. When the question came to be argued before the Committee of the General Medical Council they would find very complex interests involved. He could not but think that if medical men could see their way they would be glad to get rid of dispensing; but he could not support the amendment that they should claim to be heard at once.

The PRESIDENT said it was not proposed to shelve the question, but merely to await the report of the Medical Council. They had to move with caution. In his opinion it would have a better effect if, rather than adopting a defiant tone, they were to use the "oily feather." They had not the sole right to dispense medicines, for apothecaries had the right long before. He thought the dispensing of medicines would come into their hands if they waited. From his experience of the younger race of medical men they were not going in so much for preparing their own medicines as their fathers did before them.

The amendment was then put and lost.

Mr. STORRAR said he thought that the Council should not be tied up quite so hard and fast as it would be by the resolution, and suggested as an amendment that the Watch Committee be instructed to keep in view the action of the Medical Council Committee, and be authorised to act if it were thought advisable.

Mr. ALLEN said the Watch Committee had power already to act in any case of emergency.

Mr. GLYN-JONES said he understood the resolution would forbid anything being done until after the report of the committee of the General Medical Council. He should be glad to second Mr. Storrar's amendment.

Mr. STORRAR did not see how the Watch Committee could act if the resolution were carried.

Mr. CROSS said the Watch Committee could only act on some further information.

Mr. SYMES submitted that Mr. Storrar's suggested amendment was out of order, not being an amendment at all, but in reality negativing the effect of the resolution.

After some further discussion, including a statement by the PRESIDENT that the Watch Committee could take action at any time if necessary. Mr. STORRAR said if that were understood he would withdraw his amendment. The original resolution was then put and carried.

Legal Business.

The Council then went into Committee to hear and consider the report of the General Purposes Committee dealing with legal matters. On resuming, the report and recommendations were unanimously adopted, and a special resolution was passed authorising the Registrar to take proceedings against the persons named therein.

STROPHANTHUS KOMBE.

BY E. M. HOLMES, F.L.S.

Curator of the Museums of the Pharmaceutical Society.

The difficulty of obtaining pure seed of *Strophanthus kombe*, agreeing with the description and colour test given in the British Pharmacopœia, has long been known. (*See Pharm. Journal* [3], **23**, pp. 868, 927.) The seeds entering commerce have sometimes come from East Africa, sometimes from the west of that Continent, and in either case have frequently consisted of a mixture of the seeds of different species; or, if pure, of the non-official species. This, indeed, was so much the case that even some of the seeds supplied to Professor T. R. Fraser, F.R.S., for his experiments consisted of mixed seed, similar in appearance, but some giving the red and others the green reaction with sulphuric acid. The original *Strophanthus kombe*, Oliver, is a native of East Africa, and has never to my knowledge been found on the West Coast, therefore, any *Strophanthus* seed imported from the West Coast is not in the least degree likely to be the genuine drug. For the last ten years I have been endeavouring to obtain the flowers and fruits, together with the leaves, of the genuine *Strophanthus kombe*, and in the course of my inquiries I have learned that what I formerly suspected is true, viz., that the best *Kombe* seed obtainable in commerce has hitherto consisted of the seeds of at least two, and probably three, species mixed, the seeds from different districts being bulked together. Through the kindness of Mr. F. M. Moir, of the African Lakes Corporation, Limited, 45, Renfrew Street, Glasgow, and Professor G. F. Scott-Elliot, M.A. (corresponding member of the Society, and well known as an African traveller), I have been able to obtain specimens of the plants from which the seeds are stated to be obtained. These consist of *S. emini*, *S. kombe*, *and S. courmonti*. The seeds have also been received separately in pods, not mixed as in commerce. Of these, I have pointed out to Mr. F. M. Moir the variety that complies with the British Pharmacopœia tests, and asked him, if possible, to secure its being sent into commerce in pods and with some distinguishing mark—such as a definite brand, that would enable chemists to obtain a uniform seed agreeing with the official tests in the Pharmacopœia, since there is little doubt that the somewhat uncertain action of the tincture met with in commerce is largely due to the unequal character and different kinds of the seeds that arrive in commerce. In reply, he states:—

"We have written fully to our friends in Africa on the subject, and are asking them to ship only the genuine quality, and under the mark 'Mandala Brand.' All packages of this genuine *Strophanthus* will be marked A.L.C.L. 'Mandala Brand,' London, and the seed will be sent in pods."

As it is obviously impossible to test separately every seed in a mixture of seeds and thus separate them, whilst it is comparatively easy to test one seed out of each pod, the plan of sending the seed in pods will render it now possible to get a pure and uniform drug.

GONOROL.—This is a preparation which is being recommended for urethritis and gonorrhœa. It consists solely of the alcoholic constituents of sandal wood oil. The esters (3-4 per cent.) are split up into gonorol and the respective acids, these and the remaining non-alcoholic portions (about 10 per cent.) are removed. These latter consist principally of sesquiterpenes and other aromatic bodies. The preparation is a colourless, syrupy oil, of very feeble musty odour and taste. It has the following characters:—Specific gravity at 15° C. 0·976; boiling point constant at 286-288° C.; specific rotation in 100m. tube —18°; Köttstorffer saponification number 12·4; Hubl's iodine, number 104·5. Gonorol is soluble in 3·5 parts of 70 per cent. alcohol at 20°6C., while ordinary sandal oil is only soluble in 5 parts of alcohol, 70 per cent. The purity of the preparation is evidenced by the high proportion of "santalol," which amounts to 96·5 per cent. on acetylisation.—*Wien Klin. Woch.*, **52**, 11.

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LONDON: SATURDAY, JULY 8, 1899.

THE COUNCIL MEETING.

The ordinary routine business of the Council last Wednesday was not marked by any feature of special interest. After the minutes of the previous meeting had been read, the President announced that Professor Leech had consented to deliver the inaugural address at the opening of the Society's School in October.

The additions to the Society comprised thirty-three members and ten student-associates, besides a considerable number of persons who were restored to their status in connection with the Society.

The report of the Finance Committee showed that the receipts from candidates for qualification had given a fair amount of cash in hand.

On the recommendation of the Benevolent Fund Committee six grants, amounting to sixty-five pounds, were ordered to be paid. Mr. S. R. Atkins was added to the Committee on the motion of the Vice-President.

The report of the Library Committee stated that the Court of Assistants of the Salters' Company desire to leave the selection of a Fellow in the hands of the Research Committee, and that in reply to the inquiry of the Colonial Office respecting the Gibraltar Pharmacy Ordinance, the Council has expressed the opinion that it should, if requisite, be brought into line with the British law.

The receipt of various communications was mentioned by the President; they all related either to the Companies Bill or other proposed pharmaceutical legislation, and expressed approval of the action taken by the Council. On the motion of the President delegates to the Pharmaceutical Conference at Plymouth were appointed.

The members of the Society's School staff were re-appointed. (See page 30.)

The report of the General Purposes Committee contained a statement of the awards of prizes to candidates successful in the recent examination, one of the number being a lady student in the Society's School. (See page 30.)

An exceptionally interesting detail was the recommendation that in view of a recent expression of opinion by the Home Secretary the Council should, in accordance with the provision of Section 2 of the Pharmacy Act, 1868, again formally pass a special resolution that carbolic acid ought to be added to the schedule of poisons within the meaning of that Act. The President, in moving the adoption of this recommendation, referred to the terms of the answer given by Sir Matthew White Ridley to the question asked by Sir John Leng as affording indication of a change in the position of the Privy Council in regard to this matter. He also pointed out that, in addition to recent references to the subject by his predecessor, when in communication with the Privy Council Department, the Council had, since 1882, on two previous occasions, passed special resolutions that carbolic acid should be added to the Poison Schedule, and had also made four applications to the Privy Council on the same subject without success. Hence, he argued that the neglect to carry out, in regard to carbolic acid, the provision of the Act could not be charged to the Pharmaceutical Society or its Council, but that it has been a consequence of the opinion that was held by the Privy Council Department as to the undesirability of restricting the sale of carbolic acid in the public interest, and thus causing inconvenience incommensurate with any advantage to be gained. But the increase in the number of deaths caused by carbolic acid since 1891 has been very considerable, and by the adoption of regulations as to the storing of poisons other objections to the addition of carbolic acid to the Poison Schedule had now been removed so far that it is likely the resolution of the Council would be received by the Privy Council with greater favour.

Mr. Atkins, in seconding the motion, which was subsequently carried, remarked that both chemists and the public should very clearly understand that it was by no fault of the Society that carbolic acid had not been added to the Poison Schedule many years ago. As a member of the deputation to the Privy Council, he could remember that Lord Carlingford's objection to scheduling carbolic acid seemed to be due to the belief that it would cause "restraint of trade," and a similar idea had defeated all subsequent attempts made by the Council in the discharge of its statutory duty, and in the interest of public safety. Now that the necessity has been forced upon the public conscience by the established fact that poisonings by carbolic acid are more numerous than those caused by all other poisons put together, adequate provisions might be effected.

Mr. Harrison suggested that in communicating with the Privy Council particular mention should be made of the circumstance that the Council's attention had, on this occasion, been drawn to the matter of carbolic acid by the remarks of the Home Secretary in replying to Sir John Leng, and that any previous failure was entirely due to the Privy Council. He recalled the fact that when the last request was made for adding carbolic acid to the Poison Schedule the answer given by the Privy Council Department was that any restriction of the facility for

obtaining that article in remote country districts would be prejudicial to the interests of public health. He thought that should be made clear, because the reply of the HOME SECRETARY to Sir JOHN LENG'S question very clearly indicated that there had been some neglect on the part of the Pharmaceutical Society in not making a renewed application to the Privy Council, whereas that neglect was solely referable to the Privy Council.

Dr. SYMES also repudiated the suggestion of neglect on the part of the Council. At one time there had been a death almost daily in Liverpool and the district, and he had moved the sanitary authorities on the subject. Coroners all over the country had made urgent recommendations, but the Privy Council Department had persistently refused to sanction the addition of carbolic acid to the Poison Schedule.

Mr. HILLS corroborated the statement that the question as to carbolic acid had been kept before the Privy Council by himself and his predecessor, and expressed his satisfaction that there was now a prospect of the most dangerous form of that article being suitably dealt with. In reference to Mr. HARRISON'S suggestion, he thought that the Privy Council Department would be sufficiently aware, from what had taken place in Parliament, why the Council was acting at the present time. The recommendation now made would leave the more innocuous forms of carbolic acid preparations without interference, and thus the objection raised on the ground of their use as disinfectants had been removed. He wished it to be distinctly understood that the change of opinion at the Privy Council Office was quite recent, and he thought the very important step taken by the Society in regard to poison regulations might have induced the opinion that the addition of carbolic acid to the Poison Schedule was now advisable.

The Council finally passed a resolution adopting the recommendation of the General Purposes Committee, that carbolic acid in crystals, commercial carbolic acid, and liquids containing more than three per cent. of phenols should be added to the Poison Schedule.

Another portion of the report of the General Purposes Committee related to the subject of dispensing by persons having no pharmaceutical qualification, the Committee recommending that further consideration of that matter should be deferred until after the General Medical Council's report upon it had been published.

The PRESIDENT remarked that the matter, referred to a Committee by the General Medical Council, concerned medical men more than pharmacists, and therefore it was thought best to see what the Committee of the General Medical Council would say in regard to it, and he moved that the recommendation of the General Purposes Committee be adopted. That was seconded by Mr. ATKINS, and Mr. GLYN-JONES then moved as an amendment that the General Medical Council should be requested to hear the Society's Council either by deputation or letter before arriving at a definite conclusion, remarking that he took that unusual but not unprecedented course because he thought that by deferring action the Council might be to some extent relinquishing its right to consider any question relating to the dispensing of medicine. Regarding the General Medical Council as a Government Committee, he held that it would be practically too late to offer suggestions when its report had been presented. In regard to the assistants' qualification under the Apothecaries Act, 1815, he held that it was only a qualification for assisting a licentiate of the Society of Apothecaries, and not a licentiate of a College of Physicians. Since that time the conditions of the practice of medicine and of pharmacy have been entirely changed, and the chemist now occupied the position then held by the apothecary. The employment of unqualified dispensers by medical men was, he contended, very different from the dispensing by an unqualified person under the supervision of a legally qualified chemist, and if the Council could not interfere in any way with the medical dispensing, it would be fairer to chemists to say so at once. He thought the Council would not be true to the principles of the Society's founders if it did not take action in regard to a matter that had so prominently been brought under its notice, and give effect to the evident feeling and desire of members of the Society. He held that inaction at the present moment would be a colossal error, from which he wished to dissociate himself.

Mr. J. RYMER YOUNG seconded the amendment, mainly in order that the question might be discussed.

Dr. SYMES agreed that it was undesirable medical men should employ unqualified dispensers, but he also thought it would be inopportune for the Council to take action now.

Mr. CROSS could not assume that the General Medical Council was not as keenly alive to the necessity of caution in the dispensing of medicine as the Council of the Society, and as no one knew better than the General Medical Council chemists' ability to dispense, it was unnecessary for them to accentuate that capacity.

Mr. STORRAR expressed satisfaction at the opportunity afforded for discussing the subject in open Council, but, while sympathising with Mr. GLYN-JONES'S object, he did not agree with some of his arguments, and suggested that some addition to the recommendation of the General Purposes Committee might meet the case.

Mr. HILLS called attention to the fact that the state of pharmacy in this country would never be satisfactory until the prescribing and dispensing of medicines were separated. He regretted also that other qualifications than that of the Pharmaceutical Society were recognised by public departments.

Mr. ATKINS thought the assumed rights of chemists as to dispensing were too much taken for granted, and that very complex interests were involved, though many medical men would no doubt be glad to be relieved of dispensing.

The PRESIDENT remarked that there was no intention of shelving the subject, but only to wait until the report of the General Medical Council's Committee appeared. He thought dispensing would in time come into the hands of chemists, and that the younger medical men would promote that change.

Mr. GLYN-JONES'S amendment was then put, but not carried, and some conversation ensued as to the powers of the Watch Committee, after which the original motion to adopt the recommendation of the General Purposes Committee was carried.

After consideration of the legal portion of the report, a special resolution was passed authorising the Registrar to take proceedings in various cases of alleged infringement of the Pharmacy Acts.

ANNOTATIONS.

The Plymouth Programme of the British Pharmaceutical Conference is printed in full at page 39, and attention is again directed to the necessity of applying to the Hon. Local Secretary—Mr. J. Davy Turney—for tickets by Monday, July 17, at latest. This rule is a new one, but it is meant to be enforced, and much trouble and regret may be saved if all who think of attending the meeting at Plymouth will decide promptly, and intimate the fact if they are going. Similar remarks may fitly be addressed to members who propose to contribute papers on this occasion. It is not desired to have a long list of papers, and those sent in should be in the hands of the Hon. Gen. Secretaries, 17, Bloomsbury Square, London, not later than Friday, July 14. The titles of the papers should be intimated earlier, if possible, and authors are requested to note that all applications for copies or abstracts of their papers must be referred to the Hon. Gen. Secretaries, who will deal with them in due course. To delay sending in papers, in order that abstracts may be prepared, or for any other purpose simply causes unnecessary trouble to the Secretaries, and may prevent the papers being put into type sufficiently promptly to enable the authors to check the printed proofs properly. Proofs will be sent for revision and correction to every person whose paper is received by the Hon. Gen. Secretaries within the time specified, but no such undertaking can be given in respect of papers which arrive at a later period.

Mr. A. C. Wootton, who has for many years past been editor of the *Chemist and Druggist*, has recently retired from that position and, as will be gathered from a letter in this week's Journal (see page 44), a project is on foot to recognise his services to the drug trade, in some form or other, and to that end it is proposed to hold a meeting at Anderton's Hotel, Fleet-street, London, on Monday next. Mr. Wootton's long career as a journalist has been an eminently successful one from a business point of view, and he is to be congratulated upon the fact that his retirement takes place at a time when he is fully capable of participating in all the pleasures of life. The persistent tone of antagonism towards the Pharmaceutical Society adopted in the organ which Mr. Wootton has so ably conducted during more than a quarter of a century has probably conduced largely to its commercial success, but at the same time it has been beneficial to the Society and, during the past two years or more, has gone far to increase its membership, and encourage the improvement of its organisation. That which is threatened tends to survive beyond the normal period of existence, and in proportion as the Pharmaceutical Society has been the subject of perverse opposition—and been attacked by misleading mistatements of facts—so has it thrived and become more firmly established than ever. Not the least, therefore, of Mr. Wootton's claims to the gratitude of the craft is that of having helped to weld more firmly the bonds of union, which are better exemplified in the Pharmaceutical Society than in any similar organisation. On his retirement, he will doubtless continue to be a member of that body, and as such he will have the hearty good wishes of all his fellow members who are able to weigh his labours impartially and judge his aims aright.

Sir William Henry Flower, whose death occurred on Saturday last, was born at Stratford-on-Avon on November 30, 1831. After a course of study at University College, London, he entered the Army and served in the Crimea with the 63rd Regiment as assistant-surgeon, receiving the medal with clasps for Alma, Inkerman, Balaclava, and Sevastopol, and the Turkish medal. On his return to this country he became Assistant-Surgeon and Demonstrator in Anatomy at the Middlesex Hospital, and a year or so later he was appointed to the curatorship of the Hunterian Museum of the Royal College of Surgeons. In 1869 he was chosen Hunterian Professor of Comparative Anatomy and Physiology, and fifteen years later he succeeded Owen as Director of the Natural History Museum at South Kensington, a position which he resigned only last year, in consequence of failing health. As the *Times* points out Sir William Flower will probably be remembered rather in connection with his work on the classificatory side of science than as the author of any brilliant discovery or striking generalisation. Yet he made substantial contributions to natural science, the Royal Society's catalogue of scientific papers giving eighty-nine entries under his name, and though many of the papers deal with abstruse points which can only be appreciated by the specialist, taken altogether they represent a solid addition to scientific knowledge. He had considerable talent for the patient and minute collation of facts, and in articles such as that on the Mammalia in the last edition of the 'Encyclopædia Britannica' he showed himself a master of compressed and accurate statement. Many of the smaller articles on zoological subjects in the 'Encyclopædia' also came from his pen, and he was the author of several books of acknowledged merit including 'An Introduction to the Osteology of the Mammalia,' 'Diagrams of the Nerves of the Human Body,' 'Fashion in Deformity,' and 'The Horse; a Study in Natural History.' His last publication was a volume of collected essays on museums and their administration. He was much and justly esteemed by scientific men all over the world, and numerous honours fell to his lot. In 1864 he was elected a Fellow of the Royal Society, which awarded him a Royal medal in 1882. He was President of the British Association in 1889, having previously acted as President of the biological section in 1878, and of the department of anthropology in 1881. In 1879 he became President of the Zoological Society, and from 1883 to 1885 he served as President of the Anthropological Institute. He also presided over the anatomy section of the International Medical Congress which met in London in 1881. Oxford and Cambridge both conferred honorary degrees upon him, and the Institute of France made him one of its corresponding members. He received the honour of C.B. in 1887, and of K.C.B. in 1892.

Difficulty in Obtaining Temporary Aid during the holiday season is referred to by a correspondent in the *Lancet* as a probable consequence of the agitation against the employment of unqualified assistants that is likely to be experienced by medical men, and will have to be provided against in the future. As regards the dispensing of their medicines, he suggests that the medical men of a given locality should unite together and open a chemist's shop for themselves, with a qualified manager to carry out that part of their work. It may, however, be pointed out that in most instances a more convenient method might well be adopted by making an arrangement with local chemists, since there are now few places where the services of a duly qualified person are not available for the purpose of dispensing, and such an arrangement as that referred to recently by several writers in the medical journals would be desirable in other respects.

The Qualification of Public Analysts is a matter of grave importance to the public, and the action of the Irish Local Government Board in raising the question of the fitness of candidates for the post of public analyst is, therefore, to be commended. Quite recently it was reported that the Board had cancelled the appointment as analyst to an Irish Union of a practising analytical chemist of forty years' standing, on the ground that he had not the requisite qualification. What that qualification is may best be gathered from a letter recently received from the Local Government Board, by the Athlone Board of Guardians. In that it is stated that, in appointing an analyst for the Athlone Union, it is

desirable to endeavour to obtain the services of an analyst who, in addition to being a Fellow of the Institute of Chemistry, has had considerable experience in the analysis of drugs, and either possesses or is connected with a fully-equipped laboratory. This appears to be almost too common-sense a view for a Government department to take, but it is none the less one to be encouraged. Practical experience in performing work of the same character as the analyst may expect to be called upon to do in his official capacity is of much greater importance than membership of any number of societies, even though—as in the case of the Institute of Chemistry—entrance cannot now be obtained unless the would-be member is properly qualified. And it is especially to be desired that public analysts should have a much more practical acquaintance with the analysis of drugs than is now usually the case.

THE DENTAL BOARD OF VICTORIA has framed regulations under the Dental Act, 1898, and forwarded them for the approval of the Governor in Council. Under those regulations, candidates for registration as dentists and for the diploma of Licentiate of Dental Surgery of Victoria must produce evidence of having passed a preliminary examination, served an apprenticeship, and pursued a course of professional study. The preliminary examination will be in English, German, French, Latin, arithmetic, algebra, geometry, history, and geography, and candidates must pass in four of those subjects, including Latin. The apprenticeship must extend over a period of not less than three years, and be served with a registered Victorian dentist. The course of professional study must extend over four years, the subjects of study being chemistry, anatomy, dental mechanics and metallurgy, materia medica and therapeutics, physiology and histology, general surgery and pathology, dissections, medicine, dental anatomy and oral surgery, dental surgery, pathology and bacteriology. Four examinations must also be passed before the Board.

THE SPALDING POISONING CASE has ended, as anticipated, with a verdict of "Guilty" against the accused man Bell, who was sentenced to death in due course. Mr. Justice Lawrance, who tried the case, commented, when summing up, on the large quantity of poison supplied to Bell, and pointed out, according to a local newspaper report, that "this had been done in face of an Act of Parliament regulating the sale of poisons." Apparently, therefore, the judge was of opinion that the requirements of the Act had not been properly fulfilled. The seller of the poison, who recently wrote to the Journal (see last volume, p. 512*c*), protesting against the statement that he had acknowledged supplying poisons to a person who was neither known to him nor introduced by some person known to him, gave evidence at the trial which appears fully to confirm the view that he did supply the poisons under such improper conditions. According to the local newspaper report, A. H. Molson, Manager of the Spalding Branch of Dr. Talbot's Herbal Remedies Company, Limited, stated that prisoner came to him on Saturday, April 22, and asked for two ounces of laudanum and one ounce of "white mercury" for poisoning rats. "He had been a customer before—at least, witness thought so, as his face seemed familiar . . . He (prisoner) signed his name and address in the sales of poisons book, as 'Edward Bell, of Holbeach Hurn,' and gave the name of Mr. Clayton as a person who knew him." On a subsequent occasion Bell returned, and "asked to be supplied with arsenic, but not having any, strychnine was supplied instead . . . also a further ounce of mercury." In cross-examination, the same witness said "he believed prisoner had been in his shop four or five times previously; his face was familiar, but he did not know his name. He knew Mr. Clayton, his employer, very well by name, but did not know him personally." In effect, therefore, Molson appears to have acknowledged that he neither knew the man who purchased he poisons, nor the person whose name was given as a reference, and there was no suggestion of the purchaser having been introduced by a person known to the seller. Under those circumstances, therefore, the requirements of the Act certainly appear to have been ignored by the seller

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TWO OTHER NOTABLE POISONING CASES have also been concluded this week. In one, Mary Ann Ansell was found guilty of having caused the death of her sister, who was an inmate of Leavesden Asylum, near Watford, by administering phosphorus paste in a cake, sent by post. The second case was that of a girl of fifteen, who was charged with administering atropine to the members of her employer's family, in a rice pudding. The defence, however, was that the whole affair was the result of an accident. The bottle containing the atropine solution was alleged to have acquired a flavour of almonds, and the prisoner stated that she added some of the contents to the pudding in the belief that she was adding almond flavour. In the result the judge (Mr. Justice Mathew) advised the jury not to convict the prisoner of an attempt to murder, and she was acquitted.

A GIFT OF POISON is supposed by some registered chemists to be exempt from the restrictions imposed by Section 17 of the Pharmacy Act, 1868, but it is far from certain that such is absolutely the case, and in any event the onus of proving that no consideration had been received might place any chemist who had been freely distributing poison in an extremely awkward position. At an inquest held in the City Coroner's Court, Liverpool, last week, there was a case of the kind referred to, the deceased—a man of seventy-four—being shown to have died as the result of taking prussic acid which had been given to him by a chemist's assistant. The latter, who is a duly registered person, said he had known the deceased as a customer for about ten years and gave him the two drachms of prussic acid to poison "an old dog." As no sale was effected no entry was made in the poison book, witness considering that an entry was only required when an actual sale was effected. The Coroner, however, said it was essential that every precaution should be taken by chemists supplying deadly poisons, and he expressed extreme surprise that prussic acid should have been given to the deceased upon merely saying that he wished to poison a dog. It was no palliation, he said, that the transaction was a mere gift and that the Act of Parliament did not apply, and the jury also expressed disapproval of the chemist's conduct.

THE PREVENTION OF CORRUPTION BILL which is in charge of Lord Russell of Killowen, has now been amended on report. Its object, as briefly stated in the memorandum prefacing the Bill, is an effort to check, by making them criminal, a large number of inequitable and illegal secret payments, "all of which are dishonest and tend to shake confidence between man and man and to discourage honest trade and enterprise." Sections 1 and 2 make the gift, offer, receipt, and solicitation of any corrupt payments' offences. But "corrupt payments" are not defined by the Bill, though certain transactions are declared to be corrupt. The reason given for this is that corruption "is so protean that to define it is almost impossible. For this reason the courts have always declined to define fraud." However, Sections 3 to 8 contain declarations that certain transactions are corrupt unless the contrary be shown. Subsequent sections deal with gifts to an agent and to an agent's wife or child, also to cases where prejudiced advice is given because a secret commission has been received or is expected. The practice of giving falsified invoices is also aimed at, as well as the formation of clubs to afford an indemnity against fines. In the event of the Bill becoming law, it is proposed that it shall not come into operation until January 1, 1900, in order that its provisions may become widely known before they are enforceable.

BRITISH PHARMACEUTICAL CONFERENCE.

Plymouth Meeting, 1899.

PRESIDENT: MR. J. C. C. PAYNE, L.P.S.I., J.P.

The thirty-sixth annual meeting of the British Pharmaceutical Conference will be held in the Western Law Courts, Plymouth, on Tuesday and Wednesday, July 25 and 26, and the arrangements already made include the following:—

Monday, July 24.—The President's reception at the Assembly Rooms, Royal Hotel, at 8 p.m. Scientific exhibits, vocal and instrumental music, light refreshments, etc.

Tuesday, July 25.—Opening meeting of the Conference in the Western Law Courts, at 10 a.m. 10 a.m., welcome by the Right Worshipful the Mayor of Plymouth, Alderman J. Pethick, Esq., J.P. Address by the President of the Conference, followed by the reading and discussion of Papers. Adjournment for Luncheon, at 1 p.m, at the Corn Exchange. Reading of Papers resumed at 2 p.m. until 4 p.m. 4.30 Steamer Trip along the Cornish Coast to Looe; Afternoon Tea on board.

Wednesday, July 26.—Sessions of Conference and Luncheon will be arranged as on the previous day. Afternoon Tea, 4.30, at the Assembly Rooms. At 8 p.m. there will be a Smoking Concert, a Ladies' Drawing-room Concert; and at 10.30 to 12, Dancing.

Thursday, July 27.—At 9.30 a.m. the members and their friends leave the Promenade Pier by Steamer for Mount Edgcumbe, to visit, by kind permission of the Earl of Mount Edgcumbe, his Park and Gardens. The beauty of these stately grounds defies description, they have a world-wide reputation. From the higher paths a complete panorama of the Town, the Harbour, and the surrounding country can be seen. At 12.45 a.m. the Steamer will leave Cremyll Beach for the Pier. At 1 p.m. Luncheon will be served in the Pavilion. At 2.30 p.m. Steamer will leave for trip around the Sound, through the Hamoaze and up the River Tamar to Morwellham. Afternoon Tea will be served on board. Steamer returning about 9 a.m. to the Promenade Pier.

Friday, July 28.—Arrangements will be made for the members and their friends to visit the Dockyards and places of interest in the neighbourhood.

Handbook.—A specially written and illustrated handbook to Plymouth and neighbourhood is in course of preparation, and copies will be presented to the members and their friends who attend the annual meeting.

Tickets.—No. 1 Book of Tickets, 10s. 6d. each, will admit to Conference; Luncheons at the Corn Exchange on Tuesday and Wednesday; Steamer Trip to Looe; Afternoon Teas on Tuesday and Wednesday; Smoking Concert and Ladies' Drawing-room Concert. By kind permission of the director of the M.B.L., admission to the Aquarium of the Marine Biological Association may be obtained on exhibition of Book No. 1. No. 2. Book of Tickets, 10s. 6d., Steamer Fares; Promenade Pier Ticket; Luncheon in the Pavilion; Afternoon Tea on Steamer, etc. Owing to local arrangements that have been made, and in order to insure the comfort of our visitors, applications for tickets cannot be entertained after Monday, July 17.

Hotels.—The Royal Hotel, Plymouth, has been selected as the nominal headquarters, but only a very limited accommodation has been obtained there. The Local Committee wish to emphasise a fact already made known to most of the members through the official press that, owing to two other Conferences meeting at Plymouth the same week as the British Pharmaceutical Conference the hotels will be unusually full. If members who propose visiting Plymouth will kindly write at once to the Hon. Local Secretary, Mr. J. Davy Turney, 15, Leigham Terrace, Plymouth, specifying what accommodation they require, and allowing him under the circumstances to use his own discretion, much valuable time will be saved and possibly inconvenience avoided.

Local Committee.—The following are the members of the Plymouth Local Committee:—Messrs. C. J. Park (Chairman), Plymouth; J. Allen, Plymouth; N. Andrews, Plymouth; W. H. Austin, Devonport; J. Harvey Bailey, Plymouth; A. P. Balkwill, Plymouth; J. Barge, Plymouth; E. P. Blamey, Plymouth; J. Blamey, Plymouth; Geo. Breeze, Plymouth; A. D. Breeze, Plymouth; J. Kinton Bond, Plymouth; J. Cocks, Stonehouse; H. J. Dalgleish, Exeter; H. D. Davey, Devonport; R. D. Doble, Tavistock; F. Downing, Launceston; E. L. Foster, Plymouth; G. H. Green, Plymouth; H. P. Hearder, Plymouth; Freeman W. Hunt, Plymouth; G. E. Jackson, Crediton; Martin K. Johnson, Devonport; H. Keen, Penzance; P. A. Kelly, St. Budeaux; N. F. Lakeman, Modbury; J. A. Lamble, Devonport; J. Hinton Lake, Exeter; J. Luxton, Exeter; F. Maitland, Stonehouse; J. Maurice, Plymouth; J. G. Netting, Plymouth; J. Poad, Looe; F. H. Ralph, Plymouth; R. F. Roper, Plymouth; J. Rees, Looe; J. W. B. Swainson, Devonport; S. B. Turney, Plymouth; J. Davy Turney (Hon. Local Secretary), Plymouth; W. Condy U'Ren, Plymouth; C. Wakeham, Helston; C. T. Weary, Devonport; J. M. White. Devonport; W. Wise, Launceston; E. T. Wood, Stonehouse; W, Woods, Plymouth; W. H. Woods, Plymouth.

Ladies' Committee.—A Committee of Ladies has also been formed to ensure the comfort of the lady visitors.

PHARMACEUTICAL SOCIETY.

MAJOR EXAMINATION QUESTIONS.

PHYSICS.

Monday, July 3, 1899.—*From* 10 *a.m. to* 1 *p.m.*

1. What do you understand by the satement that the specific heat of mercury is 0.032? State the use that has been made of the specific heats of the elements in determining or confirming their atomic weights, and show how the number given above is actually applied for this purpose in the case of mercury.

2. What is meant by the term "refractive index"? How would you measure the refractive index of a glass prism?

3. Describe the construction of Bunsen's ice calorimeter and explain the method of carrying out experiments with it.

4. Make a drawing of and describe fully the principles of the action of some form of stereoscope.

5. Instance three of the most notable cases with which you are acquainted of the influence of light in promoting chemical changes, and give in each case an account of the chemistry of the changes concerned.

6. Describe in detail the construction of some form of primary battery, an explain the chemical changes taking place during its action.

7. What method might be adopted with a view to determining the temperature of liquid hydrogen at its boiling point? Explain the principle of the method you mention.

8. What is meant by "coefficient of linear expansion"? Explain how temperature affects the rate of a pendulum clock.

CHEMISTRY.

Monday, July 3, 1899.—*From* 2 *p.m to* 5 *p.m.*

Only six questions are to be attempted and, of these, at least two must be taken from Part II.

PART I.

1. Explain fully why the molecular weight of a substance is equal to twice its vapour density.

2. 0.1700 gram. of an organic substance gave on combustion 13.4 Cc. of dry nitrogen measured at 15° C. and 735 Mm. pressure. Calculate the percentage of nitrogen, and, assuming the presence of only one atom of this element in the molecule of the compound, what is the molecular weight of the latter?

3. Potassium cyanide is frequently used in qualitative and quantitative analysis; state the more important cases in which it is thus employed, and explain its action in each.

4. What occurs when each of the following substances is separately heated with concentrated potash:—Phosphorus, Silicon, Silica, Aluminium, Alumina, Potassium permanganate, Magnesium chloride?

5. Describe the physical and chemical properties of bismuth and give the names, formulæ, and methods of preparation of any two important compounds of this metal.

6. How could you demonstrate the presence of combined sulphur in dilute sulphuric acid?

PART II.

7. State shortly and clearly what you understand by isomerism. Illustrate your answer by instancing two sets of isomeric substances chosen from paraffin derivatives and two sets chosen from benzene derivatives.

8. Describe fully any single method for preparing lactic acid in quantity. What is obtained by heating lactic acid (*a*) alone, (*b*) with fuming hydriodic acid, (*c*) with hydrobromic acid?

9. State fully the nature of the chemical changes that take place in the ordinary process of the manufacture of ether.

10. To what class of substances is the term "terpene" usually applied? Describe the properties of any two compounds of this class and mention the sources from which they are usually obtained.

MATERIA MEDICA (A).

Tuesday, July 4, *from* 10 *a.m. to* 11 *a.m.*

1. Name the commercial varieties of sarsaparilla root with the botanical and geographical sources from which they are derived. What are the chief points of difference between them?

2. What are the chief constituents of the following drugs, and what steps would you take to ascertain whether given samples of each were of good quality, viz., pellitory, jalap, calumba, ipecacuanha, ginger, and rhatany?

MATERICA MEDICA (B).

Tuesday, July 4, *from* 2 *p.m. to* 3 *p.m.*

1. Name the chief commercial varieties of ipecacuanha root with their botanical and geographical sources. How would you determine the value of a given sample for pharmaceutical use?

2. What are the chief constituents of the following drugs, and what steps would you take to ascertain whether given samples of each were of good quality:—podophyllum, rhubarb, linseed, stramonium leaves, valerian root, henbane leaves?

BOTANY (A).

Tuesday, July 4, *from* 11 *a.m. to* 1 *p.m.*

1. Write a short essay on climbing plants. Give illustrative examples and explain in each case by what means the plant climbs. What advantage does a plant gain from a climbing habit?

2. Give a comparative account of the structure of the sexual generation in a liverwort and in a fern.

3. Give an account of the influence of light on the growth of (*a*) the shoot, (*b*) the root.

BOTANY (B).

Tuesday, July 4, *from* 3 *p.m. to* 5 *p.m.*

1. Give a general account of the structural modifications met with in terrestrial plants growing on the sea-coast of Britain.

2. Describe carefully the changes which an ovule undergoes in becoming a seed.

3. Describe briefly the structure of the reproductive organs of an Ascomycetous fungus (*e.g.*, *Eurotium*) and trace succinctly its life history.

PRACTICAL MATERIA MEDICA (A).

Tuesday, July 4, *from* 2 *p.m. to* 3.30 *p.m.*

1. Prepare and leave for inspection slides showing the histological characteristics of the henbane leaf provided. Draw and describe your preparations, pointing out any important features presented by them.

2. Report upon the sample of powdered henbane leaf.

PRACTICAL MATERIA MEDICA (B).

Tuesday, July 4, *from* 9.30 *a.m. to* 11 *a.m.*

1. Prepare and leave for inspection slides showing the histological characteristics of the stramonium leaf provided. Draw and describe your preparations, pointing out any important features presented by them.

2. Report upon the sample of powdered stramonium leaf.

PRACTICAL BOTANY (A).

Tuesday, July 4, *from* 3.30 *p.m. to* 5 *p.m.*

1. Prepare and mount one transverse section of A. Identify the organ. Draw the preparation and give explanatory references on your drawing.

2. Describe B carefully and point out the functions of its various parts.

3. Refer C to its natural order, giving your reasons for so doing. Describe the flower and draw its floral diagram and give its floral formula.

PRACTICAL BOTANY (B).

Tuesday, July 4, *from* 11 *a.m. to* 12.30 *p.m.*

1. Prepare and mount one transverse section of A. Identify the organ. Draw the preparation and give explanatory references on your drawing.

2. Describe B carefully and point out the functions of its various parts.

3. Refer C to its natural order, giving your reasons for so doing. Describe the flower and draw its floral diagram and give its floral formula.

EUGENOFORM.—Sodium eugenol-carbinol occurs in broad, colourless crystalline foliaceous crystals, melting at 160° C., which are readily soluble in water, with difficulty in alcohol, and insoluble in ether. When taken internally, it readily liberates formaldehyde. Vogel recommends eugenoform for the disinfection of the stomach and intestines in cholera, typhoid, and other infectious diseases. Eugenoform is equal to phenol in its action, and may be taken in much larger doses. A single dose, morning and evening, consists of 0·5 to 1·0 gramme, and this may be doubled in a few days.—*Pharm. Centr.*, **40**, 135.

PHARMACY IN AUSTRALASIA.

(*From our Melbourne Correspondent.*)

PUBLIC attention has been drawn in Victoria to the urgent necessity of an amendment of the existing Poisons Law by the recent death, from cyanide of potassium, of a young married woman named Bentley, at South Melbourne. Under the law, as it stands at present, there is practically no restriction upon the sale of cyanide of potassium, which is exempted under the head of photographic materials, and may be obtained from any protographer without any record being made of the sale, while protographers are not even compelled to keep the poison locked up. Under the circumstances it is not surprising that the detectives found it impossible to discover how the woman became possessed of the poison, and on the suggestion of the coroner, who described this as a "terribly dangerous" state of things for the community, the jury added to their verdict of death from poison, self-administered, the following rider: "We are of opinion that further restrictions should be placed upon the sale of cyanide of potassium."

As a matter of fact, the Amending Act introduced by the Government last year did, as was pointed out in these notes, provide that the sale of poisonous substances used by photographers should be subjected to certain provisions for labelling the bottles, etc., and keeping a record of the sales; and, so far as it went, was calculated to greatly minimise the present "terribly dangerous" state of things. The Pharmacy Board, supported by the craft, strongly urged that the Bill did not go far enough; that, in fact, no poisons legislation could be said to afford any substantial security to the public, whether from crime or accident, which permitted of the general and indiscriminate distribution of such common means of suicide and murder as "Rough on Rats," "Battle's Vermin Killer," and other cheap and deadly poisonous mixtures; and that the sale of all patent and proprietary medicines containing poisons should also be placed under effective restrictions. Unhappily the Government could not be induced to undertake this larger "contract," and the measure was quietly dropped. It now remains to be seen whether, in view of the coroner's remarks, and the jury's rider, in the case referred to, to which the Chief Secretary's attention has been drawn by the Pharmacy Board, the Government will not feel compelled to tackle the subject in a more liberal spirit during the coming session.

MR. GEORGE SWIFT, a well-known and greatly esteemed member of the craft in Melbourne, died very suddenly on May 12, from rupture of the heart. Commencing his pharmaceutical career as an apprentice in Leicester (England), Mr. Swift was for some time in the employment of the well-known firm of Allen and Hanbury, Plough Court, London. On his arrival in Victoria, in 1864, he accepted an engagement with Messrs. H. Francis and Co., Bourke Street, Melbourne, of which firm (as Francis and Swift) he subsequently was for some years a partner, and after several other experiences finally established himself about five years ago in Collins Street. Mr. Swift was for some time a member of the Council of the Pharmaceutical Society of Australasia, and from May, 1887, until January, 1896, a member of the Pharmacy Board of Victoria. The funeral was attended by representatives of the Pharmacy Board, the Pharmaceutical Council, and a large number of the pharmaceutical and medical professions, as well as a numerous contingent of private friends, by all of whom his death will be sincerely mourned.

ANOTHER case of sudden death occurred recently at Adelaide, S.A., where Mr. Lenthall, for many years with Messrs. F. H. Faulding and Co., was taken ill while on his way to business, and died shortly after his removal to the hospital. It appears that Mr. Lenthall had been ailing slightly for a few days previously, and that his medical attendant feared typhoid. His loss is greatly regretted by his fellow employés and his employers, who closed their establishment for the funeral.

THAT Australian pharmacists—at least those of New South Wales—feel considerably chagrined by the non-recognition of their certificates by the authorities in Great Britain is demonstrated in a somewhat forcible manner by the record of the proceedings at the May meeting of the Pharmacy Board of the colony mentioned. At the meeting referred to, Mr. W. M. L. Wilson, holder of the Minor Certificate of Great Britain, applied to know if after serving three years in the colony he could present himself for the qualifying

examination, adding that he had attended a course of lectures (as required by the N.S.W. Pharmacy Act) at Bloomsbury Square, London. The following discussion on the subject then ensued :—

> The Registrar intimated that Mr. Wilson was now serving as an apprentice with Mr. Pattinson, of Sydney, but could not say when he was indentured.
> Mr. Bellemey: Unless he served twelve months of his time prior to the passing of our Act, he will have to pass the Preliminary examination, and then complete his full term of apprenticeship, besides attending a course of recognised lectures.
> The Registrar: He produces his certificate of the Minor examination of Great Britain.
> Mr. Hallam: If he has passed that Examination we ought to admit him.
> The President: Does he produce his English Preliminary examination Certificate?
> The Registrar: No.
> Mr. Butcher: Having passed the Minor examination, it goes without saying that he must have passed the Preliminary examination.
> Mr. Brothwood: The question is, whether or not we are going to recognise the Minor certificate of Great Britain.
> The President: This is the first case of the kind we have had before us.
> Mr. Brothwood: If we recognise the minor certificate of Great Britain we must register him. We don't even recognise the Major certificate of Great Britain.
> Mr. Bellemey: Just so. The Act was drafted so that we might have the power of forcing the recognition of our certificate of qualification in Great Britain. He moved "That the application be not entertained."
> The Registrar said, in reply to a question, that Mr. Wilson had been in this colony for about two years.
> Members: Then he ought to know the Pharmacy Act.
> Mr. Jones seconded the motion, which was carried *nem. con.*

Later on in the proceedings at the same meeting an even more deliberate challenge was launched at the claims of British pharmacists for recognition by the mother colony. The case was that of one Frederick Thornley, of Dulwich Hill, who wrote asking for registration on the grounds that he held the Major certificate of Great Britain, and had been dispensing at the Cootamundra Hospital. According to a statement made by the Registrar, it appeared that the applicant came to New South Wales about the year 1884; but this is how his claim was treated :—

> Mr. Bellemey We have power under the Act not to entertain the application. Until our certificate is recognised in Great Britain, theirs ought not to be recognised here.
> Mr. Brothwood expressed similar views, and the application was refused.

Whether it is or not that the new Registered Pharmacists' Society of N.S.W. threatens to make things "hum" in Sydney, the fact remains that the Pharmacy Board of New South Wales has all at once become aware of the fact that it has been permitting the Council of the Pharmaceutical Society to ursurp one of its most important functions—that of the control of the preliminary examinations. The matter was brought before the May meeting of the Board by Mr. Bellemey, who, in moving—

> That the Pharmacy Board make arrangements with Mr. Lloyd, the Preliminary Examiner, or some other suitable person, to carry out, as soon as possible, the preliminary examinations as provided for in the Pharmacy Act, sec. 11, sub-sec. 1, pointed out that the Board had not complied with the section in the Pharmacy Act which provided for the appointment of examiners. The examinations had been carried on by the Pharmaceutical Society, and the certificates from that body had been recognised by the Board just as if the examinations had been sanctioned by the Board. The preliminary examiner should be some person appointed by the Pharmacy Board, and that step had not been taken. The result was that the fees from the candidates, which properly belonged to the Board, went into the coffers of the Pharmaceutical Society.

Now that the Board has awoke to its rights and responsibilities, it is understood that it is its intention to arrange for a considerably reduced scale of fees. Apart from this, however, it appears that owing to its previous laxity all the Preliminary examination certificates issued since the passing of the Act would have been quite worthless but for the words in a sub-section, "or acknowledged by the Board."

Meanwhile, leaving the Society to look after itself, the new Registered Pharmacists' Society of N.S.W. seems to be making good headway. Its application for registration under the Companies Act (under the section "not for profit") is under Government departmental favourable consideration; and the success of a series of "Winter" lectures to be given under its auspices is fully guaranteed by the promises and expressed sympathy of such men as Professor Anderson Stuart, Professor Pollock, Professor Liversidge and Mr. J. H. Maiden (Director of the Botanical Gardens).

At the April meeting of the Council of the Pharmaceutical Society of New South Wales, Mr. J. C. Hallam (who has recently been appointed a member of the Pharmacy Board), was elected to fill the seat rendered vacant by the recent death of Mr. H. W. Sadler; and Mr. Sydney Mears to occupy that vacated by Mr. W. G. Jones (resigned). As Mr. Hallam has had previous "official" experience, and Mr. Mears is a man of marked personality, the Council has reason to congratulate itself on these accessions to its strength.

It seems sad to say, but it is undoubtedly a fact, that no great enthusiasm is being expressed in Australia anent the proposed Indian and Colonial Addendum to the British Pharmacopœia, 1898. In Victoria the latest communications on the subject have been referred by the Pharmacy Board and the Pharmaceutical Society of Australasia to the Lectorial Board for a "report"; while in South Australia the Pharmacy Board resolved "that the letter be replied to, intimating that in the Board's opinion the addendum, as suggested, would not appreciably affect dispensing in this colony, and that in the case of at least one drug, the present officinal definition was more satisfactory."

EXTRACTS FROM CONSULAR REPORTS.

The Jordan Almond Business during the year 1898, according to Consul Finn, in a recent report on the trade and commerce of the Consular district of Malaga, was very unsatisfactory to shippers and importers abroad, as, owing to false reports about the scarcity of the crops, they submitted to high prices at the beginning of the season, and these prices were further forced up by pressing wants to fulfil early engagements. The demand could not support these high figures, consequently fruit, which growers had refused 50 pesetas for in September, in the spring of this year could be had for 27½ pesetas. The prospect for this season's crop is said to be most satisfactory.

The Import of Foreign Opium into Amoy (China) fell about 600 piculs in quantity and £31,000 in value, the figures being 3,800 piculs for 1898, and 4,400 piculs for 1897, and £298,000 and £329,000 respectively. The decrease was in the Persian article, Indian opium showing an actual increase of 400 piculs. Native opium advanced some 200 piculs on the figures for the previous year, it being imported from Kiangsu, Ssuchuan, and the greater part (some 80 per cent.) from Yünnan.

The Total Production of Chinese Opium is very considerable and appears to be on the increase. The fact is that the cultivation of the poppy pays better than corn-growing, and will stand heavy taxation better than most industries, for its chief competitor, Indian opium, is burdened with a heavy duty, and the opium smoker will make any sacrifice to satisfy his craving. There are no statistics of the local crop in the district round about Amoy, but its value, according to Acting-Consul Little, is estimated at over 2,500,000 dols.

The Consumption of Morphine in the Amoy district last year increased by some 2,000 ounces, and appears to find considerable favour with the Chinese, for the import has risen in three or four years to over 11,000 ounces. The greater portion of it is taken in the form of pills, but hypodermic injection is also common; it is frequently sold, too, as a cure for the opium habit. The retail price is said to be about 3 dols. per ounce.

A Source of Riches, consisting of large tracts of forest with abundance of rubber trees, is said to exist in the unexplored interior of the State of Bahia (Brazil), but unfortunately, owing to the difficulties of transport through a country without roads, and to the fact that the forests are inhabited by different tribes of Indians, some of whom are cannibals, it is said to be unavailable. The quantity of rubber produced in the State during 1898, however, increased materially, the high prices realised inducing collectors to procced farther afield for supplies.

Coffee Tablets.—A few weeks ago the preparation of wine in tablets was reported from France, then followed a rumour that in Germany the national beverage, beer, had been compressed into a convenient form for carrying in the vest pocket, and now comes a report from Rio de Janeiro that a process has been invented and patented for preparing coffee in tablets by a system of compression. It is argued that not only will there be less expense in exporting coffee in that form, but that the consumer will be more certain of receiving the pure unadulterated article.

REVIEWS AND NOTICES OF BOOKS.

A Short History of the Progress of Scientific Chemistry in Our Own Times. By William A. Tilden, D.Sc., F.R.S., etc. Pp. x. + 273. Price 5s. London: Longmans, Green, and Co. 1899.

Professor Tilden has written a concise account of the progress made in chemical science in our own times, and in so interesting a manner that the student is enabled clearly to understand how the system of scientific chemistry has gradually advanced to its present position. This short history, in fact, forms a worthy sequel to Thomson's 'History of Chemistry,' which deals with the science from the earliest times to 1831. Dr. Tilden starts from 1837, when Liebig, the founder of organic chemistry, was at the height of his fame, and was attracting students from England—and indeed from all parts of Europe—to the famous laboratory at Giessen to study the new organic chemistry. At that period Berzelius's views on the composition of salts and acids—that the base was electro-positive and the acid radicle electro-negative—were still predominant. Liebig and Wöhler had established the theory of compound radicles in organic chemistry—from which Frankland was led to the investigation resulting in the discovery of ethyl—and Dumas that of substitution, which eventually upset the Berzelian theory of electro-chemistry. Chemical science in this country was sufficiently satisfied by the Royal Societies of England and Edinburgh being the only important societies to receive communications relating to chemical investigations, for it was not until 1841 that the Chemical Society and the Pharmaceutical Society were considered necessary and came into existence. The number of papers on chemical subjects then and now gives evidence of the progress made in our own times. The important discoveries in chemistry are all distinctly set out by the author, such as Joule's determination of the mechanical equivalent of heat and its relation to thermo-chemistry; Kirchhoff and Bunsen's discoveries in spectrum analysis, and the important results obtained in spectroscopy; the application of the laws of Avogadro and Petit and Dulong as a means of determining atomic weights; the critical point; Frankland's doctrine of atomicity; the periodic law; Pasteur's work; stereo-chemistry; ionic dissociation; liquefaction of gases. It is also pointed out how synthetic chemistry applied to carbon compounds has been developed since urea was synthesised by Wöhler and acetic acid by Kolbe. There is also a chronological table of important events in chemical science. In a retrospect of sixty years it is, of course, difficult in some cases to rightly assign the claims for originality, but it can truly be said that no fault can be found with the impartial judgments expressed by the author. For instance, no one has now a right to dispute Newlands' claim as the discoverer of the periodic law, although, as Dr. Tilden neatly puts it, "the Chemical Society in 1866 were disposed to laugh at Newlands and his law. Twenty-one years later the Royal Society awarded him the Davy medal for his discovery." All students of chemistry should read this book.

The Soluble Ferments and Fermentation. By J. Reynolds Green, Sc.D., F.R.S. Pp. i.-xiii., 1 to 480. Price, 12s. Cambridge: Messrs. C. J. Clay and Sons. 1899.

As the author points out in the preface to this book, the various problems connected with the phenomena of fermentation have received attention during the past ten years from so many investigators in different countries, and are now occupying the minds of so many people, that a synopsis of what is known on the subject had become a pressing need. That need Professor Green has set himself to satisfy, and the result is the addition of this handsome volume to the excellent series of Cambridge Natural Science Manuals.

The contents of the volume are arranged in twenty-four chapters, the first of which is naturally devoted to a consideration of the nature of fermentation and its relation to enzymes. Early views of fermentation are summarised; the work of Becher, Leuwenhoek, Lavoisier, and other workers is briefly referred to; and a concise account is given of the discovery and classification of enzymes. Fermentation is provisionally defined in this chapter as "the decomposition of complex organic material into substances of simpler composition by the agency either of protoplasm itself or of a secretion prepared by it." The fundamental difference between organised and unorganised ferments or enzymes is shown to be a difference of differentiation of the organisms in which they are produced, and the study of fermentation resolves itself very largely into an investigation of the destructive or decomposing power of protoplasm, exerted either directly or by means of secreted enzymes.

The activity of enzymes is greatly dependent upon temperature, ceasing at temperatures approaching the freezing point of water but increasing gradually as the temperature rises, the maximum being attained between 30° and 50° C., above which it gradually diminishes, and finally disappears. It is pointed out that "it is generally held that enzymes do not themselves enter into the reactions which they set up, but provoke those changes without undergoing any alteration. Further, they are not destroyed by their own activity, the energy with which they work not apparently proceeding from any decomposition of their substance." Certain recently observed facts, however, throw a certain amount of doubt on the accuracy of those generally accepted statements, and those points are discussed by the author in a subsequent chapter.

For convenience of discussion, the enzymes have been classified according to the materials on which they work. Thus, in one group, are placed those which transform insoluble carbohydrates into soluble sugar, including the various forms of diastase, which attack starch and its allies; inulase, which decomposes inulin; and cytase, which hydrolyses cellulose. A second group includes enzymes—invertase, glucase, etc.—which transform sugars of the biose type into simpler sugars, generally hexoses. Emulsin, myrosin, and other bodies decompose glucosides; pepsin and trypsin decompose insoluble proteids; the clotting enzymes—rennet, thrombase and pectase—produce jelly-like substances from various soluble bodies; lipase decomposes oils or fats; the oxidases, including laccase and tyrosinase, assist in the oxidation of various substances, and there are many other enzymes which appear to occupy isolated positions, such as urease, which forms ammonium carbonate from urea, and zymase, the alcohol-producing enzyme discovere by Buchner.

Vegetable diastase in its different forms is dealt with in chapter two, and animal diastase in chapter three, after which the conditions of the action of diastase are considered. Subsequent chapters are devoted to accounts of the occurrence, characters, etc., of inulase; cytase and other cellulose-dissolving enzymes; sugar-splitting, glucoside-splitting and proteolytic enzymes; fat-splitting, and clotting enzymes. Ammoniacal fermentation, oxidases, alcoholic fermentation, the fermentative power of protoplasm, and the secretion, constitution, and mode of action of enzymes are next treated at length, the last chapter being a careful summary of the various theories of fermentation. A bibliography and index complete the work, which is in every way an admirable one and as important an addition to scientific literature as has of late been presented to the world. Being in itself an extended critical review of all that is known on the subject of which it treats, the book hardly lends itself to criticism, and this all too-imperfect notice must be concluded with a strong recommendation to everyone who is in any way interested in the subject of fermentation to add a copy of Professor Green's excellent work to those which he is in the habit of consulting regularly.

PROCEEDINGS UNDER THE PHARMACY ACT, 1868.

Case under Section 17.

Selling Laudanum Without a Label.

At the Leigh (Lancashire) Police-court on Wednesday last, before Dr. A. J. Lowe and Mr. F. Burton, William Warden, landlord of the Cross Keys beer house, Culcheth, near Leigh, who is also a grocer and "patent medicine" vendor, was charged with selling a bottle containing laudauum without putting a label thereon.

Mr. T. R. Dootson appeared for the prosecution, but defendant was not represented.

Mr. Dootson said he appeared on behalf of Superintendent Higgiubotham, and the proceedings were taken under Section 17 of the Pharmacy Act of 1868, which stated that "it shall be unlawful to sell any poison, either by wholesale or by retail, unless the box, bottle, vessel, wrapper, or cover, in which such poison is contained be distinctly labelled with the name of the article and the word 'poison,' and with the name and address of the seller of the poison." The allegation in the case was that Mr. Wardeu on June 9, sold some laudanum to Florence Drinkhall, a girl, aged seven years. The girl was sent by her mother to buy some Godfrey's cordial for the baby, which was ill; but, instead of asking for that cordial, she asked for and was supplied with a pennyworth of laudanum, which was put into a small bottle that she brought with her. No label was on the bottle when it was brought to the shop and none was put on there. The girl returned home, gave the bottle to her mother, who gave a portion of the contents to her baby, which died. At the coroner's inquest a verdict of "Death from misadventure" was returned. Of course, for anyone to sell poison in that way was a serious offence, especially if the purchaser was a young girl.

Betsy Drinkhall, wife of Septimus Drinkhall, of Culcheth, and her daughter Florence, gave evidence bearing out this statement.

Police-constable Leeming said defendant in reply to his question said he had sold the laudanum to the girl.

Defendant, in reply to Dr. Lowe, said he thought the laudanum was for toothache. He was never told it was for a four-weeks'-old baby. He had never sold laudanum before, although he held a "patent medicine" licence, and the laudanum in question was taken out of a bottle which was used by his grown-up daughter, who died some months ago. He did not sell the laudanum to the child, he gave her a few drops. He was afterwards informed there had been a penny found on the counter. He had been a policeman twenty years, and only retired to take up his present shop, and he was very sorry matters had turned out as they had. He was positive that nothing was said to him about the laudanum being for the baby.

Mr. Buxton said the Bench considered the case serious, and defendant would be fined £2, and costs.

Tannoform and Tannoform Dusting Powder.—Tannoform is a methyl ditannin, obtained by the condensation of tannin with formaldehyde. It forms a voluminous, reddish-white, odourless and tasteless powder, which decomposes at 230° C. Tannoform has proved, after several years' trial, to be one of the best local applications for wounds, diabetic gangrene, and various forms of chronic and acute eczema. It also has a marked effect in checking excessive perspiration, so much so that it may be regarded as a specific for hyperhydrous and bromhydrosis. The perspiration is not checked altogether, but regulated. The evil odour and irritation of the skin following excessive perspiration are entirely avoided, without any unpleasant consequences. Frank recommends the compulsory use of tannoform by all military authorities, and reports brilliant successes in over one hundred cases of footsores. Inflamed and frequently lacerated feet are restored to a normal condition in a very short time by the simple use of tannoform dusting powder, a mixture of tannoform, 1 part, with French chalk, 2 parts. In very bad cases tannoform itself is rubbed on the soles and between the toes. For eczema a 10 per cent. tannoform ointment is the best application. Tannoform is equally beneficial in counteracting chafing. For tourists, cyclists, sportsmen, and athletes tannoform in fine powder put up in dusting bags forms an excellent remedy.—*Schweiz. Woch.*, **37**, 66.

LETTERS TO THE EDITOR.

NOTICE TO CORRESPONDENTS.—All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received, if specially arranged for, as late as Thursday morning. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C., and Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

The Question of Title.

Sir,—After an experience of twenty-eight years (sixteen qualified), I must respectfully deny the soft impeachment of "darkness and ignorance" ascribed to me by your correspondent, G. Ellinor. I frankly admit the truth of all he asserts, but have yet to learn that a thousand wrongs will make one right, and to show that I have not been in ignorance of these facts, I may tell him that for these reasons I have refrained from voting for candidates for election to the Council of late years, and have only once during fifteen years' connection with the Society voted and regretted the step I took then. If your correspondent could refer to former correspondence of mine to your columns he would see similar facts to those he has called attention pointed out by me in one article especially, styled "Trade Morality." Instead of Pharmacy Law Amendment, I would suggest in a series of articles I have prepared: 1st, The reformation of the Society and its Council; 2nd, The method of apprenticing young men to the profession of pharmacy, instead of the system now in vogue; 3rd, The licensing of assistants and of businesses to ensure the safe custody and legislative control of every place in which pharmacy is carried on, so that no one should evade the Act by keeping open branch shops except under the care and control of a duly qualified licensed and registered assistant. The fact is also patent to anyone that thinks that the Poisons Act has been nullified until recently by the sale of such poisons under cover of the patent medicine stamp, the hapless seller was prosecuted; but what did the Society do to the manufacturer before the Collis Browne's chlorodyne test case was made? I am afraid it is rather late in the day to stop company pharmacy, but it behoves every one like myself who is trading upon his own capital for his own profit that he should not be handicapped by the capitalist company unless each director and shareholder has a right by qualification under the Pharmacy Act, 31 and and 32, Vic., cap. 121, and to that end licence and coutrol should be demanded by every individual member, who could, if he wished, become a member of a legally qualified company. If the Society had had any grit at the time of the test case of the London Provincial Supply Association, and had an able barrister to have pointed out that this was the way to get a qualified company, the dictum would not have been given that "it was not possible for a company to pass the examinations for qualifying." Such rot as that to emanate from such wiseacres as Law Lords shows clearly that by spending the money we could get a different construction put upon that judgment now, as Law Lords following in the march of progress see things differently to what they did eighteen or twenty years ago.

Torquay, June 30, 1899. Wm. Jno. Rawling.

The Sale of Benzene.

Sir,—I am obliged for your comment on the above in this week's Journal, and am also pleased to hear that the Society is in correspondence with the licensing authorities under the Petroleum Act. It certainly appears to be an unwarrantable interference with the trade. I frequently have customers ask for a small quantity of benzene to take out a spot of grease, perhaps about the size of a shilling, on their coat or dress. They are not disposed to purchase a bottle; consequently I am obliged to tell them that the County Council, with its usual officiousness in small matters, will not allow the liquid to be sold in any other way. It is very certain that if a chemist is not fit to be trusted with a pint of benzene, which is about the most that a great many of us will keep in stock, he is certainly not fit to dispense poisons. I have been in shops where benzene was kept on the shelf in an ordinary gilt-labelled bottle, and the proprietors never had or even thought of a mishap. Doubtless technically it would be considered dangerous, yet what is possible is not very often probable. It is very easily understood that precautions are absolutely necessary where large quantities of an inflammable spirit are stored; on the other hand, there is no rule without an exception, and this appears to be one of them.

East Dulwich, July 1, 1899. T. W. SANDY.

Sir,—I have a 10-gallon retail licence for the sale of benzene, benzoline, etc. The plan I adopt may be useful to other chemists. I have a small outbuilding at the foot of the yard about 12 feet from the main building. The insurance company endorse my policy that only two gallons may be kept and retailed straight away to the customer; they allow this without making any extra charge. The outbuilding is, of course, uninsured. As an extra precaution I never allow the article to be sold after the gases are lighted.

Bishopwearmouth, June 30, 1899. ALFRED D. PURSE.

The Retirement of Mr. Wootton.

Sir,—It has been announced that Mr. A. C. Wootton retired from the editorship of the "Chemist and Druggist" on the 30th of last month. We, the undersigned, feel that a large number of his trade friends desire to express their esteem and respect for him, and also to make some public acknowledgment of the services which he has rendered to the trade during the thirty-two years he has occupied the position he is now relinquishing. We beg to invite those desirous of participating in this matter to attend a private meeting to be held on Monday next, July 10, at 3 p.m., at Anderton's Hotel, Fleet Street, London, E.C., to decide upon the necessary arrangements.

(Signed)

ALBERT COOPER	DAVID HOWARD
W. EDWARDS, JUN.	F. HARWOOD LESCHER
F. W. FLETCHER	J. MORGAN RICHARDS
W. S. GLYN-JONES	SAMUEL ROBERTS
ALFRED S. GUBB, M.D.	JOHN THOMPSON
CORNELIUS HANBURY	THOMAS TYRER
ARTHUR B. HILL	CHARLES UMNEY
	HENRY S. WELLCOME

157, *Queen Victoria Street,*
London, E.C., July 4, 1899.

Liquor Ferri Perchlor. Fort., P.B.

Sir,—A comparison between the last two British Pharmacopœias will show a great difference in the amount of Fe_2O_3 which should be contained in this liquor, although in both editions the mode of production and the specific gravity are identical. In that of 1885 it is stated that one fluid drachm should contain 15 to 16 grains, *i.e.*, 5 C.c. should contain from 1.369 to 1.476 grammes; whereas in that of 1898 5 C.c. should contain 1.6 grammes, there being a difference of .124 grammes per 5 C.c. The results of a few experiments seem to show that the 1885 edition is the more correct, as it was found impossible to obtain a liquor of sp. gr. 1.42 to contain 1.6 grammes Fe_2O_3 per 5 C.c. A sample of the liquor was carefully made, using the quantities mentioned in and following every detail as laid down by the P.B. On making the solution up to the required volume (17½ fluid ounces) the sp. gr. was 1.476, and in order to obtain a sp. gr. of 1.42 as stated—it was necessary to add about 2 ozs. more water. 5 C.c. of this 1.42 liquor gave 1.368 grammes Fe_2O_3, corresponding with the quantity required by the 1885 edition. Thinking that an excess of free acid might account for the discrepancy, a portion of the liquor was carefully evaporated to expel all the free acid, and the thick liquid was diluted with pure water to a sp. gr. of 1.42. On testing 5 C.c. of this gave 1.436 grammes Fe_2O_3, a result still agreeing with the 1885 edition. It will be of interest if some of your numerous readers will give their experience in this matter.

Poplar, E., July 4, 1899. FREDK. J. ALLEN,

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Remuneration of Witnesses (A. H. B.—31/3).—Witnesses subpœnaed on the part of the Crown are allowed travelling and other expenses according to a fixed scale of allowance. You should claim as a professional man and can ascertain the proper amount to claim by referring to the scale at the Court.

Benzene and Benzoline (F. P. B.—192/40).—For the purposes of the Petroleum Acts, the term "petroleum" includes "any rock oil, Rangoon oil, Burmah oil, oil made from petroleum, coal, schist, shale, peat, or other bituminous substance, and any products of petroleum, or any of the above-mentioned oils." The legal definition of the term "petroleum" is such of the above liquids as, when tested in a specified manner, give off an inflammable vapour "at a temperature of less than seventy-three degrees of Fahrenheit's thermometer."

Storm Glass (F. R.—31/8).—Have you tried the formula published in the *Pharmaceutical Journal* for May 27 last, at page 502?

Combined Toning and Fixing Bath (J. E. B.—31/9).—A suitable formula was given at page 23 of our photographic supplement, published April 15 last.

Hand Camera (R. H. R.—31/11).—Everything depends upon the price you care to pay. For a beginner Edwards' half-guinea hand camera commends itself, and, of the more expensive forms, any of those specially referred to in the "Notes on Novelties" in our photographic supplement of April 15 last, may be depended upon to give satisfaction.

Explanatory Notes on the B.P. (G. B.—31/1).—Yes, it is hoped so.

Diseases of Children (J. R. S.—31/3).—McCaw's 'Aids to the Diagnosis and Treatment of Diseases of Children' (Baillière, 3s. 6d.) appears to meet the requirements you mention.

Botanical (W. H. J.—31/4).—The plant is *Colchicum autumnale*. The only way of getting rid of it would be to plough the field deeply and repeatedly.

Chloroform in Mixtures (W. W.—31/5).—(1) A "poison" label seems rather out of place on a mixture containing only one drachm of spirit of chloroform in six or eight ounces. (2) Part 2 of the Poisons Schedule specifies chloroform only, but the sale of a preparation containing chloroform might conceivably be held to be a sale of chloroform itself.

Headache Powders (W. W.—31/6).—Caffeine citrate is probably less harmful in its effects than the other preparations you name, but half the quantity you mention would be a safer dose for repeated use.

Purified Petroleum (J. B. M.—31/7).—You can now obtain it of any firm of wholesale druggists.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

THE GENUS NAJAS.

Dr. A. B. Rendle recently read a paper before the Linnean Society, entitled "A Systematic Revision of the Genus *Najas*." This is a primitive genus of Monocotyledons containing about thirty known species, which are generally distributed in both Old and New Worlds, and consist of submerged herbs, often of great delicacy, growing in mud in resh or brackish water. The slender stem branches more or less profusely, and the laxity or density of branching determines the habit, which shows considerable variation. The leaves are in pairs at each node; one member of the pair is slightly older than the other, and in its axil arises a branch. The flowers, which are extremely simple, arise by the dichotomy of a branch-rudiment; the lower half forming a male or female flower, the upper the lateral branch, at the base of which the flower seems in the adult plant to stand. There is a difference of opinion as to the value of the parts of the flower, Dr. Rendle's view being that the male consists of a single anther (of axial origin) surrounded by a sac-like perianth, which is enveloped in a bottle-shaped spathe, absent only in *N. graminea*. The female consists generally of a naked ovary, terminated by 2 or 3 stigmas, and enclosing a single anatropous ovule; in a few species it is enveloped by a spathe like that of the male. The seed has a hard testa, the detailed structure of which affords useful specific characters. Others are also furnished by the shape of the leaf-sheath and the form of the marginal spines.

NATALOIN AND HOMONATALOIN.

In the course of his researches on aloins, A. Leger finds that besides nataloin, Natal aloes contains another aloin, homonataloin, which differs from the former in having a CH_2 group less. The aloes were first treated with acetone to remove the resins, the insoluble residue, consisting mainly of aloins, was dissolved and crystallised from methylic alcohol. By fractional crystallation from this solvent while boiling the homonataloin was obtained in crystalline crusts, while the more soluble nataloin separated in pale yellow scales. Both aloins were anhydrous. To nataloin the author attributes the formula $C_{16}H_{18}O_7$, and homonataloin he represents as $C_{15}H_{16}O_7$. The following reactions, which are common to both these aloins, distinguish them from barbaloin. A little manganese dioxide or potassium dichromate, added to a sulphuric acid solution of the aloins, develops a bright green colour. A fragment of ammonium persulphate added to a solution of the aloin in caustic soda slowly develops a violet colour, which dyes silk, but is not fixed by cotton.—*Comp. rend.*, **128**, 1401.

GLUCOSIDES OF IVY.

Houdas find that there are several glucosides in ivy, one of which, hederin, $C_{64}H_{104}O_{19}$, he describes in detail. It crystallises from alcohol (90 per cent.) in fine long radiating needles which lose 6.2 per cent. of their weight on prolonged exposure to 130° C. and melt at 248° C. It is insoluble in water and in chloroform, aud very sparingly soluble in ether. It is soluble in alcohol and in acetone, the alcoholic solution is dextro-rotatory. When boiled with dilute sulphuric acid for 12 hours it is converted into hederidin—$C_{26}H_{40}O_4$, and two sugars —hederose, $C_6H_{12}O_6$, and rhamnose, $C_6H_{12}O_5$. *Hederidin* crystallises from boiling alcohol in brilliant rhomboidal crystals, which are insoluble in water, ether, benzene, and chloroform. It melts at 324° C., and sublimes at a higher temperature without decomposing. The sugar, hederose, crystallises from alcohol in radiating needles before the rhamnose separates out. It melts at 155° C.; its solutions are strongly dextrogyre. The rhamnose is obtained after the hederose has crystallised out, in oblique rhomboidal prisms, which melt at 93° C., and is slightly dextrogyre.—*Comp. rend.*, **128**, 1,463.

ACETIC EXTRACT OF CINCHONA.

Dr. E. R. Squibb reports that 10 per cent. acetic acid is a good menstruum for the exhaustion of cinchona bark. The U.S.P. menstruum (800 C.c. alcohol, 91 p.c.; 200 C.c. glycerin, 95 p.c.) was found to be a better one for rapid exhaustion, but the percolates were so loaded with useless and objectionable organic matters, from which the acetic acid percolates were comparatively free, that the advantage was transferred to the acetic acid side. The stronger percolates from the alcohol and glycerin menstruum were almost syrupy in consistence so black as to be almost opaque and very astringent, whilst they threw down an unmanageable precipitate of nearly insoluble cincho-tannates on dilution or admixture with other preparations or any ordinary diluents. The acetic acid stronger percolates were nearly free from those disadvantages, and far more manageable pharmaceutically as well as therapeutically. The acid menstruum besides costing very much less than the alcohol and glycerin, is much easier to manage during percolation and in the standardising process, since evaporation does not injure the percolates. The proportion of free acid contained in an acetic extract of cinchona was found to be from 10 to 11 per cent., the least quantity being present where there had been most evaporation. Ten per cent. of acid fully suffices to secure the stability and permanency of the extract under all ordinary conditions. When the extract is mixed with 3 or 4 times its volume of water, the mixture has the appearance of coffee with milk; in that condition the taste of free acid is very slight, and not disagreeable, and it is concluded that the acid fluid extract is in every way a better preparation than an alcoholic one.—*Am. Journ. Pharm.*, **71**, 305.

ASSAY OF CINCHONA.

Dr. E. R. Squibb finds that, in assaying cinchona, he can easily and completely exhaust the bark in No. 9 powder with 10 per cent. acetic acid. The apparatus he employs is a modification on a small scale of his syphon percolator and, by its aid, 10 Gm. of the powdered bark can be completely exhausted in 36 hours, the percolate then measuring 180 to 200 C.c. This percolate is evaporated to such a condition that it is capable of being stirred when hot, but a soft solid when cold. Its weight is usually equivalent to 35-38 per cent. of the cinchona taken, and it retains a small amount of acetic acid. The extract is dissolved in a mixture of ammonia and alcohol, more ammonia added to ensure all the alkaloids being set free, and separation effected by shaking out with chloroform. The alkaloids are then taken up with decinormal sulphuric acid, precipitated with decinormal potassium hydroxide, and again taken up with ether. Finally, the varnish-like residue left on evaporating the ethereal solution is weighed in order to get to approximate percentage of alkaloids, after which the alkaloids are converted into acid salts and titrated. Dr. Squibb divides the alkaloids of cinchona into three groups: (1) The quinine group, with a molecular weight of about 0·324; (2) The cinchonine group, with a molecular weight of about 0·294: (3) The remaining alkaloids, with a molecular weight of about 0·312. For pharmaceutical purposes, he thinks no cinchona bark should contain less than 5 per cent. of total alkaloids, of which at least half should belong to the quinine group, and one-fourth each to the other two groups. That proportion being arbitrarily assumed, a combining weight of 0.314 is obtained and adopted as the factor for total alkaloids in the assay process.—*Am. Journ. Pharm.*, **71**, 312.

WOMEN AS PHARMACISTS.

BY ONE OF THEM.

Fifty years ago the possibility of a woman becoming a qualified pharmacist would have been regarded as a very wild dream indeed, and anyone daring to predict such a thing would have met with ridicule. The contrast between then and now is nowhere more striking than in the field of woman's work—old ideals are abandoned, or greatly modified; woman's life is altogether freer, less artificial and restricted; educational advantages have enabled her to develop all her faculties; and it is proved by experience that women are capable of becoming successful doctors, pharmacists, dentists, and even lawyers. Few will question the statement that the "higher education" is a gain, not only to the particular women concerned, but also to society in general, for benefit to the members of any community must be a benefit to the community itself. The broader mental horizon and wider interests introduced by a more liberal education must make the person enjoying those advantages a more enlightened and useful member of society; and scientific studies, requiring great accuracy and careful observation, are perhaps particularly desirable for women, as tending to correct the somewhat vague or exaggerated methods of thought and expression which often prevail when the course of education has been less liberal.

Throughout the civilised world the desirability of better education and wider opportunities for women has during recent years attracted a great deal of attention. In America women have even greater facilities for entering the learned professions than they have here; while on the Continent, even in Germany—so conservative with regard to its women—the subject is receiving careful consideration, and the doors of the universities are being opened to women students.

WOMEN STUDENTS AT THE SCHOOL OF PHARMACY.

It is a matter of great interest to turn to the records of the discussions by the Council of the Pharmaceutical Society on the subject of women as students in the Society's School and as chemists. The report of the Council meeting held September 4, 1872, states that "the Secretary read a letter from a lady asking if ladies were admitted to the lectures of the School of Pharmacy and to the laboratory. He stated that some years ago Miss (now Dr.) Garrett applied for admission to the lectures, and the professors seeing no objection, she paid the fees and attended the course. On the matter being brought to the attention of the Council, however, some members thought such a proceeding was irregular, and a resolution was passed prohibiting the admission of ladies to the lectures in future. He did not know whether the present Council would be inclined to reconsider the matter." At the next meeting Mr. Hampson brought forward a resolution "That ladies be admitted to attend the lectures and the laboratory of the Pharmaceutical Society." It was remarked that the adverse resolution passed in 1862 was not recorded in any of the transactions, and that in view of the social and educational changes that had since taken place the present Council could not be expected to endorse a decision of their predecessors, "which was, in fact, most arbitrary, unjust, and impolitic." By the Pharmacy Act, 1868, women were admitted to the examinations, and could become legally qualified to practise pharmacy, and therefore it would be contrary to the spirit of the Act to exclude women from the instruction necessary to enable them to pass the examination. Mr. Hampson's motion was seconded by Mr. W. S. Brown, who thought no possible harm could result from its adoption. Other members said they would support the resolution if it were confined to attendance at lectures, and it was finally decided that women should be admitted to attend as students the lecture classes of the Pharmaceutical Society.

The subject again came before the Council on December 4, 1872, when Mr. Hampson moved "That lady students should be eligible to compete for the Sessional Prizes and Certificates, and for all prizes and scholarships given for proficiency by the Society." He urged that it would be most unfair to debar them from the chance of equal participation in the results of study. Another member objected to including the Bell Scholarship, which involved laboratory instruction, to which women were not admissible according to the previous decision of the Council. Attention was also called to the fact that the "Prize of Books" and the "Pereira Medal" could only be given to associates or registered students of the Society; ladies who were permitted to attend the lectures on botany and chemistry were not associates, and consequently were not entitled to compete for these prizes. An amendment proposing that ladies should be entitled to receive certificates of attendance at the lectures, and suggesting that special prizes might be offered to be competed for by lady students was brought forward by Mr. Bottle, but Mr. Hampson contended that lady students did not want special prizes, but opportunity to compete with male students under precisely similar circumstances. The law permitted women to become chemists and druggists, and therefore the Council ought to grant them the same privileges as male students. After further discussion, opinion being very much divided, it was resolved to defer consideration of the matter for a time. It was again brought forward on January 11, 1873, in a motion "That all persons attending the professors' morning lectures be eligible to compete for the prizes and certificates given at the end of the session." Mr. Hampson urged that lady students, having paid their fees, ought to be entitled to the full privilege of students. Mr. W. S. Brown supported that view. Even those who objected to the admission of women to the privileges of the Society agreed that inasmuch as they had been admitted to the lectures, they were entitled, under the bye-laws, to compete for the prizes. One member urged that "a school of pharmacy was not a place for ladies at all," while another went so far as to say that "there was some excuse for ladies seeking a medical education, but there was none for their desiring to become chemists and druggists." On putting the question to the vote, seven voted for and nine against it, and the motion was therefore lost.

WOMEN AS STUDENTS OF THE SOCIETY.

The next discussion on this subject arose in consequence of three women having passed the Preliminary examination and presented themselves for election as "Students of the Society." Their election was moved and seconded. An amendment was moved to the effect that the three ladies in question "be not elected apprentices or students of the Society." Discussion waxed warm on the subject, one member asserting that "as the admission of ladies as apprentices would lead to their attending the evening meeting, and ultimately, perhaps, to their appearance at the Council table, he thought it would be best to oppose and check at the very outset what he considered a move in the wrong direction"; while another held that "if ladies had the moral courage to undergo an examination and obtain the qualification which was granted irrespective of sex, they ought to be allowed to go through the whole curriculum, and be encouraged in so doing." After much discussion the Council deferred the further consideration of the question.

At the annual meeting in 1873 there was a lengthy discussion on the desirability of admitting women to the Society, when the following resolution was brought forward by Mr. Hampson:—"That inasmuch as the examiners of the Pharmaceutical Society are empowered by law to test the qualifications of persons—*female as well as male*—before the State permits them to be registered as persons fitted to 'keep open shop' to practise pharmacy, and as all persons having passed the Major and Minor examinations are eligible for admission into the Society, as members and associates, that they may exercise control and direction over the working of the Pharmaceutical Society, and have the benefit of its associative influence and protection, this meeting is of opinion that it is contrary to the plain intention of the statutes to refuse admission to female persons, who, having conformed to the legal tests of the examiners and the regulations of the Society, may desire to become connected with the

Pharmaceutical Society in the capacity of apprentices, or students, or associates, or members." It was urged that qualification constitutes eligibility, and that the question was simply one of justice and common fairness, the exclusion of women being not in accordance with "the great principle of English fair-play." One member said he did not believe that a dozen women would present themselves in forty years, "but whatever the number might be they must be above the average character or they would not pass the examinations, and he did not see why they should be kept out in the cold." Another thought that "the question as to the desirability of women entering the business was a question for the women to decide for themselves; having passed the requisite examinations it was simply a matter of justice to admit them to membership." Finally, after much discussion, an amendment proposing to adjourn the question *sine die* was carried.

In July, 1874, two ladies having applied for permission to work in the Society's laboratory, the question of granting such permission was discussed. It was urged that as ladies were admitted to the lectures and to the examination they could not consistently be refused laboratory instruction. That view was opposed by the argument that admission to the laboratory was an entirely different thing to admission to the lecture-room; that it had been decided ladies should not be admitted as members of the Society, and "when the question came before the general meeting opinion was overwhelmingly against it, and even against encouraging them to enter the trade at all"; and it was then decided not to agree to the reception of lady students in the laboratory.

Nothing further was done in connection with the subject until January, 1876, when, at the Council meeting, the name of the first woman who passed the Major examination was included in the list of proposed pharmaceutical chemist members. The Vice-President (Mr. Bottle) drew attention to that circumstance, and referred to the decision of the former meeting when the subject was discussed. Mr. Hampson then urged that the Council was constantly regretting that Major students did not enter the Society, and that it was not consistent to refuse admission to this applicant. Mr. W. S. Brown supported that view, remarking that he did not think it probable that so many ladies would have sufficient energy and perseverance to pass the Major examination as to occasion any danger of the male members' votes being swamped, but the Council decided by a majority of one not to elect the lady a member of the Society. The question was again raised in July, when Mr. Hampson said he felt something very much akin to a sense of shame in finding it necessary to rediscuss the question. He believed the lady in question had as much right to membership as any man at the board. She was eligible according to Act of Parliament, having passed the highest examination that the Society imposed on the candidates. He considered that in refusing her election the Council would be acting illegally, and that probably a mandamus from the Court of Queen's Bench would be the result. He referred to a passage bearing on the point in the report of a conference held in 1867 between the Pharmaceutical Society and the United Society of Chemists and Druggists. Mr. Sandford was then President, and in speaking of the word "eligibility" he quoted the opinion of the solicitor that if a man were "eligible" under the Act of Parliament the Council was bound to elect him and to proceed according to the spirit of the Act. But in spite of this strong statement of the case the prevailing opinion was against the admission of the lady, and she was not elected to membership. The same result was arrived at in October, 1877, when the question was again discussed.

Women and the Society's Associateship.

The names of two ladies who had passed the Minor and applied to be elected as associates of the Society were submitted to the Council on November 7, 1877. During the somewhat lengthy discussion that took place it was urged that the Council, though not legally bound to elect women, was yet bound in equity to do so, and by refusing "would only show the world that it did not keep pace with the nineteenth century." There was some division of opinion as to whether it would be necessary to appeal to an annual general meeting for the vote of May, 1873, to be rescinded, and in accordance with the suggestion of the President the question of admitting women to all the privileges of the Pharmaceutical Society (membership or associateship) was referred to the next annual meeting of the Society. At that meeting, held May 15, 1878, considerable time was given to its discussion, and it was decided by a majority of two (fifty-nine against fifty-seven) "That in the opinion of this meeting it is not considered either necessary or desirable that ladies should be admitted as members, associates, apprentices, or students of this Society." At the adjourned meeting on May 17, however, it was found that there had been some mistake about the numbers, fifty-nine having voted *against* and fifty-seven *for* the above-quoted resolution, instead of *vice-versâ*. At the next Council meeting Mr. Hampson pointed out that at the annual general meeting there was a majority of two in favour of the principle that women should be admitted into the Society, and moved that Miss Isabella Clarke, who had applied for membership, should be elected. The voting on this occasion was equal, and the chairman's casting vote was given against her election. The question of the two ladies applying for associateship was then considered, and decided in the negative.

At the annual general meeting held May 21, 1879, a motion was brought forward by Mr. Wade, "That all persons duly qualified (irrespective of sex), being eligible for admission into the Society in accordance with the bye-laws, women should not be excluded from participation in the privileges of the Society." There was again a long discussion, which ended in an amendment being carried by a majority of three, and to the effect that inasmuch as registration under the Pharmacy Act secured all trading rights to persons so registered, and membership of the Pharmaceutical Society in no way increased those rights, membership was unnecessary so far as females themselves were concerned, and that it was undesirable on the part of the Society to introduce so complete a change in its constitution as would be involved by the admission of women as members, associates, apprentices, or students of this Society.

But the long-drawn-out opposition was nearly at an end. The question which had been the subject of so many discussions, and had engaged the attention of the Council at intervals for so many years, was finally settled at the Council meeting of October 1, 1879. The two ladies—pharmaceutical chemists—having again applied for membership, Mr. Hampson moved their election. He urged that "if the members of the Council refused to admit eligible persons to membership of the Society because of their private convictions or sentimental views, they were over-riding the Act of Parliament and neglecting their duties as a Council. It would be as reasonable to ask what church they attended as to inquire as to the sex of eligible persons who applied for admission, and he hoped the matter would now be settled by carrying out the Act in its entirety." Nearly all present declared their intention of voting in favour of the motion, one gentleman remarking that he did so "with a view of bringing about a peaceful termination to a question which had formed a bone of contention for some years; a prolonged agitation would be infinitely worse than admitting even a dozen women into the Society." The motion was then put and carried, the President being the only dissentient.

From that time forward, then (the right to work in the laboratory having been previously granted), all the privileges of connection with the Pharmaceutical Society were as open to women as to men. There is a possibility, though no great probability, of women being elected to the Council—a possibility which was spoken of with horror at one of the meetings when the question of admitting women to membership was being discussed! So far, only a comparatively small number of women have passed the Minor examination, and still fewer the Major; but it may be claimed with modest pride that no woman has ever given cause for the Council to regret its decision.

(*To be continued*).

STARCH AND ITS FORMATION.*

BY LEOPOLD D'E. LENFESTEY.

In the field of botany starch is of especial interest as being the first visible product of assimilation, and apparently the starting point from which are produced all those wonderful substances which are formed in the course of the constructive and destructive metabolism of plant life. Physiologists are intimately concerned with a substance which constitutes so important an article of food; the wonderful way in which the kinetic energy of the sun's rays is transformed into the potential energy of the starch granule, to which—I believe I am correct in saying—may be traced the greater part of the energy of the animal and vegetable kingdoms, provides food for reflection to physicists; phyto-chemists find much ground for research in investigating the means by which the complex molecule of starch is synthesised from the simple molecules of carbonic acid gas and water, and the complicated metamorphoses which it subsequently undergoes in the plant; and pure chemists will not find this subject devoid of interest if only for the humiliating fact that although the ultimate composition of starch is common knowledge, yet the constitution of the starch molecule is a problem yet unsolved.

THE ORIGIN OF STARCH.

All green plants can, under favourable circumstances (i.e., when supplied with air and light of sufficient intensity) produce starch. The substance which gives to the plant its green colour is that also which is instrumental in producing starch. The exact nature of this green substance, chlorophyll, is not known; it is a proteid substance containing the elements N, O, H and C which, according to Gautier, who analysed the green crystals obtained by the evaporation of an alcoholic extract of green leaves, are combined together in ratios expressed by the formula $C_{19}H_{22}N_2O_3$. By means of the spectroscope it may be shown that the spectrum of light which has passed through a solution of chlorophyll contains seven dark bands. The position of these bands is as follows:—A broad dark band in the red between the Fraunhofer lines B and C, a second almost as well marked in the orange between C and D, a third less easily visible at the junction of the yellow and green, a fourth more distinct near the line E, and three wide bands in the blue and violet, which except when using only a small thickness of the chlorophyll solution coalesce so as to completely obliterate that part of the spectrum. These absorption bands have a very great significance, for they show us that the rays of light whose wave lengths correspond to the positions of these bands in the spectrum have been arrested in their passage through the solution of chlorophyll, and as by the Principle of Conservation of Energy, energy cannot be destroyed, it follows that chlorophyll has the power of absorbing the energy of certain of the sun's rays, and transforming it into a form the plant can make use of in the exercise of that vital force which is necessary for producing starch from carbonic acid gas and water.

By a method devised by Sachs it is easy to demonstrate that it is light which supplies the energy operative in the production of starch. To a portion of any leaf of convenient dimensions is attached a band of tinfoil. After a few days the leaf is cut off, killed by immersion in boiling water, placed in alcohol to remove the chlorophyll, and then treated with a weak solution of iodine. Iodine is a very sensitive reagent for starch, which it colours a deep indigo blue. It is then readily seen that that part which has not been interfered with is coloured a deep blue, due to the formation of iodide of starch, whilst that portion which has been shaded from the tinfoil remains colourless. The function of chlorophyll, then, in the plant is clearly to obtain the necessary energy for the synthesis of starch, and wherever the formation of starch occurs, *de novo*, chlorophyll is intimately associated with it. It is, perhaps, this fact that has led some observers to regard chlorophyll as a substance intermediate between carbon dioxide and starch, and to suppose that starch is formed by a direct conversion of chlorophyll into it, a supposition, however, which is not borne out by circumstantial evidence.

* Paper read before the Birkbeck Science Society

CHLOROPHYLL AND ITS FUNCTIONS.

Chlorophyll is present in the green parts of plants, usually in specialised portions of protoplasm termed chlorophyll corpuscles, but in the Conjugatæ amongst Algæ it takes the form of spiral bands arranged about the cell, and in many unicellular plants it is diffused throughout the general protoplasm.

Not only is chlorophyll essential for the production of starch, but it is the chlorophyll containing protoplasm wherein this process occurs. If a green plant, from the chlorophyll corpuscles of which all starch has been removed, is placed in a confined volume of air and exposed to strong sunlight, very important observations may be made. First, the volume of air remains unchanged; secondly, the carbonic acid gas constituent disappears, and simultaneously starch makes its appearance in the chlorophyll corpuscle; and lastly, the gas which fills the space previously occupied by carbon dioxide is oxygen. Wherever starch is formed in the green parts of plants, these three factors are invariably corelated. For every volume of carbon dioxide which disappears, an equal volume of oxygen appears, and starch is the resultant product. This fact may be expressed by the equation—

$$6CO_2 + 5H_2O = C_6H_{10}O_5 + 6O_2,$$

but it must not be for a moment supposed that the change which actually occurs is so simple as the equation might appear to indicate. From the complexity of the starch molecule one cannot for a moment imagine it to be produced by a simple condensation of carbon dioxide with water, but although it is the first recognisable product, intermediary products are unquestionably formed. Much labour has been spent in the endeavour to ascertain what are these temporary products, which because of their evanescent nature it is very difficult to trace, and at the present time we are quite ignorant of the changes which occur. But although we are unable to demonstrate the gradual evolution of starch, yet from a knowledge of the chemical changes which can be effected in molecules by suitable treatment, we can at least outline a possible process which has the semblance of probability.

HOW STARCH IS PRODUCED.

When a coal or wood fire is burning the carbon of the fuel combines with the oxygen of the air and forms carbon dioxide, a colourless gas which is present ordinarily in the air to the extent of 4 parts in 10,000. In the operation of breathing we inhale oxygen, and the food we have taken into our bodies is burnt up by combination with this oxygen and again carbon dioxide is formed. In this chemical change a great deal of energy is given out in the form of heat, which in the former case may be utilised for driving machinery, and in the latter case is made use of in our bodies in such a way as to enable us to perform the varied avocations of daily life. The carbon dioxide produced in these operations the plant makes use of and from it reconstructs both food and fuel, and thus the cycle of changes is completed. But energy, although it can be transformed, cannot be created, and the whole of the energy which is produced by the combustion of these plant products has been stored up in them by the plant. This energy, as we have seen, the plant obtains from the sun. It is thus evident that the plant makes use of a very great deal of energy, and we will therefore not be surprised if we subsequently learn that it has produced substances less stable than carbon dioxide, the formation of which has necessitated the absorption of a great deal of energy.

When a coke fire is burning one not infrequently sees a lambent blue flame playing on the top. This flame is produced by burning carbon monoxide which has been formed from carbon dioxide by

the loss of one half of its oxygen, the energy for this transmutation being obtained from the heat of the fire. Now, we have already observed that when the plant uses up carbon dioxide it gives up oxygen, and aware of the great energy the plant has at its disposal, it is not difficult to admit that this process may also take place in the plant, and that carbon monoxide is the first step towards the formation of starch.

There is every reason to suppose that the next stage consists in the mutual reaction between the carbon monoxide thus produced and the water present in the plant, resulting in the formation of a gaseous substance, "formaldehyde," and a further liberation of oxygen. I know of nothing that can be adduced as evidence why this also should not take place in the plant, and admitted it does so, it accounts exactly for the observation that the volume of oxygen liberated is equal to that of the carbon dioxide absorbed—

$$\left.\begin{array}{rrcrcrl} (2\text{ mols.}) & 2CO_2 & = & 2CO & + & O_2 & (1\text{ mol.}) \\ 2CO & + & 2H_2O & = & 2CH_2O & + & O_2 \quad (1\text{ mol.}) \end{array}\right\}$$

In addition to this evidence, the probability of formaldehyde being one of the earlier products receives weighty support from the researches of Bokorny. He found that when the alga *Spirogyra majuscula* was placed in a culture solution containing 0.1 per cent. K_2HPO_4 and 0.1 per cent. methylal (which is readily resolved into methyl alcohol and formaldehyde

$$H{\cdot}CH\begin{cases} O.CH_3 \\ O.CH_3 \end{cases} + H_2O = H{\cdot}CHO + 2CH_3.OH)$$

or 0.1 per cent. of sodium hydroxymethyl sulphonate (which is broken up into sodium sulphite and formaldehyde

$$CH_2{\cdot}\begin{cases} ONa \\ SO_3Na \end{cases} = H.CHO + Na_2SO_3)$$

and exposed to light it contained, at the end of five days, very considerable quantities of starch.

Aldehydes have the property of readily undergoing polymerisation; they may do so spontaneously or only on the addition of a small quantity of certain mineral substances. Formaldehyde is no exception, and when its aqueous solution is treated with some weak alkali, such as potash, it is converted into "formose," a member of the sugar group. This is what probably takes place in the plant, and it may be that this is why potassium is so essential to the plant. It has been shown by Nobbe, in a series of water cultures, that little or no starch is produced in the absence of potassium, but that on the addition of salts of this metal, starch immediately made its appearance. From a sugar the plant can readily produce starch; the one is being constantly transformed into the other, as a sugar starch is conveyed to the different parts of the plant, and from such is deposited as reserve starch.

This I think the most probable explanation of the production of starch—although there are many others. Erlenmeyer does not admit of the formation of formaldehyde with carbon monoxide as the intermediate product, but supposes that formic acid and hydrogen peroxide are first produced, which together react to form formaldehyde and oxygen in accordance with the equations

$$\left.\begin{array}{rrcrcrcrl} (1\text{ mol.}) & CO_2 & + & 2H_2O & = & H.COOH & + & H_2O_2 & \\ & H.COOH & + & H_2O_2 & = & H.CHO & + & H_2O + O_2 & (1\text{ mol.}) \end{array}\right\}$$

I have already alluded to the theory that chlorophyll itself is directly converted into starch; another is that it is the protoplasm which undergoes this change. Just as molecules of protoplasm are converted into molecules of cellulose in the formation of cell walls, so it is supposed molecules of starch are formed; but this supposition would appear to be negatived by the fact that although in the fungi the protoplasm produces cellulose as in green plants, yet no starch whatever is formed.

We have assumed that the absorption bands in the chlorophyll spectrum indicate that the energy obtained by the absorption of these rays is directly concerned in the synthesis of starch, and this assumption is shown to be correct by the experiments of Engelmann, to which I will hereafter allude. Pringsheim is responsible for the view that those rays are not so active, but are even prejudicial to the synthetic processes, and that it is those rays which are transmitted which are concerned in the formation of starch, the chlorophyll acting as a kind of filter. The function of the energy of the absorbed rays is, in his opinion, to promote respiration and destructive metabolism, and thus make the constructive processes possible. The combustion of highly carbonised material in the plant, as elsewhere, will be an exothermic reaction, and it seems to me that little energy will be required to effect this change. Moreover, there is no evidence to show that light has any influence whatever on destructive metabolism. Still, certain of these theories, being more or less based on well-established facts, have something by which to commend them. Although there is not sufficient evidence to give any the pre-eminence, it is possible the light of future research will withdraw the veil which at present obscures this wonderful process, and declare in favour of one of them.

Conditions of Starch Formation.

We have seen that the conditions absolutely necessary for starch formation are that the plant shall have access to carbon dioxide and light of sufficient intensity. Although the percentage of carbonic acid gas in the air is very small, yet the constant motion of the air, and the usually relatively large assimilating area of the plant, ensure a sufficiency to meet all requirements. The formation of starch has been shown by Godlewski to be dependent on the amount of carbon dioxide in the atmosphere, reaching a maximum when this gas is present to the extent of 5 to 10 per cent. A too large quantity of carbon dioxide will suffice to stop altogether the formation of starch. Similarly, starch is produced much more rapidly, and in larger quantity, in bright sunlight than in diffused light, and it may be well to notice that the plant has a special mechanism whereby to adapt itself to external conditions in a manner as favourable to itself as possible. In diffused light the chlorophyll granules take up a position (termed Epistrophe) in which they lie along the free walls of the cells parallel to the assimilating surface presenting their broad surfaces to the incident light; but if the light becomes too intense they take up an "end on" position (termed Apostrophe) along the lateral walls of the cells. All the rays which together constitute white light do not exhibit to the same extent the capacity for producing starch. Rays of wave length less than $\frac{40}{100000}$mm. are not concerned in the production of starch. Those with greater wave length than $\frac{40}{100000}$mm. and less than $\frac{62}{100000}$mm. comprise the active part of the spectrum, the maximum effect being produced by rays of wave length $\frac{59}{100000}$mm. Engelmann has taken advantage of the fact that oxygen is liberated as carbon dioxide is decomposed, to devise a most ingenious method for determining the relative activity of different parts of the spectrum. For this purpose he made use of a microspectroscope, a small alga, and a certain bacterium (*B. termo*) which is highly sensitive to oxygen and only exhibits its movements in presence of this gas. By varying the width of the slit he was able to determine the relative intensities of light necessary to bring about the evolution of oxygen, and the consequent movement of the bacteria in different parts of the spectrum. The activity at any part will be inversely as the intensity, *i.e.*, as the width of the slit. His results show—and it is not surprising—that the rays most active are those occupying parts of the spectrum, which, when the light passes through a solution of chlorophyll, exhibit absorption bands.

The value of bright illumination is illustrated by the observations of Kraus. He showed that within five minutes after exposure to bright sunlight starch made its appearance in the chlorophyll corpuscules of Spirogyra, and within two hours in diffuse daylight, and within two hours and six hours respectively in the case of Funaria.

How the Starch Granules Grow.

The first visible indication of starch in the chlorophyll corpuscles is the appearance of minute specks; as fresh starch is formed about them they grow in size, and if assimilation is proceeding very rapidly they soon fill up the entire corpuscle, and by their mutual compression assume an irregular polygonal shape. These granules are very soon dissolved and carried away to those parts of the plant requiring them, it is not these which are characteristic of the plant producing them. There are deeper in the tissues of the plant—in tubers, roots, rhizomes, etc.—specialised portions of protoplasm, corpuscles not green, which from the carbohydrates presented to them can elaborate starch. These corpuscles have been variously termed "starch-producing corpuscles," leucoplasts (from the fact that they contain leucophyll and on exposure to light become green), and by Schimper, who first discovered and described them, "amyloplasts." In these the granules are formed more gradually and attain a larger size, and in their markings, form, and size are fairly constant for the plant in which they are produced. If the granule is formed quite within the substance of the corpuscle, the deposition of the new material takes place regularly on all sides of it and concentric granules result; but if, on the other hand, the granules originate immediately beneath the surface, subsequent growth causes them to protrude through the corpuscle, and being nourished unequally, excentric granules are eventually produced.

The possible ways in which a starch grain, once formed, may increase in bulk are either by apposition or by intussusception. Here, again, there is much difference of opinion. From the fact that granules are more watery from without inwards, the external portion being a relatively dense layer and the hilum correspondingly watery, Naegeli has arrived at the conclusion that the starch granules grow by the intercalation of new particles between those already existent. He ascribes the stratification to alternating layers containing more or less water, and argues that if the apposition theory were correct, then the external youngest layers should contain the most water. In opposition to this view, and in favour of the apposition theory, Schimper has shown that occasionally a grain which has lost its form on account of partial dissolution, is to be found with fresh starch deposited about it in regular layers, the irregular outline of the old granule being visible inside. Schimper agrees with Naegeli as regards the alternation of layers containing more and less water, and accounts for it by supposing that each apposed layer becomes differentiated into three by the tensions of the grain, a middle watery layer, with a dense layer on each side of it. Strasburger does not believe in the alternation of layers, but that the external layers, like those of a cell wall, are more dense than those within, and that the older layers gradually absorb water. The result of such absorption is that the layers stretch those external to them, producing positive tension. This is the opposite condition of things to that existent in the cell wall, the force in that case being one of compression or negative tension. The study of the optical properties of the granules appears to confirm Strasburger's conclusions, for, as Von Mohl has pointed out, the interference colours of starch grains are complementary to those of cell walls, the former being optically positive and the latter negative.

The Characteristics of Starch Granules.

The fully-formed starch granules possess certain characteristics such as shape, size, and nature of the markings and hilum by which they may be distinguished from one another, and referred to the plant producing them. As starch enters very largely into the adulteration of food and drugs, and as no chemical tests are possible to discriminate between the various kinds, the microscopic study of the above characteristics is very important. The granules may be ovate in shape, as in the potato and arrowroot; round, as in wheat and barley; truncated, at one end, as in sago and cassava; reniform, as in the pea and bean; or polygonal, as in rice and maize. The hilum may be circular, linear or stellate, and its size and position are also important factors in identifying the grains. According to these distinguishing features, the various starches readily fall into five groups, and have been so classified as follows:—

Group I.—The Potato Group includes such oval or ovate starches as give a play of colour when examined by polarised light and with a selenite plate. The rings and hilum are clearly visible.

Group II.—The Leguminous Group comprises such round or oval starches as give little or no colour with polarised light. The hilum is well marked and cracked or stellate, whilst the rings are all but invisible.

Grou III.—The Wheat Group contains such starches as have both hilum and rings invisible in the majority of the granules.

Group IV.—The Sago Group contains such very characteristic starches as are truncated at one end.

Group V.—The Rice Group comprises those starches all the granules of which are polygonal in form.

The members of these groups are detected by structural peculiarities and by the size of the granules. The sizes of the granules of different starches are very variable. They may be of any size between the immeasurably small granules of the "cactus" and the comparatively very large granules of Tous-les-mois starch. I append a list of some of the commoner starches which may be interesting:—

	Mm.		Mm.		Mm.
Canna	·175	Lentils	·067	Tapioca	·028
Maranta	·140	Peas	·063	Barley	·025
Potato	·140	Wheat	·050	Rice	·022
Sago	·070	Maize	·045	Beetroot (seeds)	·044

Unfortunately the size of the granules of any particular starch is by no means a constant quantity. In potato starch one finds granules of pretty well all sizes within a certain range, and in wheat the granules are of two sizes, large and small; still, by practice and by combining the dimensions with the morphological characteristics of the granules, one is generally able to spot a starch fairly accurately.

(*To be continued*).

NOTE ON MISTURA OLEI RICINI, B.P.

BY W. A. GREGSON.

The new method of emulsifying castor oil adopted in the 1898 Pharmacopœia appears to beginners in pharmacy to possess some difficulties, which, however, are less in number and degree than those of the formula of the addendum of 1890. My object in writing this note is to offer to your readers a plan which I have found simple, speedy, and effectual. The official process recommends the use of mucilage, but this is not as a rule available in many pharmacies in the fresh condition. Operating on one quarter of the B.P. quantity, the suggestion is to put 75 grains of powdered acacia in a dry mortar; add now all at once 6 fluid drachms of castor oil, then add 3 fluid drachms of water, and mix them intimately; having made them perfectly homogeneous, add the aqueous fluids in one fluid drachm or more quantities according to the skill of the operator, care being taken to maintain uniformity. Prepared in this way, and kept under observation for some time, it compares favourably with the official process.

AUSTRALIAN INDIGENOUS VEGETABLE DRUGS.*

BY J. H. MAIDEN,

Government Botanist and Director of the Botanic Gardens, Sydney.
(Corresponding Member of the Pharmaceutical Society of Great Britain.)

APOCYNEÆ *(continued).*

Alyxia buxifolia, R.Br.

Letters patent, No. 866, dated August 15, 1888, were granted in New South Wales, "for the discovery of the medicinal properties and virtues of *Alyxia buxifolia,* and the production therefrom of Austral Marine Bitters and other distilments and compounds of the said *Alyxia buxifolia.*" An "extract" of this plant, presumably of the bark, was sold as a patent medicine for a short time, and wonderful were the virtues claimed for it on the prospectus. I do not doubt that these claims are every bit as valid as those of quack or patent medicines in general.

Coast of all the Colonies except Queensland.

Carissa ovata, R.Br., var. *stolonifera,* Bail.

Dr. T. L. Bancróft communicated a paper (*Proc. Roy. Soc. N.S.W.*, xxviii., 44) on the pharmacology of the bark of this plant. "An alcoholic extract of the bark was made, and solutions in water of this when injected into frogs rapidly killed them. The muscles were pale and paralysed, and the heart stopped in systole. Applied to the exposed hearts of frogs, pithed or under the influence of curare, it slowed and finally brought them to a standstill in systole. It was then seen that the substance resembled closely in its action *Strophanthin* and *Ouabin,* glucosides from allied genera of Apocyneæ."

At Dr. Bancroft's request I took the matter up, and, in conjunction with Mr. H. G. Smith, published a paper on the chemistry of the bark in the *Pro. Aust. Assoc. Adv. Science* (Brisbane), vi., 278. No alkaloid was found, but a glucoside, to which the name *Carissin* was given, which approaches *Strophanthin* in certain respects. The reaction and method of isolation are described in the paper referred to.

Queensland.

Cerbera odollam, Linn. (Syn. *C. manghas, Bot. Mag.*)

This tree is also a native of Malabar, and while the fleshy drupe, according to Lindley, is innocuous, the nut in the interior is narcotic, and even poisonous. The bark is purgative; the unripe fruit, moreover, is dangerous, and is said to be used by the natives of Travancore to destroy dogs; the teeth of the unfortunate animals being, as is reported, loosened so as to fall out after masticating it. (*Treasury of Botany.*)

Waring (*Pharm. of India*) deprecates the use of the milky juice, and leaves of this plant as emetics and purgatives, on the ground that they are dangerous, and that there are numbers of safe and efficient drugs for these purposes.

In Java the leaves are used as a substitute for senna. (Drury.)

The sap, leaves, and bark of this plant have no toxicological action, but the seed-kernel contains, in addition to a non-poisonous fatty oil, the compound *cerberin,* which has a poisonous action on the heart. Breshoff (*Ber.* xxiii., 3537; *Journ. Chem. Soc.*, lx., 337, where a chemical account of *cerberin* is given). See also Sohn, p. 26, for notes on the bodies found in *Cerbera.*

Queensland and North Australia.

Ochrosia moorei, F.v.M.

Timber yellow, and both timber and bark intensely bitter. They are worthy of chemical investigation and comparison with *Alstonia.*

Coastal New South Wales and Queensland.

Tabernæmontana orientalis, R. Br. "Bitter Bark."

This small tree has an intensely bitter bark, and a decoction of it is sometimes sold as "bitters."

Dr. Thomas Bancroft, of Brisbane, informs me that the bark is physiologically inert, or practically so.

New South Wales to Northern Australia.

T. sphærocarpa, Bl., also contains an alkaloid and a wax-like compound, which is free from nitrogen and melts at 185°. Greshoff (*Ber.* xxiii., 3537; *Journ. Chem. Soc.*, lx., 337).

For a list of the Apocyneæ worked at by Greshoff, see Sohn, p. 10.

ASCLEPIADEÆ.

Sarcostemma australe, R. Br.

The juice is used by the Port Darwin (Northern Territory of South Australia) natives as a remedy in small-pox. (*Proc. R.S., S.A.*, v., 9.) In the interior districts of New South Wales its milky juice is used by white men as an application to wounds.

"The caustic plant is really very valuable, and will cure warts and corns very quickly." (Mrs. Kennedy, of Wonnaminta, in a letter to me.)

An amorphous yellow, bitter glucoside, called Asclepiadin, has been found in several genera of Asclepiadaceæ. For an abstract, see Sohn, p. 13.

All the Colonies except Victoria and Tasmania.

TYLOPHORA.

A crystalline, alkaline, emetic alkaloid, named Tylophorine, has been isolated by D. Hooper from the root of the East Indian *Tylophora asthmatica* (see Sohn, p. 99). It should be looked for in our numerous species of the same genus.

LOGANIACEÆ.

Strychnos psilosperma, F.v.M., and *S. lucida,* R. Br.

I am indebted to my friend, Mr. F. M. Bailey, for his kindness in placing in my hands specimens of the two native species of Strychnos, viz., *Strychnos psilosperma* and *S. lucida.* All parts of *S. psilosperma* are bitter, but not so bitter as strychnine. I was unable to kill frogs with this plant. *S. lucida* is, on the other hand, extremely bitter. So intensely and persistently bitter is this plant, that one would imagine that it was very rich in strychnine. I was astonished, however, to find that I could not tetanise frogs with it. It was not even poisonous to them. The frogs used (*Hyla cærulea*) are very susceptible to strychnine. I had only one fruit and several leaves—too small a quantity to attempt any chemical analysis."

(Dr. T. L. Bancroft, *Trans. Intercol. Med. Congress,* 1888.)

Rennie and Goyder, *Proc. R.S. Vict.*, iv. (new series), 29, have a "Note on the Alkaloids and *Strychnos psilosperma.*" A quantitative separation revealed the presence of both strychnine and brucine, the former apparently in considerable excess, but the quantity available was too small for quantitative determination.

Queensland.

GENTIANEÆ.

Erythræa australis, R.Br. "Native Centaury."

This plant is useful as a tonic medicine in indigestion, liver complaints, diarrhœa, and dysentery. The whole plant is used, and is pleasantly bitter. It is common enough in grass-land, and appears to be increasing in popularity as a domestic remedy; in fact, it is the one native plant remedy known to a great many people, and to my personal knowledge it is used in all parts of New South Wales.

For a note on its use as a Western Australian remedy in eczema se *Chem. and Drugg. Aust.*, May, 1894, p. 112.

It contains a glucoside known as erythrocentaurin; see Sohn, p. 52.

All the Colonies.

Sebæa ovata, R.Br.

This neat little annual herb can be utilised for its bitter tonic principle. It and *Erythræa australis* may be used indiscriminately.

Throughout the Colonies.

BORAGINEÆ.

Cordia myxa, Linn. The "Sebesten Plum" of India.

This plant is also a native of India, and has succulent, mucilaginous, and emollient fruits. From their mucilaginous qualities, combined with some astringency, they have been employed as pectoral

From the *Agricultural Gazette of New South Wales* (continued from page 28).

medicines under the name of *Sebestens*. The bark is a mild tonic, and is used in India as gargles. (*Treasury of Botany.*) The bark is much used as a mild tonic in Java. (Drury.)

Queensland.

Heliotropium ovalifolium, Forsk. Native name, "Kai-kai."

"Used medicinally for general sickness, as a drink." (E. Palmer.)

A poisonous alkaloid, heliotropine, has been found in the European *H. europcum*, L., and in the closely allied *Cynoglossum vulgare*.

South Australia and Queensland to North Australia.

Trichodesma zeylanicum, R.Br. (Syn. *Pollichia zeylanica*, F.v.M.)

In India this, with other species, is considered diuretic, and one of the cures for the bites of snakes. (Bailey.)

All the Colonies except Victoria and Tasmania.

CONVOLVALACEÆ.

Evolvulus alsinoides, Linn. (Syn. *E. linifolius*, Linn).

The stalk, leaves and roots are a reputed remedy in dysentery and fever. (Ainslie.) This plant is not endemic in Australia.

All the Colonies except Victoria and Tasmania.

Ipomœa Pes-caprœ, Roth.

The boiled leaves are used externally as an anodyne in cases of colic, and in decoction in rheumatism; the juice is given as a diuretic in dropsy, and at the same time the bruised leaves are applied to the dropsical part. (Dymock, *Materia Medica of Western India.*)

Western Australia, New South Wales, and Northern Australia.

SOLANEÆ.

Anthocercis littorea, Endl.

For notes on a case of poisoning by this plant in Western Australia see *Chem. and Drugg. of Australasia*, xiii., 200 (July, 1898). The symptoms were those of poisoning by belladonna. See also *Prod. Gazette and Settlers' Record of W.A.*, v., 397. (May, 1898.)

Western Australia.

Anthocercis viscosa, R.Br.

A yellow oily liquid alkaloid (anthocercine), "heavier than water, with agreeable odour and alkaline reaction," has been found in this plant. See Sohn, p. 9.

Western Australia.

Duboisia myoporoides, R.Br. "Corkwood."

I have illustrated this plant, and given so full an account of it, and of the chemical and therapeutical researches in regard to its leaves, in the *Agricultural Gazette* for November, 1893, p. 845, that it is quite unnecessary to go over the same ground again. At the same time, it will be a convenience to inquirers and investigators to give the following references additional to or more ample than those given in my paper.

Attention is also invited to a paper by Gordon Sharp, "On our present knowledge of the Mydriatic Group," in *Pharm. Journ.* of Aug. 14, 1897, p. 161.

GREGORY, J.

'Pituri and Tobacco.' Brisbane, 1879. 8vo. Chiefly on Duboisia, Pituri, and *Anthocercis tasmanica*.

LADENBURG, A.

"Identity of Duboisine and Hyoscyamine." *Ber.* xiii., 357. *Year-Book of Pharm.*, 1880. 26.

LADENBURG, A.

"Identity of Daturine with Hyoscyamine and Duboisine." *Ber.* xiii., 380. *Year-Book of Pharm.*, 1880. 27.

LADENBURG, A.

"The Mydriatic Alkaloids," *Chem. Zeitung*, 1881. No. 9. *Year-Book of Pharm.*, 1881. 20.

"Ueber Pseudhyoscyamin. Ein neue Alkaloid aus *Duboisia myoporoides*."

Bericht, 1892, p. 11. *Pharm. Journ.* [3], xxiii., 606.

MERCK, E.

"A new alkaloid, contained in *Duboisia myoporoides*, R.Br., together with hyoscyamine and hyoscine."

Arch. Pharm., 231, 117. *Journ. Chem. Soc.*, lxiv., 491.

There is also a useful paper on "Duboisine and its use in the Colonies" in *Pharm. Journ. of Australasia*, May, 1891. Dr. Finselbach makes the statement that the leaves of *D. myoporoides* contain rather less alkaloid during the flowering period than later, and recommends them to be collected in November or December.

New South Wales and Queensland.

Solanum aviculare, Forst.

Dr. Joseph Bancroft says an extract of the leaves of this plant does not dilate the pupil, but is poisonous. Dr. T. L. Bancroft points out that the taste of the leaves is extremely like that of tobacco; and, as the result of some experiments, he believes them to contain nicotine.

All the Colonies except Western Australia.

Solanum verbascifolium, Ait.

A large shrub, often twenty feet high, with a bitter bark. An extract of the bark is only slightly poisonous to frogs. An alkaloid can be prepared in a pure state from this plant in the following manner:—Pulverise the bark, exhaust by boiling aqueous alcohol, distil off the alcohol, dissolve the extract in water, filter, precipitate with carbonate of soda. It seems to be insoluble in ether and chloroform, but very soluble in alcohol. It is not mydriatic. In these particulars it agrees with solanine. (Dr. T. L. Bancroft, *Proc. Linn. Soc., N.S.W.* [2], iv., 1063.) This alkaloid is also found in the fruit. *See* Wittstein's *Organic Constituents of Plants*, trans. Mueller, p. 204.

New South Wales and Queensland.

SCROPHULARINEÆ.

Gratiola pedunculata, R.Br., and *G. peruviana*, Linn.

"Brooklime."

A decoction of these plants is used by country people in Australia for liver complaints with (many say) good results. They enter into domestic medicine for some complaint or other in various parts of the Colonies. The latter plant is not endemic in Australia.

Dr. Thomas Bancroft, of Brisbane, informs me that this genus is physiologically inert, or practically so. Nevertheless, the closely-allied *G. officinalis*, of Europe, contains a bitter, poisonous glucoside, known as Gratiolin, and an amorphous or crystalline glucoside (a red or yellow powder) known as Gratiosolin. See Sohn, p. 55; also notes in the *Agricultural Gazette* for August, 1894, p. 595, and for January, 1897, p. 16.

All the Colonies except Tasmania (*G. pedunculata*); all the Colonies (*G. peruviana*).

Herpestis monniera, H.B. et. K. (Syn. *Bramia indica*, Lam.).

This small creeping plant is common to the tropical portions of both hemispheres. It is regarded by the Hindoos as a powerful diuretic and aperient, and the juice of the leaves, conjoined with petroleum, is used in India as a local application in rheumatism. "Whatever benefit is derived from this formula is doubtless due to the petroleum." (*Pharm. of India.*)

New South Wales and Northern Australia.

Scoparia dulcis, Linn.

This plant is a native of every part of the world within the tropics. In India it is used in infusion in ague. (*Cyclop. of India.*)

Queensland and Northern Australia.

ACANTHACEÆ.

Justicia procumbens, Linn.

In South India the juice of the leaves squeezed into the eyes is a remedy in ophthalmia. (Drury.)

All the Colonies except Tasmania and Victoria.

(To be continued.)

THE MANUFACTURE OF TARTARIC ACID.*

A NEW COMMERCIAL METHOD.

BY DR. G. SCARLATA.

Tartaric acid occupies one of the most important places among chemical products. It is found in abundance in the form of acid tartrate of potassium and neutral tartrate of lime, in the raw tartar from casks, in wine lees, and in grape skins, which, by the way, constitute the only raw materials used for its extraction.

It is curious to note that, at the present time, the extraction of tartaric acid is almost entirely carried on in England, the United States, and Germany, the wine-producing countries possessing only a few factories of little importance, limited to the treatment of raw material produced on the spot, though more often —in fact nearly always—the stocks are allowed to accumulate, and are then shipped to some foreign factory.

The method of extraction at present used in most factories is very old, viz., that of Scheele. Only very slight modifications have been introduced into this method, while nearly every other chemical industry has undergone radical changes; one fact is certain, that there has been no improvement made in the manufacture of tartaric acid.

I have been attracted to this remunerative industry with the hope of devising a plan by which the English and German methods can be efficiently combined. I have therefore sought principally for an economical method which would not require too much capital to establish in the first place.

The results I have obtained in the laboratory lead me to hope that I have attained the desired result. I leave to practical experience the task of justifying my opinions.

The first part of Scheele's process consists in obtaining tartrate of calcium. This can be done by different methods, but they are all long and delicate. The methods of Scheurer-Kestner, of Gladysz, of Dietrich, and of Schutzner, all require a considerable amount of time and fuel; the same can be said of the second part of the process, which consists of decomposing the tartrate of calcium with sulphuric acid. This operation yields no useful by-product, and does not allow of the recovery of any of the materials first used.

These drawbacks do not exist in the new method which I propose to use, since by its means we are enabled to extract the tartaric acid directly from the raw product, and to recover the materials used in the operation.

This method, broadly speaking, is based on the decomposition of the tartrates by fluosilicic acid. In the raw product the tartaric acid exists both as acid tartrate of potassium and as tartrate of calcium. These salts are decomposed by fluosilicic acid, with the formation of tartaric acid and of the corresponding fluosilicates.

$$2C_4H_5O_6K + H_2SiFl_6 = 2C_4H_6O_6 + K_2SiFl_6$$
$$C_4H_4O_6Ca + H_2SiFl_6 = C_4H_6O_6 + CaSiFl_6$$

Tartaric acid and fluosilicate of calcium are both soluble and remain in the clear solution, while the fluosilicate of potassium is to a great extent precipitated; its solubility is only 1 part in 825 parts of water. By evaporating the clear solution the last portions of the fluosilicate of potassium are precipitated very rapidly. There now remains only the fluosilicate of calcium to be eliminated, of which the quantity present is first determined by analysis. The calculated quantity of sulphuric acid is then added, plus a little excess, as tartaric acid crystallises much better in solutions made slightly acid with sulphuric acid. After concentration to help the deposit of sulphate of lime, the organic matter, and the last traces of fluosilicate of potassium, the clear solution is decanted and allowed to crystallise.

We thus obtain fluosilicate of potash as principal by-product; it is found mixed with silica for reasons which will be shown later on, and constitutes an excellent material for the preparation of fluosilicic acid; in fact, by treating it with sulphuric acid, we obtain sulphate of potassium, hydrofluoric acid, and fluoride of silicon, according to the equation—

$$K_2SiFl_6 + H_2SO_4 = SiFl_4 + 2HFl + K_2SO_4.$$

But hydrofluoric acid in the presence of silica gives fluoride of silicon and water:—

$$4HFl + SiO_2 = SiFl_4 + 2H_2O.$$

So that the whole of the fluorine from the fluosilicate of potassium is brought to the state fluoride of silicon, which, by reacting on water, gives fluosilicic acid and silica according to to the equation—

$$3SiFl_4 + 4H_2O = 2H_2SiFl_4 + Si(OH)_4.$$

As can be seen, the recovery of the fluosilicic acid is complete by a simple treatment with sulphuric acid.

Preparation of Tartaric Acid.

I am not able to describe in detail the apparatus necessary for the manufacture of tartaric acid, but will confine myself to the description of the experiments made with the ordinary apparatus found in the laboratory.

The tartar I used contained by analysis:—

Total tartaric acid ..	..	62.56 per cent.
Tartrate of potassium	..	67.16 ,,
Tartrate of calcium..	..	11.25 ,,

I operated on 10 kilogrammes of well broken-up material, placed in a wooden vat furnished with a stirrer. To these 10 kilogrammes of raw material I added the quantity of fluosilicic acid theoretically necessary to set all the tartaric acid at liberty—that is to say, 58 kilogrammes of a solution at 60 per cent. After agitating for an hour, the mixture was transferred to a filter-press, and the clear solution was led into a wooden vat lined with lead and heated by a current of steam passing through a spiral tube. The evaporation was continued until fluosilicate of potassium commenced to be deposited. The contents of the vat were then left alone for some hours, after which the clear solution was decanted into another vat furnished with a stirrer. The lime was estimated on a sample of the solution, by adding an excess of oxalate of ammonia and titrating the excess of oxalic acid by permanganate of potash. The total quantity of solution contained 209 Gms. of lime. To eliminate this the solution was treated with the theoretical quantity of sulphuric acid—that is 512 Gms. H_2SO_4 diluted to 1 litre, then transferred to the filter-press.

The solution of tartaric acid thus obtained was coloured a deep reddish brown; after decolorising by animal black, it was evaporated and crystallised, care being taken to remove the sulphate of lime which is again precipitated at the commencement of the evaporation.

The purity of the crystals of tartaric acid thus obtained was determined by titrating with potash and comparing it with a chemically pure sample of the same acid. It is evident that, in this kind of test, equality of results indicates equality of purity. The results obtained were as follows:—

Tartaric acid at 100 per cent.	Tartaric acid from the experiment.
I. 35·0 C.c. of solution of KOH.	I. 34.5 C.c. of solution of KOH.
II. 41.0 ,, ,, ,,	II. 40.5 ,, ,, ,,
III. 33.0 ,, ,, ,,	III. 32.5 ,, ,, ,,
IV. 36.0 ,, ,, ,,	IV. 35.5 ,, ,, ,,

These figures show that the tartaric acid obtained by the fluosilicic acid process titrated 98.57 per cent. of purity; it may therefore be considered as commercially pure.

Preparation of the Fluosilicic Acid.

Description of the Apparatus.—This consists of a cast-iron pot fitted with a mechanical stirrer, in which the raw material obtained

* From the *Moniteur Scientifique* [4], **13**, 360, through the *Chemical News*.

as a by-product from the above reaction is placed. The calculated quantity of concentrated sulphuric acid is added, the cover is luted on, and the whole heated and stirred continuously. The cover has two tubes passing through it; the first—which is for passing a current of air through at the end of the operation—is kept closed by means of a tap during the first phase of the operation; the second—which is much larger—is for the purpose of passing the fluoride of silicon into a vessel filled with water. The water necessary for the decomposition of the fluoride of silicon is added, the quantity is estimated approximately by the quantity of fluosilicate of potash present, so that the solution of fluosilicic acid can be prepared of practically any desired strength. The fluoride of silicon on entering the vessel, comes in contact with the water, which decomposes it into fluosilicic acid and gelatinous silica.

As a secondary product of this preparation, we obtain sulphate of potassium, which, mixed with the residues from the first operation, forms excellent manure. In any case its intrinsic value will always cover a part of the expense of the process.

As can be seen, this method has the double advantage of being very rapid, and of returning in a useful form all the materials originally used.

SELECTED PRACTICAL FORMULÆ.

Linimentum Capsici Compositum.

V. Fassati advocates the inclusion of the following formula in the new Austrian Pharmacopœia:—Capsicum fruits, 500, are moistened with dilute tragacanth mucilage, dried gently and ground to a coarse powder. This is mixed with alcohol, 125, and ether, 125, macerated in a closed vessel, then percolated with alcohol until 1250 of percolate have been obtained. Camphor, 500, is dissolved in the percolate and the following ingredients added. Solution of ammonia, sp.g. 0.91, 25; thyme oil, 10; lavender oil, 10.—*Pharm. Centralh.*, **40**, 132; after *Oest. Zeit. für Pharm.*

Dika's Zinc Gelatin Bandage.

The bandage is composed of zinc oxide, white gelatin, of each 20, glycerin and distilled water, of each 80 Gm.—*Oest Zeit. für Pharm.*, **53**, 85.

Elixir of Pancreatin.

Pure pancreatin, 10; white Malaga wine, 500; simple syrup, 400 alcohol (80 per cent.), 90.– *Rev. Med. Pharm.*, **6**, 74.

Elixir of Peptone.

Peptone, 50; Frontignan wine, 500; simple syrup, 350; alcohol (80 per cent.), 100.—*Rev. Med. Pharm.*, **6**, 74.

Sulphur Paste for Acne.

Sublimed sulphur, alcohol (90 per cent.), water, of each 20; mucilage of acacia, 6. Mix. To be applied night and morning to the affected parts. If it causes irritation, a paste of boric acid containing from 1 to 50 per cent. of sulphur may be substituted for it.—*Rev. Med. Pharm.*, **6**, 74.

Solid Brilliantine.

Olive or castor oil, 30; spermaceti, 8; melted together and perfumed with bergamont oil, 5; lemon oil, 2.5; rose geranium oil, 0.5.—*Deutsch. Amer. Apoth. Ztg.*, **19**, 157, after *Seifen Fabrik.*

Menthol Opodeldoc.

Soft soap, 20 grs.; camphor, 8 grs.; menthol, 2 grs.; distilled water, 2 grs.; arnica tincture, q.s. to produce 1 fl. oz.—*Deutsch. Am. Apoth. Ztg.*, **19** (12), 157, after *Pharm. Era.*

THE SALE OF BENZENE AND BENZOLINE.

The following correspondence has passed between the Secretary of the Pharmaceutical Society and the Public Control Department of the London County Council:—

Pharmaceutical Society of Great Britain,
17, Bloomsbury Square, London, W.C.
June 27, 1899.

Dear Sir,

My attention has recently been directed by several members of this Society to the difficulties placed by officers of the County Council in the way of the storage and use of petroleum by chemists.

The regulations do not appear to allow of bottles being opened and the contents used, although a chemist may, under Section 7 of the Petroleum Act, stock a certain quantity of spirit in bottles so long as they are securely stoppered.

The British Pharmacopœia directs the employment of petroleum in certain pharmaceutical processes, and it is not possible for a chemist to carry on his business without using it from time to time, but the statutory permission to keep a small quantity of petroleum is rendered valueless by the proviso that the bottles must not be opened for use.

Cannot an exemption be made in favour of chemists so that bottles of petroleum may be opened for filling smaller bottles for sale, or for use in carrying on their business?

I am, yours faithfully,
(Signed) Richard Bremridge,
Secretary and Registrar.

A. Spencer, Esq.,
Public Control Department,
London County Council.

Public Control Department,
6, Waterloo Place, S.W.
July 8, 1899.

PETROLEUM ACTS, 1871-1881.

Dear Sir,

The Council has had under consideration your letter of the 27th ultimo, on behalf of the Pharmaceutical Society of Great Britain, pointing out difficulties experienced by chemists in connection with the keeping of petroleum spirit under these Acts, and asking whether an exemption could not be made, so that bottles of petroleum may be opened for filling smaller bottles for sale or for use by chemists in carrying on their business.

I am to point out that although the exemption provided by section 7 of the Act of 1871 only extends to petroleum spirit when in vessels securely stopped, the Council has not insisted on a licence where spirit is removed from such vessels for use in pharmaceutical or other processes.

What you now propose is virtually to extend the exemption clause to the repacking of spirit into smaller vessels, and although the Council has no legal power to give sanction to such a practice, it is prepared to meet the wishes of the Society to the extent of not requiring licences in such cases. To give effect to this the Council has issued the following instruction on the subject:—

"Persons keeping petroleum spirit in the County of London will not be required to obtain a licence, provided

(*a*) "That the total quantity kept does not exceed three gallons.

(*b*) "That the spirit is kept in securely stopped vessels, each of which contains not more than one pint.

(*c*) "That not more than one of such vessels is opened upon the premises at one time, whether for use or for rebottling for sale."

I enclose copy of print to be issued for the information of chemists.

I am, dear Sir,
Yours faithfully,
(Signed) Alfred Spencer,
Chief Officer.

Richard Bremridge, Esq.,
Secretary and Registrar,
Pharmaceutical Society of Great Britain,
17, Bloomsbury Square, W.C.

The following printed instruction on the subject has been issued by the Public Control Department of the London County Council:—

PETROLEUM ACTS, 1871—1881.

Exemption for Small Quantities of Petroleum Spirit.

The Pharmaceutical Society of Great Britain has submitted to the Council representations as to the difficulties experienced by chemists and druggists in connection with the keeping of petroleum spirit in pursuance of the provisions of these Acts, which require that such spirit should be kept under licence, except where it is kept in small quantities in securely stopped bottles of not more than a pint. Although this exemption does not extend to bottles when opened, the Council has not insisted on a licence for small quantities of spirit used in pharmaceutical or other processes.

The Pharmaceutical Society now urges that the Council should recognise the practice of filling small bottles (such as 2 oz., 4 oz., and 8 oz.) on unlicensed premises, and consequent upon the representations of the Society, the Council has issued the following instruction, viz.:—

Persons keeping petroleum spirit in the County of London will not be required to obtain a licence, provided,

(*a*) That the total quantity kept does not exceed three gallons.

(*b*) That the spirit is kept in securely stopped vessels, each of which contains not more than one pint.

(*c*) That not more than one of such vessels is opened upon the premises at one time, whether for use or for re-bottling for sale.

Alfred Spencer,
Chief Officer,
Public Control Department
London County Council.

6, Waterloo Place, S.W.,
June 30, 1899.

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REGULATIONS RELATING TO THE STORAGE AND SALE OF "PETROLEUM."

THE term "petroleum" has a statutory definition which includes the volatile petroleum spirit of the British Pharmacopœia, as well as the coal tar product known as benzene, in regard to the keeping of which some difficulty has arisen, as pointed out two weeks ago by Mr. SANDY (see page 23). As already stated in the Journal a communication has been officially addressed to the London County Council on this subject by Mr. BREMRIDGE, calling attention to the difficulties placed in the way of the storage and use of "petroleum" by chemists. Under Section 7 of the Petroleum Act (1871) a chemist may, apparently, stock a certain quantity of material, coming within the statutory definition, without obtaining a licence from the local authority, so long as it is kept in bottles that are securely stoppered; but the regulations made for carrying out the provisions of the Act did not appear to allow of a bottle being opened, for occasional use of the contents, in cases where the British Pharmacopœia directs the use of benzene in certain pharmaceutical operations. A representation to that effect has now been considered by the County Council, and Mr. SPENCER, of the Public Control Department, has written to say that, notwithstanding the limited provision of the 7th section of the Act, the Council has not insisted on chemists taking out a licence where spirit is removed from a securely stoppered pint bottle for use in pharmaceutical or other operations, and that, although the Council has no legal power to extend the exemption clause of the Act to the case of repacking spirit into smaller vessels, as suggested by the Pharmaceutical Society, an instruction calculated to meet the case has been issued to the effect that persons keeping "petroleum" spirit in the County of London will not be required to obtain a licence, provided the total quantity kept does not exceed three gallons, that the spirit is kept in securely stoppered vessels, each containing no more than one pint, and that not more than one such vessel is opened on the premises at one time, whether for use or for re-bottling for sale. A print of this official instruction has been prepared for the information of chemists, the terms of which will be found, together with the correspondence, on the subject, at page 54.

The provisions of Section 6 of the Act of 1871, in regard to the labelling and sale of "petroleum" are that where any "petroleum," to which the Act applies, is sold or exposed for sale, the vessel containing it shall have attached a label stating in conspicuous characters the description of petroleum, together with the words "highly inflammable," and the name and address of the owner or vendor. This requirement is somewhat less than that indicated by the inspector to whom Mr. SANDY refers in his letter (see page 23). The name and address of the sender of "petroleum" appears to be required only in the case of a vessel being sent or conveyed, and presumably that requirement would be fulfilled in the case of "petroleum" sold from a chemist's stock by the use of a label with the name and address of the seller, whether he was the actual bottler of the petroleum or not, since the new instruction issued by the London County Council distinctly recognises that chemists may not only apply the contents of a pint bottle for occasional use, but also for re-bottling for sale, if they desire to do so, in preference to the more convenient plan of purchasing small bottles ready for sale. In the latter case it is the name and address of the chemist selling, or having the bottles in stock for sale, that must appear on the labels. The other provisions of the 6th section of the Act seem to apply more especially to "petroleum" in transit, or when kept on licensed premises, and in larger quantities than can be kept by a chemist who is not required to take out a licence.

In any case the concession now made by the London County Council to meet the wishes of the Pharmaceutical Society is an important one, as it virtually removes the difficulty to which the Secretary drew attention, and to which the letter of Mr. SANDY referred. In other districts it may be anticipated that similar instructions will be given to the inspectors under the Petroleum Acts whenever the circumstances are properly represented to the local authorities empowered to grant licences, who would presumably have power also to regulate the conditions under which "petroleum" might be kept or sold, in accordance with the exemptions provided for by the 7th section of the Act. For such purpose applications should be made to local authorities by the Society's local secretaries, with a reference to the action taken respectively by the Secretary of the Society and the London County Council. But a remark in Mr. SANDY'S second letter (see p. 44) as to the sale of small quantities, suggests the necessity of pointing out that the sale of "petroleum" either in the form of benzene or the light petroleum spirit commonly called "benzine," in small quantities, is not provided for by the Act otherwise than that the bottle in which it is kept for sale shall not contain more than one pint each. Hence it is to be inferred that the sale of an ounce from the pint stock bottle would, strictly speaking, be contrary to the provisions of the Act. Any small quantity sold over the counter by a person having no licence must, therefore, be supplied in accordance with the terms of the Act in a glass, earthen, or metal vessel, securely stopped. The case mentioned by Mr. PURSE is different, as he holds a licence, and has, in consequence, greater freedom of action.

AWARD OF THE HANBURY MEDAL.

The tenth Hanbury Medal is, we are officially informed, to be presented to Albert Ladenburg, Ph.D., Hon. M.D., formerly Professor of Chemistry and Director of Chemical Laboratories in the University of Kiel, and now of Breslau. It will be remembered that the Hanbury Memorial Fund was raised to establish a memorial to the late Daniel Hanbury, and that it has since been customary to award a gold medal biennially for high excellence in the prosecution or promotion of original investigations in the chemistry and natural history of drugs—Daniel Hanbury's especial subjects of study. The adjudicators are the Presidents for the time being of the Linnean, Chemical, and Pharmaceutical Societies, the President of the British Pharmaceutical Conference, and a pharmaceutical chemist nominated by the last-named two Presidents. On the present occasion, therefore, the adjudicators are Dr. Günther, Dr. T. E. Thorpe, Mr. William Martindale, Mr. J. C. C. Payne, and Mr. Francis Ransom, and they have unanimously decided that Professor Ladenburg is the most fitting person to receive the medal to be awarded this year. He has specially devoted himself, as a chemist, to the synthesis of organic bodies, and has studied more particularly the constitution and synthesis of alkaloids—atropine, homatropine, and coniine being among the more important of the numerous substances which he has succeeded in forming synthetically. His first paper on a scientific subject was published in 1868, and the Royal Society's Catalogue of scientific papers includes a list of seventy-seven records of investigations conducted by him independently, in addition to numerous others published in conjunction with other investigators. It is usual to present the medal formally at the inaugural sessional meeting of the Pharmaceutical Society in October, and it is expected that Professor Ladenburg will be in England to receive the medal in person on October 2 next. Former recipients of the medal have been Friedrich August Flückiger (1881), John Eliot Howard (1883), Georg Dragendorff (1885), William Dymock (1887), Gustave Planchon (1889), Julius Oswald Hesse (1891), Johann Michael Maisch (1893), August E. Vogl (1895), and John Elishee De Vrij (1897).

CLUB PRACTICE AND EXPENSIVE DRUGS.

Some time ago the *Hospital* pointed out the very serious position in which club surgeons, and other medical men who accept contracts for the supply of "attendance and medicine" at very low rates, might find themselves in consequence of the high price of antitoxin, and it now reverts to the subject. It appears that an ingenuous person is in great trouble because, having recommended a certain expensive proprietary medicine to a club patient, on condition that the patient should pay for it, the "lodge" immediately demanded that the doctor should supply the medicine at his own cost, he having contracted to supply "proper and sufficient medicine." This, it is suggested, is a case exactly analogous to that of the antitoxin. The medical man evidently thought that the drug was an appropriate one to give, yet he "could not himself afford to supply it under the club contract." But then he should not have accepted the contract at such a low rate.

ANNOTATIONS.

The Plymouth Local Committee of the British Pharmaceutical Conference is now engaged in completing the arrangements for the proceedings which commence on Monday week, and for the last time attention is directed to the fact that no applications for books of tickets can be entertained after Monday next, July 17. The tickets already applied for are now being issued, and it is hoped that all will be sent out within the next few days. Full particulars regarding the arrangements, so far as they were then settled, were published in last week's Journal, at page 39, as well as in the pink circular recently issued to members of the B.P.C.; but further details are now available. Special reference must first be made to the fact that the Mayor of Plymouth, Alderman J. Pethick, J.P., has announced his intention of inviting the members of the Conference and their friends attending the meeting, to a garden party at his country residence, Donn House, Yelverton, on Friday afternoon, July 28. All who have applied for books of tickets, and those who apply up to Monday next will receive an official invitation to the garden party in due course. The books of tickets, it may be noted, will also secure free admittance to the Devon and Cornwall Exhibition of Oil Paintings and Water Colour Drawings, now being held at Plymouth, as well as to the Promenade Pier, on Thursday, July 27, the day of the steamer trip, and to Devonport Dockyard, on Friday, July 28. The time of the visitors to Plymouth will thus be fully occupied from Monday, July 24, to the following Friday inclusive. Another point to which reference must be made is the fact that the Great Western, Midland, and London and South-Western Railway Companies have undertaken to issue return tickets to those attending the meeting at Plymouth on payment of a single fare and a quarter, on condition that each person for whom a ticket is required is able to produce a certificate signed by Mr. W. A. H. Naylor, the senior hon. secretary of the Conference. Applications for the necessary certificates must be addressed to Mr. Naylor, at 38, Southwark Street, London, S.E., and in each case a stamped addressed envelope must be enclosed. The railway tickets will, we understand, be available from Saturday, July 22, to Saturday, July 29.

Makers of Methylated Spirits are, according to a notice just issued by the Commissioners of Inland Revenue, to be informed in future, as precisely as possible, what kind of wood naphtha will be accepted as suitable for methylating purposes, as well as the nature of the objections to any samples which may be rejected. All wood naphtha submitted for approval must consist entirely of substances derived from the destructive distillation of wood. It must also be so impure as to make nine times its volume of spirit of wine sufficiently nauseous to be rendered incapable of being used as a beverage, or of being mixed with potable spirits of any kind without rendering them unfit for human consumption. Not more than 30 C.c. of the wood naphtha must be required to decolorise a solution containing 0·5 Gm. of bromine; it must also be neutral or only slightly alkaline to litmus, and require at least 5 C.c. of decinormal acid to neutralise 25 C.c. of the spirit when methyl orange is used as the indicator. No wood naphtha will be approved which contains (*a*) less than 72 per cent. by volume of methyl alcohol; (*b*) more than 12 Gm. per 100 C.c. of acetone, aldehydes, and higher ketones, determined as "acetone" by the formation of iodoform according to Messinger's method; (*c*) more than 3 Gm. per 100 C.c. of esters, determined as methyl acetate by hydrolysis. Details are given respecting the indications which wood naphtha, suitable for methylating purposes, should give, and it is stated that particulars of the methods and apparatus used in applying the tests will be supplied on application to the Principal of the Government Laboratory, Clement's Inn Passage, London, W.C.

In Referring to the Spalding Poisoning Case last week, it was stated that Mr. Justice Lawrance's remarks, in summing up, appeared to indicate that he was of opinion that the requirements of the Pharmacy Act had not been properly fulfilled by the seller of the poisons, a fuller report of the case now available makes that inference a certainty. According to the *Lincolnshire, Boston, and Spalding Free Press*, the Judge said it was found that the prisoner had paid three visits to the place where the poisons were sold, and on each occasion had been supplied with poison, "although poisons should not be sold to an unknown person unless he were introduced by someone." It was clear, the Judge continued, "notwithstanding what the chemist said, that he did not know the prisoner; his own evidence showed that, and yet he did not hesitate to sell him poison enough to poison a whole parish."

A Chemists' and Druggists' Indemnity Scheme, to which attention is directed by the Ocean Accident and Guarantee Corporation, Limited, appears well worthy of consideration, though the risks incurred by chemists and druggists in the dispensing and sale of medicines are far from being so serious as might be imagined from a perusal of the prospectus. In fact, it is no exaggeration to say that the properly trained chemist and druggist, who personally supervises all that is done in his establishment or delegates his duties only to duly qualified persons, may safely disregard the possibility of error. At the same time, it is well to know that it is now possible to assure against mishaps in the pharmacy, the Ocean Accident and Guarantee Corporation being prepared to indemnify chemists against any liability they may incur through a momentary lapse of attention on the part of a dispenser, or mistakes on the part of packers, countermen, and others in their employment. The terms are five shillings per cent. upon the amount of indemnity, with half-a-crown for each assistant, and in the form of proposal the chemist is expected to state the address or addresses at which his business is carried on; whether it is wholesale or retail, or both; how long it has been established; the number of persons engaged in dispensing and selling drugs, and whether they are all registered chemists; also the number of persons, other than the above, who are engaged in compounding, filling, and despatching drugs. Further particulars may be obtained on application to the head offices of the Corporation, Moorgate Street, London, E.C.

The Council of the Royal College of Surgeons, at an extraordinary meeting held on Monday, July 3, received a report from the Laboratories Committee on the work on diphtheria done for the Metropolitan Asylums Board, Bacteriological Department. Since March 10 last, 1,100 doses of antitoxin, each containing 2,000 units, and 4,425 doses, each containing 4,000 units, for the treatment of diphtheria in the hospitals of the Metropolitan Asylums Board have been supplied, and all the demands fully met. During this period 19,900,000 units have been supplied. During the same period five doses of 4,000 units each have been supplied to medical officers of health according to instructions received from the Metropolitan Asylums Board. Under the grant from the Goldsmiths' Company, 459 doses of antitoxin, containing 1,134,000 units, have been supplied to the general and children's hospitals in or near London.

The National Revenue from Medicine Stamps was the subject of a question in the House of Commons, on Monday, when Sir John Leng asked the Chancellor of the Exchequer if he could state the amount of revenue derived from the sale of medicine stamps in Scotland for the years ended March 31, 1898, and 1899, respectively. In reply, Sir Michael Hicks-Beach said the stamp revenue derived from the sale of patent medicine stamps in Scotland was in 1897-8, £2,127; and in 1898-9, £2,142. "Patent" medicine vend Excise licences were also taken out to the value of £643 in 1897-8, and £667 in 1898-9.

The Direct Way of Obtaining Things is not always the only way, and an indirect method of procuring postage stamps suggested in last week's *Truth* possesses a merit which is entirely its own. The Post Office, it appears, has what our lively contemporary styles "an idiotic rule" which precludes the public from buying postage stamps at offices which are restricted to telegraphic business. The rule was ingeniously circumvented the other day by a gentleman who had written a letter in a train and went to a telegraph office at a station *en route* for the purpose of obtaining stamps. The clerk in charge having declined to sell them, the traveller asked for a telegraph form, and wrote the following message:—"Postmaster-General, London,—Your clerk says I cannot purchase two stamps at this office. Rats." Claiming the right to affix the stamps himself, in accordance with another Post Office rule, he took the stamps which the clerk handed over, put them in his pocket, tore up the telegraph form, and departed in triumph. According to *Truth*, a man who could thus make red-tape look ridiculous deserves to be regarded as a public benefactor.

The Hybridisation of Flowers was the subject to consider which an international conference on hybridisation has been held at the gardens of the Royal Horticultural Society, Chiswick, and the conference was opened by Dr. Maxwell Masters, who spoke of the history of the artificial hybridisation of plants, and said that if we were to advance it must be by means of judicious experiments, carefully and scientifically carried out. Nine-tenths of the flowers now exhibited at shows, he pointed out, are the results of the gardener's art, not natural productions. Very few new plants, in the old sense of the term—orchids excepted—are now shown. At the early part of the eighteenth century a fierce discussion went on as to whether there was sex in plants. Some argued from Aristotle, but others went to Nature, and the thing was proved. The first person to form an artificial hybrid purposely was Thomas Fairchild, and the hybrid which he produced, a cross between the sweet william and the carnation pink, is still cultivated. But progress was slow in the direction of crossing plants till the time of Linnæus, who was struck by the same phenomenon as Fairchild. There was, however, a prejudice against the new method, the hybridists being accused of contravening the laws of Providence. Dean Herbert, however, saw in the Pyrenees a narcissus growing between two narcissi of similar character, and found that it was a hybrid. He produced a similar hybrid, and asked why he was to be blamed for doing what Nature had done; and so that particular prejudice was knocked on the head. Still, to so great an extent was religious prejudice carried that nurserymen were afraid of exhibiting plants as hybrids, and so they introduced plants which they had reared in their own nurseries as having come from the Cape and other places. Another prejudice existed in the minds of some botanists who found their little systems upset by the proceedings of the hybridists; but it was better to uphold the interests of science and truth than to uphold the interests of petty systems. There was a time when a "species" was considered a sort of sacrosanct thing, but the researches of Darwin and others had altered all that. No one can say what a species is. There is nothing but individual opinion on the subject. To say that there is a definite line of demarcation between species, genera, or varieties is absurd—there is no such line. Some botanists say they would not call crossing between varieties hybridisation, as that word should be kept to denote crossing between species; but until they define what a species is, Dr. Masters thinks they had better use the word in its widest sense, and not quibble about trifles.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

An Introduction to Dermatology, by Norman Walker, M.D. (Bristol: John Wright and Co. Pp. 247. Price 8*s.* 6*d.* net), is a reproduction of lectures which the author has delivered to students for several years. All the more common diseases of the skin are fully described, and rare ones less completely. In each case the description of the disease is followed by particulars of the treatment recommended. The book, which is exceedingly well produced, includes twenty-nine plates, mostly coloured, and there are thirty-four illustrations in the text.

The Matriculation Directory for June, 1899 (London: University Correspondence College, Red Lion Square, W.C. Pp. 140. Price 1*s.* net), gives the usual particulars regarding courses of instruction for the examinations of the University of London, and more detailed information about the books to be read by candidates for the matriculation examination.

Living Pictures, by H. V. Hopwood (London: Offices of the *Optician*, Fleet Street, E.C. Pp. 275. Price 2*s.* 6*d.* net), is a guide to the voluminous and scattered literature of the subject of which it treats. The persistence of vision and illusion of motion are first discussed, after which the author proceeds to deal with chromo-photography, and the practical development of the living picture, of present day cameras and projection apparatus, the production and treatment of films, etc., etc. The book is a most useful one and probably the most complete on the subject.

'Our Baby,' by Mrs. Langton Hewer (Bristol: John Wright and Co. Sixth Edition. Pp. 154. Price 1*s.* 6*d.*) is a most useful guide for mothers and nurses, as the fact that, whilst originally published in 1891, it has now reached its sixth edition should go far to prove. In this new edition a few points of minor importance have been omitted, and the rest of the book has been carefully revised, the subject of infant feeding being amplified so as to include more details regarding the practical management of those babies which it is necessary to rear by artificial means.

'Hydrophobia and Serotherapy,' by Dr. A. Lutaud (London Anti-Vivisection Society. Pp. 24. Price 6*d.*), is a pamphlet which has been published with the object of proving that the Pasteurian method as applied to rabies is useless and dangerous, and that the inoculation of animals and human beings with serums of various kinds constitutes an error and a danger. Serotherapy is asserted to have been without influence in the cure of diphtheria, Koch's remedy for tuberculosis is said to have produced no results beyond hastening death in many cases, and in tetanus and other diseases the alleged good effects of serotherapy are steadily denied.

The Slide Lending Department established by C. Baker, 244 High Holborn, London, W.C., is now in full working order, and the list of slides ready for sending out can be obtained on application. According to this novel scheme, prepayment of one guinea secures the loan of 240 mounted specimens for examination under the microscope, the slides being supplied in twelve deliveries of twenty each, and postage paid both ways. There are twelve series from which the slides may be selected, each containing a number of sets. The subjects of the twelve classes are (1) diatoms, (2) foraminifera, etc., (3) botanical, (4) physiological, (5) pathological, (6) zoological, (7) bacteria, (8) entomological, (9) polariscope, (10) rock sections, (11) marine, (12) general (assorted). Subscribers can choose the class of specimen they wish to secure, and they can have the delivery of the twelve sets spread over twelve months or less, as desired.

BRITISH PHARMACEUTICAL CONFERENCE.

PLYMOUTH MEETING, 1899.

Papers to be Read.

1. "The Assay of Preparations containing Pilocarpine, and the Characters of Pilocarpine Nitrate and Hydrochloride," by H. A. D. Jowett, D.Sc.
2. "Three Natural Rubber Substitutes," by David Hooper, F.C.S., F.L.S.
3. "Notes on Terebene, B.P.," by Lewis Ough, F.L.C., F.C.S.
4. "Note on the Assay of the Official Liquid Extract, Wine, and Vinegar of Ipecacuanha," by E. H. Farr, F.C.S., and R. Wright, F.C.S.
5. "The Composition of Commercial Araroba," by Edwin Dowzard, F.C.S.
6. "*Delphinium Staphisagria*," by E. M. Holmes, F.L.S.
7. "The Alkaloidal Strength of Commercial Samples of the Official Preparations of Jaborandi," by R. Wright, F.C.S., and E.H. Farr., F.C.S.
8. "Glucose Determination; Fehling and Picric Methods Compared," by R. H. Parker, Ph. C., F.C.S.
9. "Notes on the Results of the Examination of Various Terpeneless Oils of Lemon in the Market," by T. H. Williams Idris, J.P., F.C.S.
10. "A Note on Carbon Disulphide," by W. Elborne, M.A.
11. "Note on Syrup of Balsam of Tolu," by E. H. Farr, F.C.S., and R. Wright, F.C.S.
12. "Almond and Other Kernel Oils." by John C. Umney, F.C.S., and R. S. Swinton.
13. "The Assay of Belladonna Plaster," by H. J. Henderson, F.C.S.
14. "Oil of Cardamons," by E. J. Parry, B.Sc., F.I.C., F.C.S.
15. "Further Note upon Ferrum Redactum," B.P., 1898, by E. Saville Peck, B.A. (Cantab.)
16. "Johore Ipecacuanha," by John C. Umney, F.C.S., and R. S. Swinton.
17. "The Bone Caves of Devon," by Hansford Worth.
18. "A Weight Burette," by E. Saville Peck, B.A. (Cantab).
19. "Analytical Notes on the B.P. Lozenges," by Frederick Davis.
20. "Note on Liquor Bismuthi et Ammon. Citratis," by Frank R. Dudderidge, Ph.C.
21. "The Liberation of Carbonic Anhydride from Bicarbonates upon Heating," by C. S. Dyer.
22. "A Method for Determining the Acidity of Beers, Stouts, and Other Highly-coloured Liquids," by L. Guy Radcliffe.
23. "The Assay of the Liquid Extract and Wine of Ipecacuanha of the B.P.," by W. A. H. Naylor and John J. Bryant.
24. "Note on the Strength of the Blaud's Pill Capsules of Commerce," by C. E. Stuart, B.Sc.

Note.—The Hon. Secretary (Mr. W. A. H. Naylor, 38, Southwark Street, London, S.E.) requests that all manuscripts of papers may be sent to him without delay, in order that the papers may be formally approved for presentation to the Conference, and put in type. Proofs will then be supplied for the authors to correct and to read from at Plymouth.

Soluble Tannin Albumin.—This new tannin albumin compound promises, according to Hummer, to prove a useful substitute for tannin, being quite free from the irritating astringent properties of that body. It occurs as a yellowish-white, odourless and tasteless powder, which is insoluble in water and dilute acids. Tannin is, therefore, only liberated in the intestines, and so does not affect the stomach. The method of preparation is as follows:—Tannin, 5, is dissolved in hot distilled water. When cool a solution of egg albumin, 10, is added, with energetic stirring. The mixture is stirred until of a uniform doughy consistence, and heated on the water-bath above 70° C. The yellow-white rubber-like substance is separated from the water, washed and dried until hard, brittle, and transparent. It is then powdered and again dried. It is prescribed in the same way as tannin.—*Oest. Zeit. für Pharm.*, **53**, 86.

PHARMACEUTICAL SOCIETY.

DONATIONS TO THE LIBRARY AND MUSEUM.

At a meeting of the Library, Museum, School, and House Committee on Wednesday, July 12, the Librarian and Curator presented the following reports of donations:—

To the Library (London).

University of Glasgow:—Roll of Graduates, 1727—1897; Calendar, 1899.
University of Edinburgh:—Calendar, 1899.
University of London:—Calendar, 1899.
Editor of *Chemist and Druggist*, London:—Proctor's Pharmaceutical Testing. Second edition, 1899.
Mr. W. E. Crow:—The Laws of Metals, by J. Pettus, 1683.
Mr. F. M. Bailey, Brisbane:—Contributions to the Flora of Queensland, etc. Four pamphlets.
Deutscher Apother-Verein, per Herr Froelich, Vorsitzende, Berlin:—*Apotheker Zeitung*, 1899, to be continued.

To the Museum.

Mr. S. A. Owen, Ceylon:—Specimen of Fresh Bael Fruit; photograph of the Papaw Tree.
Mr. F. B. Filmer, New Jersey:—Photographs illustrating the collection of the cotton harvest.

To the Herbarium.

Dr. D. Prain, F.L.S., Royal Botanic Gardens, Calcutta:—Specimens of the Coca Plants cultivated in India.
Mr. J. Dunning, Ventnor:—Specimens of *Melampyrum arvense* and *Rubia peregrina*.

FIRST EXAMINATION QUESTIONS.

First Paper.

July 11, 1899, *from* 11 *a.m. to* 12.30 *p.m.*

LATIN.

1. FOR ALL CANDIDATES. Translate into Latin:—

1. I will answer neither you nor your friend.
2. Ambassadors were sent to the king on the next day.
3. Does not experience teach us very many things?
4. This man must be avoided by me.
5. The army, which had been raised by the king, arrived in Gaul.

2. Translate into English *either* A (Caesar) *or* B (Virgil).

A.—CAESAR.

1. Post ejus mortem nihilo minus Helvetii id, quod constituerant, facere conantur, ut e finibus suis exeant. Ubi jam se ad eam rem peratos esse arbitrati sunt, oppida sua omnia, numero ad duodecim, vicos ad quadringentos, reliqua privata aedificia incendunt, frumentum omne, praeterquam quod secum portaturi erant, comburunt, ut, domum reditionis spe sublata, paratiores ad omnia pericula subeunda essent: trium mensium molita cibaria sibi quemque domo efferre jubent.

2. Ei legationi Ariovistus respondit: Si quid ipsi a Caesare opus esset, sese ad eum venturum fuisse; si quid ille se velit, illum ad se venire oportere. Praeterea se neque sine exercitu in eas partes Galliae venire audere, quas Caesar possideret; neque exercitum sine magno commeatu atque emolimento in unum locum contrahere posse: sibi autem mirum videri, quid in sua Gallia, quam bello vicisset, aut Caesari, aut omnino populo Romano negotii esset.

GRAMMATICAL QUESTIONS.

(For those only who take Caesar.)

1. Give the gender, genitive singular, and the English of *agmen, annus, cornu, citio, initium, mens, opus, res.*

2. Give the principal parts of all the verbs in Passage 1.

3. Write in Latin:—13, 47, 96, 200, 16*th*, 19*th*, 87*th*, *one-fourth*, *three times a day*.

4. Explain the following terms, and give *one* example of each:—*deponent verb, anomalous verb, ablative absolute.*

B.—VIRGIL.

1. Talia flammato secum dea corde volutans,
Nimborum in patriam, loca feta furentibus austris,
Aeoliam venit. Hic vasto rex Aeolus antro
Luctantes ventos, tempestatesque sonoras
Imperio premit, ac vinclis et carcere frenat.
Illi indignantes, magno cum murmure montis,
Circum claustra fremunt: celsa sedet Aeolus arce,
Sceptra tenens, mollitque animos, et temperat iras.

2. Namque videbat, uti bellantes Pergama circum
Hac fugerent Graii, premeret Trojana juventus:
Hac Phryges; instaret curru cristatus Achilles.
Nec procul hinc Rhesi niveis tentoria velis
Agnoscit lacrimans: primo quae prodita somno,
Tydides multa vastabat caede cruentus;
Ardentesque avertit equos in castra, priusquam,
Pabula gustassent Trojae, Xanthumque bibissent.

GRAMMATICAL QUESTIONS.

(For those only who take Virgil.)

1. Give the gender, genitive singular, and the English of *cithara, complexus, cor, equus, fragor, officium, ops, sedile.*

2. Give the principal parts of all the verbs in Passage 2.

3. Write in Latin:—13, 47, 96, 200, 16*th*, 19*th*, 87*th*, *one-fourth*, *three times a day*.

4. Explain the following terms, and give *one* example of each:—*deponent verb, anomalous verb, ablative absolute.*

Second Paper.

Tuesday, July 11, 1899, *from* 12.30 *p.m. to* 2 *p.m.*

ARITHMETIC.

(*The working of these questions, as well as the answers, must be written out in full.*)

1. How many allotments, each 16 sq. po. 4 sq. yd., can be made out of a field 16 ac. 21 sq. po. $4\frac{3}{4}$ sq. yd.?

2. If 6 cwt. 2 qr. 2 lb. cost £9 3s. 4d., what will 4 cwt. 2 qr. 7 lb. cost at the same rate.

3. The difference between two numbers is $2\frac{5}{12}$, and the smaller of them is $\frac{54\frac{2}{5}}{\frac{1}{5} \text{ of } 8\frac{2}{3}}$. What is the larger number?

4. Find the value of

2.86805 of $\dot{3}$ shillings + 8.$\dot{3}$ of 4 shillings − 1.8 of 5 shillings.

5. A man sells 60 articles at a profit of 2s. 6d. each. What additional number must he sell at a profit of 3s. 4d. each so as to realise an average profit of 3s. 1d. on each article sold?

6. What sum must be invested in $2\frac{3}{4}$ per cent. Consols at $96\frac{1}{4}$ in order to derive an income of £166 13s. 4d.? [*Neglect brokerage.*]

The following question must be attempted by every candidate:—

7. A farmer's corn-land yields at the rate of 60 hectolitres per hectare. How many bushels is this per acre?

Third Paper.

July 11, 1899, *from* 3 *p.m. to* 4.30 *p.m.*

ENGLISH.

1. Analyse:—

"The long-remember'd beggar was his guest,
Whose beard descending swept his aged breast;
The ruin'd spendthrift now no longer proud,
Claim'd kindred there, and had his claims allow'd."

2. Parse fully:—

"Who can direct when all pretend to know?"

3. Correct the following sentences, giving your reasons:—

(i.) This is the man whom you said was guilty.
(ii.) This house has been furnished by a cousin of the owner's.
(iii.) I cannot run so fast as him.

4. In the following passage, supply the necessary capital letters, and put in the stops and the inverted commas where necessary:—are the officers gone i asked and oh how my hopes hung upon the answer they are said he looking somewhat disconcerted why do you ask i wish you had kept them i answered solemnly enough although my heart at that same moment leaped with exultation master i must not conceal from you the truth the servants on this estate are in a dangerous condition and mutiny has long been brewing

The following question must be attempted by every candidate:—

5. Give, briefly, the outline of one of Shakespeare's plays, *or* of one of Scott's prose works, *or* the history of some scientific discovery.

BELL SCHOLARSHIPS EXAMINATION QUESTIONS.

First Paper.

Tuesday, July 11, 1899, *from* 11 *a.m. to* 2 *p.m.*

LATIN.

1. Translate into English:

"Adsit laetitiae Bacchus dator, et bona Juno:
Et vos, O coetum Tyrii, celebrate faventes."
Dixit, et in mensam laticum libavit honorem;
Primaque, libato, summo tenus attigit ore.
Tum Bitiae dedit increpitans: ille impiger hausit
Spumantem pateram, et pleno se proluit auro:
Post alii proceres. Cithara crinitus Iopas
Personat aurata, docuit quae maximus Atlas.
Hic canit errantem Lunam Solisque labores;
Unde hominum genus et pecudes; unde imber et ignes;
Arcturum pluviasque Hyades geminosque Triones:
Quid tantum Oceano properent se tingere soles
Hyberni, vel quae tardis mora noctibus obstet.
Ingeminant plausu Tyrii, Troësque sequuntur.
Necnon et vario noctem sermone trahebat
Infelix Dido, longumque bibebat amorem;
Multa super Priamo rogitans, super Hectore multa;
Nunc, quibus Aurorae venisset filius armis;
Nunc, quales Diomedis equi; nunc, quantus Achilles.

2. Translate into English:—

(*a*) Medicamina, quae in pharmacopoeiam non sunt recepta, attamen passim a medicis praescribi et hinc in pharmacopoliis praesto esse solent, optimae indolis nec inquinata nec corrupta sint oportet.

(*b*) Quantum id quod destillaveris acidi hydrocyanici contineat ratio infra descripta examina; deinde dilue tanta quantitate aquae quanta sufficiat ut mille partes unam acidi contineant.

(*c*) Macera per quadraginta octo horas. Quo tempore elapso, collige liquorem defluentem in lagena noti ponderis donec quantitas liquidi pondus octoginta quinque grammatum attigerit. Liquorem collectam in balneo aquae destillando a spiritu vini libera, residuum ad extractum tenue evaporando redige.

3. Parse fully:—"Cithara crinitus Iopas personat aurata, docuit quae maximus Atlas."

4. Translate into Latin:—

(*a*) "If," said the philosopher, in answer to the question of his brave young son—"if in our great calamities we had been spared by the conquering Romans, we should have pitied them now."

(*b*) The general made answer as follows:—"The enemy that you have been so long seeking is now only two miles distant; prepare then to conquer or to die. I will send spies to bring me word of their numbers and the position of their camp; this done I must entrust the rest to you."

ENGLISH.

1. Parse fully:—

"I could myself
Take up a brace o' the best of them."

2. Write a short Essay on *one* of the following subjects:—

(*a*) Our Colonies.
(*b*) "The noblest vengeance is to forgive."
(*c*) "Si vis pacem, para bellum."

ARITHMETIC.

1. The carpeting of a room, twice as long as it is wide, at 5s. per sq. yd., cost £6 2s. 6d.; and the painting of the walls, at 9d. per sq. yd., cost £2 17s. 9d. How high are the walls?

2. Simplify $\frac{2\cdot\dot{4}\dot{6}-2\cdot\dot{3}\dot{0}}{\cdot\dot{3}+\cdot1\dot{2}\dot{7}} + \frac{4\frac{1}{3}}{19}$

3. A solution contains 15 Gm. of salt to one litre of water. How many ounces must be added to 1 gallon of it, in order that 1 quart of the solution may contain $2\frac{1}{2}$ ounces?

FRENCH.

1. Translate into English:—

George, appelé dans un âge avancé à gouverner un peuple dont il n'entendait point la langue et chez qui tout lui était étranger, se regardait comme l'électeur de Hanovre plutôt que comme le roi d'Angleterre; toute son ambition était d'agrandir ses Etats d'Allemagne: il repassait presque tous les ans la mer pour revoir des sujets dont il était adoré. Au reste, il se plaisait plus à vivre en homme qu'en maître; la pompe de la royauté était pour lui un fardeau pesant; il vivait avec un petit nombre d'anciens courtisans qu'il admettait à sa familiarité; ce n'était pas le roi d'Europe qui eût le plus d'éclat, mais il était un des plus sages, et le seul qui connût sur le trône les douceurs de la vie privée et de l'amitié.

2. Translate into French:—

I have read somewhere that the vizier of the Caliph Mostady, having gained a complete victory over the Greeks, and made their Emperor prisoner, asked the latter what treatment he expected at the hands of his conqueror. "If you wage war like a king," nobly replied the Emperor, "send me back to my country; if you are a disguised merchant, sell me; if you are a butcher, kill me."

GERMAN.

1. Translate into English:—

Philipp II. hoffte die holländischen Provinzen wieder zu erobern, wenn sie ihres Hauptes, des Prinzen Wilhelm von Oranien, beraubt würden. Er hatte deshalb einen hohen Preis darauf gesetzt, wenn jemand ihm denselben lebendig oder todt ausliefern würde. Der erste, der den Versuch machte, war ein Franzose. Er begab sich nach Antwerpen, wo der Prinz sich aufhielt, überreichte ihm eine Bittschrift, und während er sie las, schoss er eine Pistole auf ihn ab. Der Schuss verwundete den Prinzen zwar gefährlich, aber nicht tödtlich. Noch andere Versuche, den Prinzen zu ermorden, wurden gemacht. Endlich übernahm es ein Franzose, Balthasar Gérard. Er trat in den Dienst des Prinzen und zeigte solchen Eifer für die reformirte Religion, dass der Prinz ihn sogar zu einem geheimen Geschäft gebrauchte. Für Geld, das ihm derselbe geschenkt hatte, kaufte et Pistolen, die er jede mit drei Kugeln lud. Am 10. Juli 1584 stellte er sich an die Thür des fürstlichen Speisesaals, während der Prinz zu Tische sass, und schoss nach ihm, als er nach der Mahlzeit heraustrat, so geschickt, dass er niederfiel und gleich darauf starb.

2. Translate into German:—

Then said Æneas to Anchises: "Sit on my shoulders, dear father; I will carry thee. The little Ascanius shall go with me, and my wife shall follow me. And ye servants of my house, listen to me: There is a Temple of Ceres, and an old tree, not far from the gate of the city. Go to that place, and I shall find you there." As he spoke he put a cloak upon his shoulders, and the old man sat thereon.

Second Paper.

Tuesday, July 11, 1899, *from* 3 *p.m. to* 5 *p.m.*

CHEMISTRY.

1. How is nitric acid prepared? Write equations showing the action of strong nitric acid upon (*a*) metallic copper, (*b*) ferrous sulphate.

2. Describe two experiments by which the composition of water may be demonstrated.

PHARMACY.

1. Describe Percolation and Repercolation. Give Pharmacopœial examples of the application of each. How would you recover the alcohol left in tincture marcs?

2. How is Tincture of Opium B.P. 1898 prepared? Suppose you had two samples of opium, one containing 13 per cent. and one only 9 per cent. of morphine—In what proportion must they be mixed to enable the powder to be used for the official preparations?

BOTANY.

1. On what parts of the plant are stomata most abundant. What is their function?

2. Give a short account of the germination of an ordinary bean.

MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIPS EXAMINATION QUESTIONS.

First Paper.

Tuesday, July 11, 1899, *from* 11 *a.m. to* 2 *p.m.*

The tests in Latin, English, Arithmetic, French and German, set at this examination, were the same as those for the Bell Scholarships Examination, but the following was given as an alternative Latin paper:—

LATIN.

1. Translate into English:—

Quamobrem placuit ei, ut ad Ariovistum legatos mitteret, qui ab eo postularent, uti aliquem locum medium utriusque colloquio diceret, velle sese de republica et summis utriusque rebus cum eo agere. Ei legationi Ariovistus respondit: Si quid ipsi a Caesare opus esset, sese ad eum venturum fuisse; si quid ille se velit, illum ad se venire oportere. Praeterea se neque sine exercitu in eas partes Galliae venire audere, quas Caesar possideret; neque exercitum sine magno commeatu atque emolimento in unum locum contrahere posse: sibi autem mirum videri, quid in sua Gallia, quam bello vicisset, aut Caesari, aut omnino populo Romano negotii esset.

2. Parse fully:—"Velle sese de republica et summis utriusque rebus cum eo agere."

Second Paper.

Tuesday, July 11, 1899, *from* 3 *p.m. to* 5 *p.m.*

CHEMISTRY.

1. What is an oxidising agent? Give example with equation.

2. Describe two tests by which arsenic may be detected in aqueou solution.

PHARMACY.

1. What do you understand by a "percentage solution"?

How many grains of mercuric chloride are required for 1 gallon of solution 1 in 2000? Show working.

2. Describe a method by which half a pint of cod-liver oil emulsion (50 per cent.) may be prepared.

BOTANY.

1. Illustrate by means of diagrams the following terms:—Perfoliate, connate, reniform, serrate. Describe in botanical language the leaf of the horse-chestnut.

2. Enumerate briefly the distinguishing characteristics of monocotyledons and dicotyledons.

EXAMINATIONS IN EDINBURGH.

July, 1899.

MAJOR EXAMINATION.

One candidate was examined, and failed.

MINOR EXAMINATION.

Candidates examined	167
,, failed	110
,, passed	57

Adam, Charles
Aird, George Henry
Alcock, Alfred Henry
Alexander, Thomas Burns
Billington, Samuel Percy
Blake, William Clark
Bolus, George
Borthwick, George
Boyd, Thomas
Brown, Alfred Pearson
Chew, James Kendall
Coates, Henry
Cran, John Thomas
Denton, Heron Havelock
Dewar, Donald
Dickson, Robert
Downey, John Stanislaus
Ferguson, Thomas Walter
Findlay, Alexander
Fyfe, John Henry
Galbraith, Walter Sloan
Gibb, William
Gilmour, James Pinkerton
Gordon, Edward
Heap, Thomas Henry
Hill, George Grayson
Jackson, Robert Ernest
Jamieson, Martin
Kennedy, William
Leadbetter, David Alexander Bisset
Lowes, Frederick
Mackinnon, Thomas
Mason, Peter
Mercer, William
Michie, Lawrence Pitkethly
Milne, Peter Duffus
Mitchell, Thomas Robert
Morgan, Arthur Ewart
Morris, Robert Leitch
Murray, Alexander
Peterkin, James
Ritchie, Andrew Wemyss
Roberts, John
Shearer, George
Skinner, John
Soddy, Francis William
Spencer, Herbert Edgar
Swanson, John Sinclair
Turnbull, William
Wadsworth, George Russell
Walls, John
Watt, David
Weir, Alexander
Whitaker, Joseph Edward
Wilford, John Henry
Wilson, Ralph
Wood, Septimus Reginald

PHARMACEUTICAL SOCIETY OF IRELAND.

The monthly meeting of the Council was held on Wednesday, the 5th instant, at the Society's House, 67, Lower Mount Street, Dublin, at three o'clock, the President, Mr. R. J. Downes, in the chair. The other members of the Council who attended were the Vice-President, Mr. Beggs, and Messrs. Michie, Grindley (Treasurer), W. F. Wells, junior, Bernard, and Dr. Walsh.

Miscellaneous Correspondence.

A letter from the Clerk of Sligo Poor Law Union intimated that the Guardians had unanimously adopted the Council's resolution in reference to company pharmacy. A letter from the Registrar of the Royal College of Surgeons of Ireland stated that the Council of that body did not feel at liberty to take any steps that might interfere with the passing of the Companies (Medical Profession) Bill.

A letter from the Royal College of Veterinary Surgeons, 10, Red Lion Square, W.C., acknowledged the receipt of the Council's resolution with reference to the Companies (Medical Profession) Bill, and stated that it would be placed before the President and Council of that College at their next meeting.

A letter from the Royal Veterinary College, Camden Town, acknowledging the receipt of a copy of the same resolution, stated that that College was solely an educational institution, and could not exercise any influence in the matter; but that the resolution had been forwarded to the College of Veterinary Surgens, Red Lion Square.

A letter from the New Veterinary College, Edinburgh, stated that the best assistance of that body would be given to obtain the inclusion of pharmacists and druggists in the Companies (Medical Profession) Bill; and the writer, Mr. Owen Williams, Vice-President, requested to have pointed out in what way he could be of service, mentioning that a meeting of the Council of the College would be held in London in about ten days.

The Registrar (Mr. Ferrall) stated that he had replied, thanking Mr. Williams, and sending him all the information in his possession.

A letter from the Secretaries of the Royal University of Ireland (Sir J. Creed Meredith and Dr. McGrath) stated, in reply to an inquiry from the Council, that certificates of having compounded medicines under a pharmaceutical chemist were no longer accepted by that University; and accompanying the letter was a pamphlet containing the following regulation of the University on the subject:—"Practical Pharmacy. A three months' course, with lectures on at least two days in the week given, in a recognised school in a properly equipped laboratory, by a duly appointed lecturer in pharmacy. (This course may be attended before, at the same time, or after that in materia medica, but must be attended in the third year.)"

Mr. Wells: I think we should approach the Royal University on the subject. It is monstrous that they will not accept our certificate.

The President: They think their requirement is sufficient for a medical man whose business is to prescribe.

Mr. Wells: Yet we shall be told by-and-bye that these men are competent to open and keep shops. I can produce a gentleman who went to one of those places and can testify that they get no practical work. A young lady who had taken out a course at one of those schools came to me to learn pharmacy, and she did not know the graduations on a measure. That is the way they teach pharmacy in those classes. We should memorialise the Senate of the University, saying that our men are qualified to teach pharmacy; that hitherto they have accepted our certificates; and that now they have cut down their own requirement to a mere class attendance.

Mr. Bernard: To make it easier for the students.

It was decided that the President should write to the Senate of the University on the subject.

The Qualifications of Public Analysts.

A letter dated June 27, from the Assistant Secretary of the Local Government Board, stated, in reply to a previous letter from the Council, that the Board had had under consideration the qualifications which candidates for the position of public analyst should possess, and they regretted that they could not see their way to recognise the certificates of the Pharmaceutical Society of Ireland as being sufficient evidence of analytical skill in the examination of drugs for the purposes of the Boards regulations under the Local Government (Ireland) Act, 1898.

Mr. Wells: They will not accept any man unless he is a Fellow of the Institute of Chemistry. They want a man who can test the purity of drugs; but being a Fellow of the Institute of Chemistry affords no guarantee that the man had been in the habit of analysing drugs. Lately, a gentleman who was giving evidence before a Court as to the adulteration of an article, was obliged to admit that he had never analysed the thing at all. A man might be a splendid chemist and yet not know anything about drugs.

The President: The question is as to ability to analyse drugs in connection with drug contracts. I hold that our examination fulfils entirely their original requirement, that the person has had experience in the examination of drugs, and that he is competent to form an opinion as to their quality. They say they will not sanction the appointment of any person who shall be unable to satisfy them that he has had considerable experience in the analysis of drugs. Our licentiates have had "considerable experience in the handling of drugs," and we know that the analysis of drugs is a thing that must grow under everybody's hand. They require a "diploma obtained in pharmacy, materia medica, and volumetric estimation, obtained from a recognised examining body." These are all subjects in our examination. In one of yesterday's papers it is stated that "The Local Government Board require the Board of Guardians to appoint chemists of repute to analyse the drugs supplied to the workhouses and dispensaries. The qualifications of the analyst must be as follow:—He must be a public analyst"—how does he get his diploma or certificate that he is such but by election?—"already appointed or a Fellow of the Institute of Chemistry, have a well-appointed laboratory, and experience in the analysis of drugs." Unless our qualified men should go over to London and pass an examination there they will not be accepted; we are the only body in Ireland that can grant a certificate such as they require. Mr. Barklie, of the Working Men's Institute, Belfast, is not a Fellow of the Institute of Chemisty. He is a Fellow of the Chemical Society, which is not an examining body; and that title is practically no qualification—it is only a courtesy. We have, I repeat, an examination which fulfils all the Board's requirements; outside of that, our licentiates have experience in the examination of drugs; and, therefore, if our licentiate applying for the office has a "well-appointed laboratory," he should be eligible. I consider that the Local Government Board has no right to pass our licentiates over, and I think we should press this matter.

Mr. Bernard: The wholesale trade in Ireland laugh at the Government analysts.

Mr. Wells: When the Local Government Board wanted information as to what were fair prices for drugs they went to the wholesale houses instead of coming to us.

The President: The following appears in a newspaper report of the proceedings of the Lisburn Guardians:—"The clerk read a letter from the Local Government Board stating that before they can sanction the appointment of Mr. Robert Barklie to the position of analyst of drugs for the union they must be satisfied that he has had considerable experience in the analysis of drugs and has after examination obtained a diploma in pharmacy, materia medica, and volumetric examination of drugs from a recognised examining body." I am informed that Mr. Barklie does not possess these qualifications, yet his appointment has been ratified.

Mr. Michie remarked that he did not think the Local Government Board would object to a pharmaceutical chemist. But the Society did not certify that their licentiate was an analytical chemist. In England a pharmaceutical chemist was not appointed to a position of the kind unless he was acquainted with analytical chemistry. There was nothing to prevent the licentiates of the Society from getting qualified in that respect.

Mr. Wells said he disagreed with Mr. Michie. A great many of the analysts in England had passed no legal examination whatever. Perhaps many of the Society's licentiates were not well up in the work in question; but a great many others from their training and study were well able to test and report on the purity of drugs.

Mr. Bernard: The point we have to impress on the Local Government Board is the necessity of having a practical pharmaceutical chemist who has passed an examination such as ours, in addition to having whatever other qualifications they may require.

Dr. Walsh: We should point out to them that ours is the only examination that embraces the three subjects which they mention.

Mr. Bernard: We should bring home to them that their analyst should be a trained pharmacist with the necessary qualification in chemistry; but a chemist who has been only trained as such should not be allowed in. You might as well appoint a chemist to be a tea-taster.

On the motion of Mr. WELLS, seconded by the VICE-PRESIDENT, it was resolved to ask the Local Government Board to receive a deputation on the subject.

DONATIONS OFFERED AND RECEIVED.

A letter was read from Mr. Forbes Watson, the Society's Examiner in Chemistry, in which he said: "In order to encourage independent practical work and reading among the junior members of the Society, I am willing to give two prizes, to take the form of medals, or their value (say, five guineas each), in books, instruments or money. I suggest that one prize be given for the best preparation of a chemical substance, preferentially organic, and that the other be given for the best essay on a subject to be set by me. I think that all students, assistants, or members who have not been qualified for more than five years on December 31 next, should be eligible for the competition."

The VICE-PRESIDENT: Well, I think we should be very much obliged to Mr. Forbes Watson for his kind and generous offer, but I think it would be premature for us to accept it, for this reason, that we might not have the pleasure and profit of Mr. Watson's help for more than a year; and then who would follow it up? Would the medals have to be dropped after he went, or would the Society be prepared to give them each year for the same work?

Dr. WALSH: I think that as long as he wishes to give the medals we should take them.

The PRESIDENT: The matter was referred to the School Committee.

Later on a report of the School Committee was read, which stated that they highly appreciated Mr. Watson's offer, but that they considered that at present it would not be advisable to accept it.

Donations were received from the Smithsonian Institution of pamphlets, entitled "The Revival of Alchemy," "An Undiscovered Gas," "Fluorine," "Recent Progress in Physiology," and "Mescal: A New Artificial Paradise," and from the Editor of the *Chemist and Druggist* of a copy of a new edition of Proctor's 'Pharmaceutical Testing.'

On the motion of Mr. GRINDLEY, and seconded by Mr. WELLS, thanks were voted to the donors.

HONORARY MEMBERSHIP OF THE SOCIETY.

The PRESIDENT moved the following resolution pursuant to notice:—"The Council may elect to honorary membership persons of eminence in pharmacology and its kindred subjects. Such honorary members shall have the privileges of members, but shall not be licentiates of the Society, nor shall they exceed the number of twenty at any time, nor shall more than three be elected in any one year." He thought the Society might very well have the power which he proposed. Other societies possessed it. They could in this way compliment men of scientific distinction. He did not know whether this resolution, if passed, would be sanctioned by the Privy Council or not; and it would not be contrary to their Acts of Parliament, for at present the original members of the Society were honorary members. He would, however, formally propose the resolution and leave the Council to deal with it as they thought proper.

The VICE-PRESIDENT: We need not elect anyone if we do not like.

The PRESIDENT: I had a letter to-day from Professor Tichborne, who has been unable to attend this meeting, in which he says he thinks ten honorary members would be sufficient.

Mr. WELLS: Have you power under your Acts of Parliament to elect honorary members?

The PRESIDENT: The approval of the Privy Council has been given to regulations not altogether within our Acts. There is nothing repugnant to them in this proposal.

Mr. MICHIE: I do not think it would be any harm to have honorary members.

Mr. WELLS: What privileges would you confer on them?

The VICE-PRESIDENT: They should have power to vote.

Mr. MICHIE: No; I would not give them the power to vote.

The PRESIDENT: I will postpone the resolution to another day if you wish. There is no hurry about it. It is not seconded.

The VICE-PRESIDENT: I second it with pleasure, to see what comes of it.

Mr. BERNARD moved an amendment that the discussion of the subject be adjourned to the next meeting.

Mr. MICHIE seconded the amendment, which was agreed to.

On the motion of Mr. GRINDLEY, seconded by Mr. WELLS, Mr. John Morrison Torrens, of Youghal, was elected a member of the Society.

Mr. Robert J. Savage, of Dublin, and Mr. H. A. Patterson were nominated for membership.

Other business having been disposed of, the Council adjourned.

NEW REMEDIES.

ANOTHER NEW ANTYPYRETIC.—Diacetphenetidide consists of colourless crystals melting at 53·5 to 54° C. It is an acetylised phenacetine, which Bistrzycki and Ulffers credit with physiological and therapeutic action similar to phenacetine, differing only slightly quantitatively. The compound is not likely to be much used in medicine, since it is not very stable, easily liberating acetic acid under the influence of atmospheric moisture.—*Pharm. Cent.*, **40**, 123.

PHENOSAL (Salicyl-acetic-acid-para-phenetidine) is a white crystalline powder, sparingly soluble in water, ether or alcohol, more readily in hot alcohol. It melts at 182° C. It is introduced as a remedy for articular rheumatism, cystitis, and sciatica. The dose is half a gramme.—*Merck's Report*, 1898, 127.

AMMONIUM FLUORIDE AS A GASTRIC ANTISEPTIC.—Ammonium fluoride occurs in colourless crystals which are soluble in water. Baudoin and Robin recommend the salt as a non-irritating remedy for abnormal fermentative action in the gastro-intestinal canal. The remedy is well tolerated and quickly suppresses butyric, lactic, and acetic fermentation. It may be dispensed in the form of of a solution, thus: ammonium fluoride 1, distilled water 300. One tablespoonful after each meal. When only a little food is taken the dose should be limited to a teaspoonful. It may also be administered in a pilular form, thus: Ammonium fluoride 3 Gm., sodium chloride 3 Gm., powdered acacia 4 Gm., water 5 drops; mass and divide into sixty pills. One to be taken after each meal. The antiseptic properties of ammonium fluoride are useful for cleaning Soxhlet milk bottles. After washing with warm soda solution, the flasks may be rinsed with 1 per mille ammonium fluoride solution and subsequently with water.—*Merck's Report*, 1898, 31.

KUMMERFELD'S SOLUTION FOR ACNE ROSACEA.—Precipitated sulphur 1 to 3 drms., powdered camphor 5 grs., powdered tragacanth 10 grs., lime water, 1 fl. oz., rose water, 1 fl. oz. Apply at night after washing.—*Therap. Gaz.* **22**, 238.

TOLUIDINE BLUE AS AN OPTICAL DISINFECTANT.—Toluidine blue is the double chloride of zinc and dimethyl-toluthionine. It is a black powder soluble in water and alcohol, the solution being of a fine blue colour. Toluidine blue is said by Veasey and Schweinitz to be a powerful poison to organisms of low development. In ophthalmic practice it may be employed in a similar manner to methylene blue for infectious conjunctivitis and inflammatory affections. Dilutions of 1 per mille are sufficient to arrest the formation of pus, without exciting any irritation on the tissues. Before application, the eye should be well bathed with physiological salt solution. Stains on the skin may be removed with water. Toluidine blue may also be used as a substitute for fluoresceine for detecting the seat and extent of corneal lesions, since it does not affect the normal cornea. The injured parts are revealed by the deep blue staining.—*Merck's Report*, 1899, 45.

TREATMENT OF CARBUNCLES.—Rosenbaum *(New York Med. Journ.)* claims that the following method of treatment affords a rapid, painless, and complete cure for carbuncles. A pad of eight layers of gauze, somewhat larger than the inflamed surface, is soaked in Thiersch's solution, composed of salicylic acid 30 grs., boric acid 210 grs., distilled water 32 fl. ozs. This is covered with 10 per cent. ichthyol ointment, and held in place by a rubber protective, cotton wool, or a bandage. This dressing is left in place for two days, when the cores will be found to have separated from their walls, and can be painlessly removed at the next dressing.—*Therap. Gaz.* **22**, 273.

ALCOHOL IN EXTERNAL PHENOL POISONING.—A. M. Phelps states that pure alcohol entirely prevents the escharotic action of phenol upon the tissues. If after the application of phenol or its solutions to wound cavities, these are thoroughly washed out with alcohol, no caustic effect is observed. So marked is the action that it is suggested that the immediate and free administration of alcohol may prove a possible antidote in those cases where phenol has been swallowed by accident, or with suicidal intent.—*Therap. Gaz.*, **22**, 255.

LETTERS TO THE EDITOR.

NOTICE TO CORRESPONDENTS.—All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received, if specially arranged for, as late as Thursday morning. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C., and Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

Liquor Ferri Perchlor. Fort. B.P.

Sir,—Mr. F. A. Allen's letter to you on this subject, in last week's issue, refers to discrepancies in the official formula for liq. ferri perchlor. fort., which have doubtless been noticed by others when verifying the strength of this preparation, and Mr. Allen has done good service in drawing attention publicly to the matter. He shows by careful practical experiment that the B.P. figures are not concordant, a fact which is further demonstrated on looking closely into the formula and calculating the amount of iron that can theoretically be taken up by the quantity of hydrochloric acid allowed for its solution. 12½ fl. oz. acid. hydrochlor. B.P. contain 4.609 oz. wt. hydrogen chloride; and as 72.38 parts by wt. of hydrogen chloride combine with 55.6 parts by wt. of metallic iron, the 12½ fl. oz. acid. hydrochlor. will dissolve 3.54 oz. of the 4 oz. of iron taken. Having removed excess of iron, oxidised, evaporated, etc., the final product is 17½ fl. oz., containing the 3.54 oz. iron dissolved. ∴ 17½ fl. oz. contain 3.54 oz. iron. 5 fl. oz. contain 1.011 oz. iron. 5 Gm. contain 1.011 Gm. Fe, or 1.44 Gm. Fe_2O_3, which is the maximum quantity of Fe_2O_3 which 5 C.c. of the B.P. liquor can theoretically yield. The question arises as to which figure should be taken as a guide in making the liquor—the specific gravity, the volume of the product, or the residue on ignition. The context apparently decides this, for it is therein stated that 100 C.c. of the liq. ferri perchlor. fort. contain 22.5 Gm. of iron, equivalent to 32.14 Gm. Fe_2O_3, which gives the official figure 1.6 Gm. as the yield from 5 C.c. of the liq. ferri perchlor. fort.

London, July 11, 1899. F. C. J. Bird.

The Employment of Unqualified Dispensers.

Sir,—I think that a much larger section of the members than the Council seem to appreciate are watching with interest their action with reference to the employment of unqualified dispensers in surgeries, etc. There is no doubt that Mr. Glyn-Jones in bringing this matter forward at the earliest possible time has simply fulfilled his trust, and has voiced the wishes of a large number of members; and it is extremely doubtful if the attempt to prevent him from doing so was wise on the part of the majority of the Council. The members of Council appear to have come to the conclusion that their re-election implies entire satisfaction with their policy. From personal knowledge of some of the new members I believe something must be put down to a courteous appreciation on the part of the new electorate of their having provided them with the full dignity and voting power of the Society. But this democratic policy must necessarily be followed in dealing with all questions of vital interest to the members, and any attempt to suppress a representative when expressing some at least of the members' views savours a little of casting the boomerang. If the opinion expressed by our worthy President (whose election to that position every provincial chemist should welcome as an acknowledgement of work done most beneficial to them) is that of London chemists generally, dispensing by surgeons cannot be as general there as in some other districts. In this district the younger medical men do their own dispensing until able to employ, when lately it has come to be the rule to take a compounder from one of the services, who is drawn from the ranks, and having undergone a short term of training is sent out as a competent dispenser. It would certainly appear probably, with the existing anxiety on the part of the officials to find employment for discharged soldiers, etc., that an opening of this sort will not be neglected, but rather that the supply will be fully equal to any demand from the surgeons throughout the country and, being cheap labour, will not lessen the tendency for surgeons to do their dispensing and ignore any claims chemists may have. The alternative to this on the part of the younger medical men is to have an arrangement with a chemist. In some cases the chemist sends the medicine out for them without his name appearing (of course the legality of this is doubtful where the medicine contains poisonous preparations), and the profit derived is only small and not remunerative to the average chemist. The question the Council of the Society has to consider is—are these conditions favourable to the production of a better class of pharmacists? If not, it is most important that, when the whole question is before Parliament and before the Medical Council, the claims of chemists to the legitimate work for which they have been trained should be pressed as hard as possible; work which they are able to do much better and with greater safety to the public than medical men. To stand by and see a class of men drawn from the ranks of the Army and Navy, who, after a perfunctory training, are given our work to do whilst the pharmacist has to cast about him for any or every means to eke out a living, is tantamount to an acknowledgment of a very weak case. A section of the medical profession has been prevented from continuing the employment of unqualified medical assistants; the work done by their unqualified dispensers in their absence would seem equally bad for the public. Certain it is that if the trained compounder has come amongst us to stay and becomes numerically strong—backed by the services who have trained him—the Council will find, perhaps too late, that he is too strong for them.

Plymouth, July 11, 1899. Robert F. Roper.

A Warning.

Sir,—I wish to give warning to my brother pharmacists. A new prescription was to-day presented by a lady to be dispensed for one dozen powders, each containing four grains of morphine hydrochlorate, to be used for hypodermic injections. It was perfectly in order, and was, moreover, marked "Not to be renewed." I was about to make it up when a neighbour brought in a similar prescription for the same lady, asking what I should do about dispensing it. We decided to retain the prescriptions and not to dispense them. The lady called again in due course, and I informed her that there was an irregularity in the prescription, and that I should not dispense it. She told me that the doctor resided in Paris, and I got her to write down his address. From a comparison of the writings I have no doubt that the prescriptions were written by herself, and this points out to us the danger we incur when dealing with morphino-maniacs. Sooner or later an overdose will be taken and then will arise the question, "By what authority did you supply this poison?" A verdict of death from an overdose of morphine will follow, accompanied by a censure upon the unfortunate chemist for not taking precautions to ascertain that the prescription was written by a qualified medical man. Our task would be much easier if prescribers were compelled to write their names and addresses in full, and to add their qualifications.

London, July 5, 1899. W. Murton Holmes.

The Conference at Plymouth.

Sir,—In view of the approaching Pharmaceutical Conference in Plymouth, will you permit me to announce through the medium of your valuable Journal that the pharmacists of this club have approached its Committee with the view of granting the privilege

of honorary membership to those attending the Conference during their visit to the neighbourhood? I am pleased to say that this has been cordially granted, and on behalf of the Committee I shall be happy to extend a hearty welcome to all who choose to avail themselves of the advantages the club offers.

Plymouth, July 11, 1899. ALBERT WEBB, *Secretary*, Plymouth and Western Counties Liberal Club.

Medicine Stamp Duty in Scotland.

Sir,—Thanks to Sir John Leng, M.P., we now know how much is contributed to the Revenue from the sale of medicine stamps in Scotland. Out of the total revenue from these stamps of over £260,000, Scotland yields a little over £2,000. With this knowledge chemists in Scotland will, I hope, take steps to get relieved from the antiquated Medicine Stamp Laws which are so rich in intricacies, anomalies, and exceptions. At present we are muzzled, harassed, and spied upon in a way which I am sure no other body of educated men would tolerate. And this we suffer, not that the public health may be protected, but that the Government may obtain a paltry £2,000. We are not permitted to mention on the labels the uses of the common pills, powders, tinctures, lozenges, liniments, and ointments suitable for everyday domestic use, and the consequence is that the public are far more familiar with, and use more freely, the much-advertised medicines sold under cover of the Government medicine stamp. Then we hold a strong position in demanding to be placed on an equality with Ireland, for the Medicine Stamp Acts do not extend to Ireland, and I have not heard that chemists in Ireland suffer from the evils which, we are told by certain timorous chemists, would fall upon us were we placed on an equality with Ireland in this respect. If chemists in Scotland are at all unanimous in wishing to be rid of these laws, I do not believe that the trifling amount they produce would form a serious obstacle in the way.

Dundee, July 11, 1899. WILLIAM CUMMINGS.

The Company Trading Question.

Sir,—In my previous letters discussing the company pharmacy question I endeavoured to show the futility of asking for—(1) A monopoly in the sale of drugs; and (2) The abolition of unqualified companies. The reason for (1) is that it would interfere with the principles of Free Trade, and for (2) *non possumus*. The important questions yet to be solved are: 1. What do we want? 2. What is the most we can get? "Chemists ought to be included with doctors and dentists in the medical proposals of the Companies' Amendments Bill" is the favourite cry of some. "Compromise is not to be thought of," say they. Let us see what this policy of no compromise will do for us. "Companies" would be prohibited from dispensing and selling poisons. Titles would be protected. Such reforms would be worth striving for if they could be obtained. But suppose that these reforms were obtained—would they be absolute? The inevitable coach and four could still be driven through the Act of Parliament. Private arrangements between stores and chemists have existed before and would be instituted again. No Act of Parliament could touch such arrangements. Besides we might wait for twenty years before reform of the nature of prohibition could be obtained, by which time the "companies" would have acquired vested rights, and then the question of compensation would have to be considered! It may not be easy for us to yield to compromise, but we must not be led away by the dream of the optimist. I say that the unqualified companies should not have been allowed to carry on the drug business even by means of registered men. But they have been doing it and mean to continue to do it. The mischief's done! They have built their house and interdict has not been granted. We are now called upon as practical men to face a question which offers peculiar facilities at the present time for settlement. If *chemists* perceived clearly that it is hopeless to endeavour to veto the "companies" the course to be adopted would be made clear, and all would readily fall into line in a demand that their house should be regulated. We have two choices. Mending and ending. Ending is impracticable; impossible. Therefore mending is our only course. Indications are not wanting that this policy is gaining ground. The Western Association of London has discussed such a policy. The Edinburgh Trade Association has adopted it. You have yourself, sir, hinted that "Some practicable compromise between the society's views and those of the Lord Chancellor" might be arrived at. Discussion is needed.

Edinburgh, July 3, 1899. W. S. GLASS.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Supply of Drugs by Medical Man (R. T.—31/18).—Send the particulars to the Secretary of the Medical Defence Union, 4, Trafalgar Square, London, and to the Secretary of the Pharmaceutical Society, as they can deal with the case—on the medical and pharmaceutical sides respectively—if there be any illegality.

Photographic Outfit (J. B.—31/14).—You will find Fallowfield's "Celerity Camera Set," ½-plate, 70s., excellent value. Similar outfits, at the same price, are Butcher's "No. 4"; Perken, Son and Rayment's "Optimus"; Woolley's "No. 3 Victoria"; and Barclay's "Diamond Favourite." See the *Pharmaceutical Journal* Photographic Supplement of April 5 last for particulars of the above and other outfits.

Grasses (T. J.—31/19).—(1) *Festuca elatior*; (2 and 3) *F. pratensis*; (4) *F. duriuscula*; (5) *Bromus asper*; (6) *Brachypodium sylvaticum*.

Alginic Acid (S. H. P.—31/16).—You will find the particulars you require in the *Pharmaceutical Journal*, [3] **13**, 1019 and 1037; **16**, 1005, [4] **7**, 199. Write to the British Chemical Company, Limited, 149, St. Vincent Street, Glasgow, for samples and further particulars.

Ingredient in Prescription (R.F.—31/19).—It is difficult without seeing the prescription to say what can be meant, but probably diluted nitro-hydrochloric acid is intended. To some extent the dose ordered should serve as a guide.

What is a Wholesale Quantity? (R. R.—31/20).—The question of quantity does not affect the matter. It is equally a sale by retail if any quantity of a scheduled poison—great or small—be sold to a consumer, either by a wholesale or a retail dealer. The exemption in Section 16 of the Pharmacy Act, 1868, applies only to the business of "wholesale dealers in supplying poisons in the ordinary course of wholesale dealing," and the ordinary course of wholesale dealing is selling to a middleman or a retailer, not to a consumer. Send the price list to the Secretary of the Pharmaceutical Society, 17, Bloomsbury Square, London.

Acacia Emulsion of Cod Liver Oil (J. W.—31/17).—Cod liver oil, 6 fl. ozs.; powdered gum acacia, 1½ ozs.; saccharin elixir, 40 mins.; oil of bitter orange, 5 mins.; oil of cinnamon, 4 mins.; cherry laurel water, 3 fl. ozs.; spirit of chloroform, 3 fl. drachms. Put the acacia in a perfectly dry mortar with the cod liver oil, mix it intimately, then add in one lot the cherry laurel water. Mix thoroughly until a perfect emulsion is formed, then add the rest of the water gradually, well mixing after each addition. Finally add the essential oils dissolved in the spirit of chloroform and saccharin elixir.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

HEROÏN. Professor Harnack, writing from the Pharmacological Institute of Halle University, expresses a highly unfavourable opinion of the diacetyl derivative of morphine, which has been introduced into use under the name of heroïn, and recommended as preferable to morphine as a medicinal agent. After recalling the fact that the physiological action of morphine and its derivatives was fully investigated in 1890 by Dott and Stockman, and that the general result arrived at in regard to esteroid acidyl derivatives, was that several of them, and especially diacetyl morphine, acted very powerfully on the respiration of rabbits and frogs, also affecting the heart, and were consequently more poisonous than morphine. But nothwithstanding the knowledge of this fact Dreser suggested the use of diacetyl morphine as a specially appropriate substitute for morphine and codeine in the treatment of coughs, and Harnack considers that in doing so he overlooked two important facts: First, that in no department of pharmacology are the results of experiments with animal life less to be relied upon as applicable to the human subject than in the case of narcotics; secondly, that some organic bases by substitution of acid residues give rise to products which are more toxic than the originals, and that this is especially the case in acetylation. In agreement with Dott and Stockman as to the greater influence of diacetyl morphine on the respiration as compared with morphine and the greater depression of the heart's action, Harnack condemns the use of heroïn even in minute doses, and declares that it is more properly to be placed on a level with arsenic and veratrine as a poison than adopted as a substitute for morphine.—*Münch. Med. Wochensch.*

TINCTURE OF FAT-FREE DIGITALIS. J. W. England shows that the effects of a tincture made from digitalis leaves freed from fat by treatment with purified petroleum spirit for forty-eight hours are, on the whole, superior to those of the ordinary tincture. The fat-free tincture is described as being of a deep reddish-brown, almost black, colour, of most unpleasant odour, and of pure bitter taste. It does not become turbid on admixture with water. The primary effects of the fat-free tincture, when administered to patients, were manifested in 15 minutes, and the maximum was attained in 45 minutes, as against 30 and 60 minutes respectively with the ordinary tincture. In both cases the duration of effect was the same—30 minutes, though the pulse reduction was slightly greater with the fat-free tincture. The most striking difference, however, was the much greater rapidity of absorption and action of the fat-free tincture, showing a more speedy assimilation.—*Am. Journ. Pharm.*, **71**, 332.

DECOLORISED TINCTURE OF IODINE. F. A. Sieker, some time ago, published the following formula for decolorised tincture of iodine:—Sodium iodide, 48·9 Gm.; ammonium iodide, 47·3 Gm.; ammonia water (10 per cent.), 10·0 C.c.; water, 155·0 C.c.; alcohol, a sufficient quantity to make 1,000 C.c. He now suggests that distilled water should invariably be used in making the preparation, whilst the alcohol should be redistilled or treated as follows:—To 1,000 C.c. of alcohol add 0·5 to 1·0 Gm. of potassium permanganate in coarse powder; strain the liquid when it is of a dark purple colour, and, after standing a few hours, filter. Unless the filtrate is clear and colourless refiltration will be necessary. The tincture prepared with alcohol so purified and with distilled water is said to be colourless and to keep well.—*Pharm. Review*, **17**, 306.

WOOD TAR CREOSOTE. L. F. Kebler finds that commercial creosote is almost entirely devoid of guaiacol, the percentage varying from 0 to 16. He is also of opinion that no creosote ever contained so much as 60 per cent. of guaiacol, thus bearing out the results of the work of Béhal and Choay, who found that the fraction obtained by distilling crude wood tar creosote between 200° and 210° C. contained at most only about 25 per cent. of guaiacol. Kebler suggests that the B.P. boiling point range (200° to 220° C.) should be adopted in the U.S.P.—*Am. Journ. Pharm.*, **71**, 356.

SYRUP OF RHUBARB. F. W. Haussmann suggests the following process for making a syrup of rhubarb which he regards as an improvement on the B.P. and U.S.P. preparations:—Mix 4 C.c. of spirit of cinnamon, U.S.P., with 100 C.c. of fluid extract of rhubarb, U.S.P., and add 375 C.c. of water in which 10 Gm. of potassium carbonate has previously been dissolved. Allow the mixture to stand for two hours, with occasional agitation, then filter and pass sufficient water through the filter to bring the volume of liquid to 475 C.c. In this dissolve 750 Gm. of sugar by agitation, without heat, and strain; finally, add sufficient water to make 1,000 C.c. of the finished syrup.—*Am. Journ. Pharm.*, **71**, 267.

ELIXIR OF TERPIN HYDRATE. F. A. Sieker prepares an elixir of terpin hydrate by dissolving 17.5 Gm. of the hydrate in 400 C.c. of alcohol, with the application of gentle heat if necessary, and then adding 400 C.c. of glycerin and enough distilled water to make 1,000 C.c. The terpin hydrate is said to remain in solution indefinitely at the ordinary temperature, and although some of it crystallises out on exposure to a low temperature, it will redissolve on warming gently in a water-bath.—*Pharm. Review*, **17**, 307.

HORN-DESTROYING FUNGUS. According to H. Marshall Ward, there are half-a-dozen species of fungi of the genus *Onygena*, remarkable for their growth on feathers, hair, horns and hoofs of cattle. A cow's horn, thoroughly infested with the mycelium of one species, *O. equina* (Willd.), yielded material for the investigation. The fungus has been cultivated, and its life-history, structure, and development fully investigated. It is an ascomycete, and the ascospores require digesting in gastric juice. Hence, in nature, they have to pass through the stomach of the animal. By using artificial gastric juice, and employing glue and other products of hydrolysis of horn, the details of germination and growth into mycelia were traced step by step under the microscope and fully described. It is evident that as the spores of *Onygena* pass through the body of an animal an extract of the dung affords a suitable food medium to re-start the growth on horn. Probably the cattle lick the *Onygena* spores from their own or each other's hides, hoofs, horns, etc., and this may explain why the fungus is so rarely observed on the living animal.—*Proc. Roy. Soc.*, **65**, 158.

TUBERONE. From the concentrated extract of tuberose "pommade" A. Verley has isolated a fraction boiling at 167° C. at 15 Mm. pressure, which corresponds to the formula $C_{13}H_{20}O$, and to which the name tuberone has been given. It possesses in a marked degree the odour of tuberose, resembling somewhat that of coumarin, but being much softer and more persistent. It is a liquid, the density of which is 0.970 at 8° C. From its behaviour with phenylhydrazine and with acetic anhydride, it is evidently a ketone, and since it yields formaldehyde when oxidised with chromic acid, probably contains a terminal CH_2 group. The molecule probably comprises two closed chains with one double linkage of which a tentative graphic formula is given.—*Bulletin de la Soc. Chim. de Paris*, **21**, 306.

THE CHROMIC ACID TEST FOR COCAINE.

BY DR. GEORGE L. SCHAEFER.

Since the publication of my proposed new test for cocaine several articles have appeared in criticism thereof which call for some reply. A. J. Cownley[1] objects on the ground that the test is too delicate, and that only a "synthetic" cocaine would stand it.

P. W. Squire[2] states that the test "produces a turbidity in solutions of the best commercial samples of cocaine hydrochlorate." Further than this he does not go, but in a note appended to his communication the editor states that the "value of the chromate test is questionable." The most satisfactory reply to these critics is the statement that the finest commercial brands of cocaine hydrochloride satisfactorily answer the chromic acid test.

E. Merck,[3] in criticising the tests, states that the strength of the hydrochloric acid will affect the results obtained. In applying the test he found that a solution of cocaine to which he had added 5 C.c. of 10 per cent. hydrochloric acid yielded negative results, and that upon increasing the amount of acid by using 5 C.c. 12½ per cent. hydrochloric acid, a turbidity was produced; thus, in the first case, showing the cocaine to be pure, and, in the second case, indicating impurities. This is in accord with my own observations, and the difference in the results is due to the fact that the sample of cocaine employed contained only very minute traces of amorphous alkaloids; the chromates of these latter bodies being far less soluble in the solution containing the higher percentage of hydrochloric acid. The turbidity will therefore be produced more rapidly and more distinctly than in the solution containing the weaker acid. An acid of 10 per cent. strength was decided upon, as it is sufficient to indicate such very small traces of amorphous impurities that only the very best brands of cocaine in the market will stand this test, and it, together with the permanganate test, guarantees a purity of product which cannot be obtained when McLagan's test is taken as the standard. If the reaction is carried out with a stronger acid it is necessary to do so side by side with a specimen of chemically pure cocaine, as at a low temperature cocaine chromate causes a turbidity in the more acid solution.

Merck further claims that the results are influenced by the age of the chromic acid solution. My own experience has failed to prove that such is the case. In a recent series of experiments with a number of samples of cocaine, using the same solution of chromic acid for fourteen consecutive days, and always applying the test side by side with a freshly prepared chromic acid solution, at no time was there noticed any difference in the results obtained.

In applying the test it is important that the temperature of the cocaine solution be maintained at 15° C., the chromates of both pure cocaine and the amorphous alkaloids being influenced by rise and fall of temperature, heat increasing and cold diminishing their solubility. The test produces no turbidity when the acid is added to a solution of a pure specimen of cocaine, the temperature being 15° C. If, however, the solution be subjected to a considerably lower temperature it becomes turbid, and if it be preserved at this reduced temperature for several hours, a crystalline deposit will be found, consisting of long needle-shaped crystals of cocaine chromate. A solution of impure cocaine rendered turbid by the reagent at 15° C., and exposed to a lower temperature remains turbid for several hours, then slowly deposits a yellowish-brown amorphous sediment. These reactions are characteristic, and serve to distinguish between cocaine and the amorphous alkaloids, especially isatropyl-cocaine. If a stronger acid is used the alkaloids will separate out quicker.

In order to show the superiority of the chromate test over McLagan's test, I prepared a series of specimens of cocaine of different degrees of purity. These, as well as the various brands of cocaine in the market, I subjected to McLagan's and the chromate test. As a result I found specimens, which gave negative results with McLagan's test, to be impure by the chromate test, and those specimens which reacted with McLagan's test yielded a decided turbidity upon the addition of even less than 5 C.c. of the 10 per cent. hydrochloric acid.

1 "Note on a New Test for Cocaine," *Pharmaceutical Journal*. April 15, 1899.

2 "The New Test for Cocaine," *Chemist and Druggist*, April 22, 1899.

"Cocaine Tests," *Pharmaceutische Zeitung*, No. 42, 1899.

NOTE BY A. J. COWNLEY.

It cannot be said that Dr. Schaefer has advanced any further facts to contradict the views already expressed in the Journal. There is no doubt that for commercial purposes Maclagan's test is to be preferred to the chromic acid test for ascertaining the purity of cocaine hydrochloride, and this opinion is corroborated by Dr. Schaefer's own statement that specimens of cocaine hydrochloride which gave negative results—that is, were condemned by Maclagan's test—were also shown to be impure by the chromate test. Such a result was naturally to be expected. The further statement that "specimens of cocaine hydrochloride, which reacted with Maclagan's test, yielded a decided turbidity upon the addition of even less than 5 C.c. of the 10 per cent. hydrochloric acid," requires further explanation in consequence of the influence of free hydrochloric acid in causing precipitation, as E. Merck has already pointed out (*P.J.*, 62., 523), and at present the results mentioned by Schaefer only go to show, as already stated in the Journal (*P.J.*, 62., 336), that probably the only salt that would pass the chromic acid test would be one prepared from synthetic cocaine.

WOMEN AS PHARMACISTS.

BY ONE OF THEM.

(Concluded from page 47.)

PHARMACY AS A PROFESSION FOR WOMEN.

The consideration of the means of becoming a qualified pharmacist may be prefaced by the remark that no woman should take up pharmacy as a profession without being prepared for real hard work; not only do the examinations involve a good deal of close study, but a dispenser's life can never be a very easy one. Long hours of standing, the strain of a continual pressure of work requiring the utmost attention, and the heavy responsibility that such work involves, have to be faced. On the other hand, the work is most interesting, needing skill and care, and paying for all the pains and attention devoted to it. By far the greater number of qualified women are engaged as dispensers in hospitals, infirmaries, and dispensaries; only a very small proportion take advantage of being legally qualified to "keep open shop," which requires not only business ability, but some years of practical experience in the commercial side of a chemist's business, and command of capital. The course of training open to women does not, as a rule, present opportunities for acquiring a knowledge of business, and to this question of training we will now turn.

THE FIRST STEP.

When a youth chooses to follow the calling of pharmacy, the first step is an apprenticeship to a qualified chemist for three, four, or five years, according to arrangement. When the candidate for admission to the ranks of chemists and druggists of the opposite sex rather different arrangements are usually made, as there are not many chemists up to the present who will take female apprentices.

At the same time, no one is eligible for the qualifying examination until he or she can produce a certified declaration as to having been for three years registered and employed as an apprentice or student, or otherwise practically engaged in the translation and dispensing of prescriptions. This condition is generally fulfilled by going as "pupil" to some one actively engaged in dispensing, and qualified to teach it. There are a few hospitals in London where the dispensers take pupils, who thus not only get teaching in dispensing, but also the necessary practical acquaintance with the work of a hospital dispenser. The term of pupilage in a hospital is usually six months or longer, the pupil attending half-days only, and the fee is from £7 7s. to £10 10s. There are also in London two qualified women, who have well-fitted private dispensaries, and take pupils, teaching them not only dispensing, but all the subjects required for the Minor examination. The teaching is individual, and the term of pupilage is as arranged.

The Preliminary Examination.

Before commencing any course of work at dispensing, either as apprentice or pupil, it is desirable to pass the Pharmaceutical Society's Preliminary examination, or one of the examinations accepted as its equivalent. It is not essential to pass it before the term of pupilage is commenced, but it is advisable to do so, because then the student's time is free to be devoted to more strictly technical subjects. Also, the fact of having passed it renders the pupil eligible to be elected an apprentice or student (now student-associate) of the Pharmaceutical Society, which carries with it certain advantages, and prepares the way for future membership.

Part Time Work.

After about a year's work under a capable teacher it is sometimes possible to obtain a post as assistant dispenser for part time. The amount of time taken up by a "part time" post varies very much. At some hospitals or dispensaries such an assistant is required two or three afternoons per week, while at others attendance may be required every morning, or every afternoon, and sometimes the evening is the time chosen. An unqualified assistant is paid from £20 to £35 per annum, according to hours, and apart from the satisfaction of earning a small salary during the period of study, it is an advantage to be in constant touch with actual hospital work. At the same time, it must not be forgotten that it involves a considerable strain to be simultaneously studying for an examination and holding a dispensing post.

Preparation for the Minor Examination.

It may be taken as an established fact that it is false economy to endeavour to prepare for the Minor examination without attending a course of lectures and laboratory work in a satisfactory school of pharmacy. This course of instruction will occupy the student's whole time for nearly a year before the examination; or, if it is considered desirable to be filling a small post as dispenser or assistant during the whole period of study, the course of work in a "school" may be divided into two parts, so that during the first session of attendance chemistry and botany, for instance, may be the subjects taken; while during the second, materia medica and pharmacy (which includes dispensing, the making of B.P. preparations, and prescription reading) will be the subjects of study. Perhaps to those who have given little attention to the subject it may seem that after "learning dispensing" in a hospital there is no need to study the same subject in a school; but those who have had any experience know very well that such a subject cannot be mastered without careful study, as well as experience in practical work. There are a thousand things that cannot be gone into at all in the rush of hospital work, and that have to be accepted in faith for the time being, until a fuller knowledge is reached. There is not time in the busy life of a hospital dispenser to explain everything that presents a difficulty to the pupil; and, indeed, there are many things the explanation of which is impossible until a certain amount of technical knowledge has been acquired. When the study of chemistry and the other subjects required is taken up, many of these mysteries explain themselves, and it is very delightful to find as one's studies go on that old difficulties vanish, and satisfying reasons present themselves for much that practical work had rendered familiar to the hand and eye, but not to the mind. To be a really efficient dispenser, and capable of standing alone, it is necessary to have a thorough knowledge of the nature and general chemical relations of all the substances likely to be dealt with, and of their behaviour towards each other under various conditions; and it will be easily imagined that all this cannot be mastered without the expenditure of considerable time and pains. All the energy expended on it is, however, thoroughly well spent, for an intelligent understanding and grasp of the subject not only makes the dispenser more efficient and reliable, but makes the work itself far more interesting. And when it is remembered what responsibilities lie in the dispenser's hands, the necessity for a thorough training and complete fitness for the work cannot be too strongly insisted on. In the field of pharmacy, perhaps more than anywhere else, "a little knowledge is a dangerous thing."

The Approximate Cost of Training.

Let us now consider what is the approximate cost of training, and what are the prospects when the qualification has been obtained. Of course, it makes a good deal of difference in the expense whether a girl is able to live at home during her three years of preparation, or whether there are items of board and lodging to be considered. In the following estimate the moderate amount of 18s. per week is reckoned for such expenses, and no allowance is made for holidays and such matters as dress, which can be regulated according to individual requirements:—

	£ s. d.	£ s. d.
Preliminary examination	2 2 0	
Fee at Hospital	10 10 0	
Books	5 0 0	
Apparatus, etc.	2 10 0	
Fees at School of Pharmacy	30 0 0	
Fee for Minor examination	5 5 0	
Three Years' Subscription to Pharmaceutical Society (as Student)	1 11 6	
Living Expenses (for three years, at 18s. per week)	140 0 0	
	196 18 6	
From that amount may in some cases be deducted:—		
Earned during second year	20 0 0	
Earned during third year	30 0 0	
	50 0 0	
		196 18 6
		50 0 0
Making a total of		146 18 6

or, in round numbers, £150 for the three years' training. The figures are necessarily only approximate, and the total is, if anything, too low rather than too high, as it is, of course, not at all certain that the student will have the opportunity of earning £50, even if she is capable of doing so. Then again, unless she resides near to the school of pharmacy chosen, there will be an extra item of cost in the fares to and fro; and if from any reason it is desirable to attend any course of lectures or other work more than once, additional fees will render the total expense greater. This, however, ought not to be necessary if proper attention is paid to the work in the first instance.

The Question of Qualification.

The Pharmaceutical Society's qualification is the only one recognised by the law; at the same time, it is often desirable, if seeking a small post as assistant dispenser before the termination of the required "three years," to have some means of proving that one

has some fitness for such a post. For this purpose the "Assistant's" certificate of the Society of Apothecaries is often useful, and the examination can be passed without difficulty by anyone who has had a year's teaching in a hospital, and who has devoted the spare time during that year to the study of chemistry, materia medica, and prescription reading.

The Minor examination having been passed, and the candidate registered as a "chemist and druggist," there is still another examination to be faced if the rank of "pharmaceutical chemist" is desired. This is the Pharmaceutical Society's Major examination, the subjects required being chemistry and physics, botany, and materia medica. The work of preparation will occupy about six months, and the fees for lectures and laboratory work will amount to about twenty pounds. The fee for the examination is three guineas. This will, of course, make the total cost of training greater, and will extend the time. Probably all, or at any rate most, of the posts open to women can be satisfactorily filled by a person with the Minor qualification alone; and the work done for the Major, though of great value for its own sake, will seldom, if ever, be required in actual practice. Still, in the case of several candidates applying for one post, naturally anyone who had passed the higher examination would stand the best chance of being chosen, provided that her experience of hospital work, etc., was equal to that of the others.

How to Gain Experience.

The question of experience is, of course, an important point; and it is often a good plan, when one is first qualified, to get posts as *locum tenens* in two or three places, if possible, before applying for any permanent appointment. In this way experience in the working of various institutions is acquired, many valuable hints may be picked up, and much that is useful afterwards may be learned by anyone who is on the alert to make the most of such opportunities.

The salaries paid to qualified women as dispensers vary a good deal, because the hours and conditions of the work vary. There are half-day appointments, the salaries varying from £40 to £60 per annum; whole day appointments, salaries from £80 to £120; and resident appointments, salaries from £30 to £60. In some small hospitals the dispenser is required to discharge the duties of secretary in addition to those of her own particular province, and thus the post is more remunerative than if the few hours' dispensing were alone considered in the salary. Doctors sometimes employ women to do their dispensing. These posts are sometimes resident and sometimes daily, and the salaries vary a good deal. The dispenser is generally required to keep the books and to assist in sending out the accounts.

There are a number of small hospitals all over the country where women are employed as dispensers; in provident and charitable dispensaries, too, a number of women are at work. There are also in London several appointments under the Local Government Board that are at present filled by women. These appointments are open to both men and women, and thus differ from some of the hospital posts, where a "lady dispenser" is advertised for. Occasionally, too, the services of qualified women are required in the warehouses of wholesale and manufacturing chemists, and quite recently an advertisement appeared for a "lady assistant" in a retail dispensing business.

It is evident, therefore, that there is a distinct demand for women as dispensers, and it is also apparent that the necessary qualification for such appointments requires not only the expenditure of time and money, but good abilities, and a large amount of patience and perseverance. The salaries paid for such work cannot be considered excessive, seldom, if ever, being above £120 per annum, though sometimes there is an addition to the salary in the shape of pupils' fees. No woman should take up pharmacy as a means of livelihood who has not a genuine love of the work for its own sake, and who is not prepared to do her full share of the world's hard work.

AUSTRALIAN INDIGENOUS VEGETABLE DRUGS.*

BY J. H. MAIDEN,

Government Botanist and Director of the Botanic Gardens, Sydney.

(Corresponding Member of the Pharmaceutical Society of Great Britain.)

MYOPORINÆ.

Eremophila maculata, F.v.M.

The aborigines in the Hungerford district, N.S.W., use the leaves as a blister when suffering from a cold.

All the Colonies except Tasmania.

VERBENACEÆ.

Callicarpa longifolia, Lam.

Bailey suggests the use of the bark as an Australian substitute for the betel leaf. (*Eighth Botany Bulletin.*)

Queensland.

Clerodendron inerme, R.Br.

Used to heal spear-wounds in New Guinea. (Bailey, 1*st Supp.*, p. 43.) See also *Pharmacographia Indica*, v., 76.

New South Wales to Northern Australia.

Verbena officinalis, Linn.

I have received this plant from the north-west of New South Wales as a remedy employed by the blacks in venereal complaints.

All the Colonies except Western Australia.

LABIATÆ.

Mentha gracilis, R.Br. "Native Pennyroyal."

I have been informed that this plant and *M. satureoides* are used in New South Wales as a substitute for the pennyroyal of Europe. Either infusion or decoction is used. It should, however, be borne in mind that these two species are much more acrid than the European species of *Mentha* commonly used for a similar purpose, and, therefore, greater care should be exercised in their use. Both herbs are also strewn about floors and beds for the purpose of keeping away insects, and they are very efficient in driving away fleas and bugs.

All the Colonies except Western Australia and Queensland.

Mentha satureioides, R.Br.

See *M. gracilis*.

All the Colonies.

Moschosma polystachya, Benth.

Used as a medicine by mixing in water, for fevers, etc. (E. Palmer.)

New South Wales to Northern Australia.

Ocimum sanctum, Linn.

This plant is much cultivated in India and Ceylon, and is frequently used in medicine in the latter country. (*Treasury of Botany.*) Stimulant, diaphoretic, and expectorant virtues are assigned to it by the natives. (*Pharm. of India.*)

The leaves are crushed up in water in a kooliman, and drunk for fevers and sickness by Queensland natives. (E. Palmer.)

Queensland and Northern Australia.

Plectranthus congestus, R.Br. Native name on Mitchell, "Kai-kai."

Leaves and branches crushed in water, and drunk for internal complaints. (E. Palmer.)

Queensland.

Prostanthera rotundifolia, R.Br.

An application has been made to the Patents Office, Sydney, to patent the use of an infusion of this plant for medicinal purposes.

All the Colonies except Western Australia and Queensland.

PHYTOLACCEÆ.

Codonocarpus cotinifolius, F.v.M. "Quinine Tree"; "Medicine Tree" of the interior; called also "Horse-radish Tree," owing to the taste of the leaves.

* From the *Agricultural Gazette of New South Wales* (Continued from page 52).

This bark contains a peculiar bitter, and perhaps possesses medicinal properties. The taste is, however, quite distinct from quinine. Its leaves resemble horse-radish or turnips in taste. The bark is smooth, and when quite fresh of a pinkish colour. In describing an allied species (*C. australis*), Hooker (*Bot. Miscell.*, i., 245) says: "While dissecting the flowers and fruit, they were found to diffuse a most powerful smell, resembling that of ether."

All the Colonies except Tasmania and Queensland.

POLYGONACEÆ.

Muehlenbeckia adpressa, Meissn.

The stems have been used as a substitute for sarsaparilla.

All the Colonies except Queensland.

AMARANTACEÆ.

Achyranthes aspera, Linn.

Found also in all the tropical and sub-tropical regions of the old world. The herb is administered in India in cases of dropsy. The seeds are given in hydrophobia, and in cases of snake-bites, as well as in ophthalmia and cutaneous diseases. The flowering-spikes, rubbed with a little sugar, are made into pills, and given internally to people bitten by mad dogs. The leaves, taken fresh and reduced to a pulp, are considered a good remedy when applied externally to the bites of scorpions. The ashes of the plant yield a considerable quantity of potash, which is used in washing clothes. The flowering-spike has the reputation in India (Oude) of being a safeguard against scorpions, which it is believed to paralyse. (Drury.)

South Australia, New South Wales, Queensland, and Northern Australia.

Alternanthera triandra, Lam.

Mr. P. Corbet, Mount Browne, sends this plant with the information that the Chinamen of the district use this plant, to use their own language, "to cure sore hand—sore anything."

All the Colonies.

MONIMIACEÆ.

Atherosperma moschata, Labill. "Victorian Sassafras" (see Doryphora).

The bark contains an agreeable bitter, of much repute as a tonic amongst sawyers. It is called "Native Sassafras," from the odour of its bark, due to an essential oil closely resembling true sassafras in odour. Bosisto likens the smell of the inner bark to new ale, and says that a decoction from this part of the tree is a good substitute for yeast in raising bread. It is diaphoretic and diuretic in asthma and other pulmonary affections, but it is known more especially for its sedative action on the heart, and it has been successfully used in some forms of heart disease.

It is prepared of the strength of 4 oz. of the bark to 20 oz. of rectified spirit, and is given in doses of thirty to sixty drops, usually on a lump of sugar.

The first reference to the medicinal properties of this bark I can trace is a letter by Mueller, dated April 5, 1855, in Hooker's *Journ. of Botany*, vii., 240, in which, "on behalf of Dr. Greeves, M.L.C.," he draws attention to it as a remedy in bronchitis, and suggests that it be examined chemically and medicinally.

Chemical examination was finally undertaken by Zeyer, who published his results in Kopp u. Will, *Jahresb.*, 1861; see also Wolff's *Aschen-Analysen*, i., 128, and Watts' *Dict.*, vi., Suppt., 231. Following are the principal results of this research:—

Zeyer found in it volatile oil, fixed oil, wax, albumin, gum, sugar starch, butyric acid, an aromatic resin, iron-greening tannic acid, and an alkaloid which he designated *atherospermine*. The lead-compound of the tannic acid was obtained by precipitating the clarified aqueous decoctions of the bark with lead acetate, digesting the well-washed precipitate with acetic acid, and exactly saturating the filtrate with ammonia. The greyish-yellow precipitate thus formed gave by analysis, after drying, numbers corresponding to ing to the formula, $C_2H_{32}O_5$.

When the bark, after being boiled with water and treated with dilute sulphuric acid, is exhausted with weak soda ley, the aromatic resin passes into solution, and may be separated by precipitation with hydrochloric acid and purified by treatment with alcohol and water. It is brown-red, has a faint aromatic odour, tastes distinctly like nutmeg and sassafras, melts at 114°, dissolves easily in alcohol and in alkaline hydrates and carbonates, but with difficulty in ether and turpentine oil. The analysis of the resin gave numbers according to the formola, $C_2H_{32}O_5$.

The ash, amounting to 3.64 per cent. of the air-dried bark, and 4·06 per cent. of the bark dried at 100°, has also been analysed by Zeyer.

Atherospermine.—The solution filtered from the impure lead precipitate, already said to have been obtained by N. Zeyer, yields, on addition of ammonia, a precipitate which, after washing and drying, digestion with alcohol, evaporation of the brown solution, mixing of the remaining mass with hydrochloric acid, and precipitation with ammonia, yields crude *atherospermine*; and by agitating this substance with carbon bisulphide, dissolving the mass left after evaporating off the carbon bisulphide in hydrochloric acid, and again precipitating with ammonia, the *atherospermine* is obtained in the pure state.*

Atherospermine forms a white, somewhat greyish, light, highly electric powder, inodorous, and having a pure bitter taste. It turns yellowish when exposed to sunshine, melts at 128°, and at a higher temperature emits an empyreumatic odour, takes fire, and burns away without residue; when slowly heated it gives off an odour of putrid meat, and afterwards of herrings (*propylamine?*). It is nearly insoluble in water, dissolves with difficulty in ether, more easily in alcohol, the solution having a distinct alkaline reaction; is soluble also in chloroform, oil of turpentine, and other volatile oils. When dissolved in dilute acids, it neutralises them with formation of varnish-like salts. In contact with iodic acid and a little water, it liberates iodine with brown colour. The neutral solution of the alkaloid is hydrochloric acid; is precipitated white by alkalies and alkaline carbonates, yellow by picric acid, yellowish-white by tannic acid, dirty-yellow by phosphomolybdic acid, pale yellow by platinic chloride; it likewise precipitates with iodide, ferrocyanide and sulphocyanide of potassium, auric chloride, etc.

There is a letter on the subject in the *Australian Medical Journal* for October, 1861, and a letter by Dr. Greeves will be found in the *Lancet*, i., 134 (1862).

Years after, some notes on the bark were published in Mueller and Rummel's edition of Wittstein's *Organic Constituents of Plants*. See also Sohn, p. 14.

Attention was early given to the essential oil, to whose presence the medicinal properties (if any) of the bark are due.

The oil obtained by aqueous distillation from the bark is thin, unctious, pale yellow when fresh, but becomes yellowish-brown with age. (That obtained from the leaves is a distinct essential oil, is of a greenish colour, and resembles oil of mace. It requires further examination. Bosisto.) It resembles in odour ordinary sassafras oil, with an admixture of oil of caraways. The taste is aromatic, bitter, and prickly to the tongue. Sp. gr. 1·04. Boils at 230° to 245°. (*Report of the London Exhibition of* 1862.)

100 lb. of the bark yielded, in one case, 18 oz. 6 dr. of the oil.

In large quantities it must be regarded as a dangerous poison. Rubbed externally upon the skin it does not, like myrtaceous oils, act as a rubefacient or irritant. It is said to have a lowering effect on the heart; but it has been, however, given in certain circumstances in doses of one or two drops.

* The bark, which had been boiled with water for the preparation of the tannic acid, still retained a portion of the alkaloid, which was extracted therefrom by digestion with dilute sulphuric acid.

OIL of *Atherosperma moschata.*

Specific Gravity at 15·5 deg. C.	Refractive Index.				Rotation.
	Temp.	A	D	H	
1·0425	degrees. 14	1·5172	1·5274	1·5628	degrees. +7

These determinations were made by Dr. Gladstone. The rotary power was determined for a column of liquid ten inches long. (Watts' *Dict.*)

Finally, R. Stockman read a paper "On the action of the volatile oil of *Atherosperma moschatum*, Labill." See *Pharm. Journ.* [3], xxiii., 512 (December 24, 1892). Dr. Stockman's conclusion is:—"It seems, therefore, certain that neither the volatile oil nor any other constituent of the bark of *Atherosperma moschatum* is particularly active or poisonous, and, further, that the volatile oil has a close resemblance in physiological action to other volatile oils. Regarding its use as a diaphoretic, expectorant, and alterative, there is little doubt that it is simply similar to the many other essential oils or plants containing them which are used in medicine for similar purposes."

Dr. Stockman is an eminent man in research of this character, and his decision must be accepted as final, and so the short list of supposed Australian medicinal plants must be still further reduced.

Tasmania, Victoria, and Southern New South Wales.

Piptocalyx moorei, Oliv.

An account of this plant is given in the *Agric. Gazette* for August, 1894, p. 545. The leaves were exported to Europe to be used as a substitute for hops, and perhaps for other purposes. Mr. R. T. Baker and I published a note and an illustration of this plant in *Proc. Linn. Soc., N.S.W.* [2], x., 514 (1896).

New South Wales.

Daphnandra micrantha, Benth. "Light Yellow-wood"; "Satin-wood."

The bark of this tree is bitter, and is in repute as a tonic amongst sawyers. Dr. T. L. Bancroft has quite recently drawn attention to the properties of this bark, which are similar to those of *D. repandula* (q.v.).

New South Wales and Queensland.

Daphnandra repandula, F.v.M.

The bark of this tree has a transient bitter taste, and when first removed from the tree it has a yellow colour on the inner surface, which changes to a metallic black on exposure to the air, but this disappears again as it dries. Infusions of the bark are of a yellow colour, and remain free from microscopic organisms when kept. The extract of the bark is very poisonous, one grain being a fatal dose for a frog, and ten for warm-blooded animals. The alkaloids contained in the bark are colourless when pure and crystalline. The active one is easily separated from the others, being soluble in water. Its poisonous action is chiefly due to its action on the heart. To some extent it is antagonistic to strychnia. The poison powerfully affects fish, molluscs, and infusoria. When applied topically to voluntary or involuntary muscles, it paralyses them rapidly. It also retards the development of septic organisms, and will deodorise putrid meat. It will kill some water plants. (Dr. T. L. Bancroft, *Proc. R.S. N.S.W.*, 1888, p. 69.) The subject is continued, and the physiological action more thoroughly treated, in a paper by the same author in *Proc. R.S. Queensland*, 1887. Later on Dr. Bancroft reports:—"The genus Daphnandra, of the order Monimiaceæ, is very interesting, as possessing several alkaloids of a stable and crystalline nature. In their physiological action they resemble somewhat the Digitalis group.

(To be continued.)

STARCH AND ITS FORMATION.*

BY LEOPOLD D'E. LENFESTEY.

(Concluded from page 50).

THE ABSORPTION OF WATER BY STARCH.

Starch exhibits in a high degree the property of imbibition—*i.e.*, of swelling up by absorption of waterunder suitable conditions—a property common to organisedstructures. As the absorption of water proceeds the markings gradually disappear and the granule loses its contour; eventually the granule bursts, and the contents emerging the swelling progresses more rapidly, so that the space the swollen granule now occupies is very many times the original volume. This goes on till all the water enters into combination with the starch and a homogenous paste is produced. This is notably the case with potato starch, arrowroot, rice, and other starches; but with others again, of which wheat may be taken as a type, I find the swelling of the granules is very gradual and it is very difficult to burst them possibly due to the presence of a small quantity of gluten.

The temperature at which this process takes place, spoken of as the point of tumefaction, varies an appreciable number of degrees with different starches, and this is made use of in conjunction with the microscopic characters to identify starches. As such it is a valuable adjunct to the analyst, but its value in this respect is, in my opinion, exaggerated. To begin with, the point at which the individual granules of the same starch begin to swell embraces a comparatively wide range of temperature, and these overlap with different starches. Secondly, previous treatment of the granules markedly affects their tumefying points; thus, if potato starch, which begins to tumefy at 57° C. (according to my observations) be kept for some time at, say 55° C., no granules will swell at that temperature, but, on the contrary, they appear to become inured against heat, so that they no longer begin to tumefy at 57° C., but at some temperature higher. I have carefully determined the tumefying point of potato starch, which I have prepared myself and commercial samples, and although my results with each are constant, they do not tally with one another. I can only suppose that this must be due to one drying at a higher temperature than the other in the process of manufacture. Further, with some starches it is very difficult to say just when the granules begin to swell, and two observers would probably not agree when this takes place, so that if the tumefying points are to be used for identifying starches, then these points must be determined by every individual who makes use of this method for identifying starches, and I am of opinion that it takes longer to obtain sufficient skill to apply this determination with satisfactory results than it does to familiarise oneself with the minute microscopic characteristics. Again, as the arrowroot obtained from Natal differs from that obtained from Bermuda and St. Vincent in its tumefying point, so also may be the case with other starches, and to see if this is the case with potato starch, I have had sent me potatoes from Australia and elsewhere, and am at the present time preparing starches from these for the determination of their tumefaction points.

To illustrate these remarks I give here the figures determined by W. H. Symons for various common starches:—

Order of Size.	Starch.	A Few Swollen.	Majority Swollen.	All Swollen.
2	Potato	55° C.	60° C.	65° C.
7	Cassava	58° C.	63° C.	68° C.
4	Natal	58° C.	65° C.	70° C.
5	Wheat	60° C.	65° C.	70° C.
1	Tous-les-mois	65° C.	68° C.	72° C.
4	Bermuda	62° C.	69° C.	73° C.
3	Sago	64° C.	68° C.	74° C.
6	Maize	65° C.	70° C.	77° C.
8	Oat	65° C.	70° C.	77° C.
4	St. Vincent	66° C.	73° C.	77° C.
9	Rice	70° C.	75° C.	80° C.

* Paper read before the Birkbeck Science Society

The tumefaction of starches is also brought about by alkalies (though not by ammonia), and Symons has devised a method for identifying starches by this means. The tumefaction is effected by solutions of different percentage strength.

The most delicate and characteristic reagent for starch is a solution of iodine. This colours the granules a deep blue colour, due to the formation of a compound or compounds of the starch with iodine. The test is best applied by adding the iodine to a thin starch paste produced by adding a considerable quantity of hot water to the starch and cooling. The colour disappears on boiling, but reappears as the temperature falls.

Chemical Composition of Starch.

Starch is made up of two closely allied carbohydrates, "granulose," which constitutes the major part of the granules, and is coloured blue by iodine and "starch cellulose," which forms the framework of the granules. It is easy to affect a separation, either by the prolonged action of diluted sulphuric acid, by the action of saliva for a short time at a temperature of (35-55)° C., or by means of diastase. In each case the granulose goes into solution, and the starch cellulose remains behind, still presenting the structure of the granule. If to this iodine is added, it will be found that no longer is a blue colour produced, but a copper red. This starch cellulose is soluble in an ammoniacal solution of copper.

Unbroken starch granules yield to no solvent, but if broken by attrition, heat or alkalis, the granulose is gradually dissolved by water, and when boiled the starch cellulose also is almost entirely dissolved, that which remains being readily soluble in dilute alkalis.

Under certain treatment starch undergoes a most remarkable and peculiar change whereby it is rendered soluble. According to Wroblewski, this modification is best prepared by macerating rice starch with a 1 per cent. solution of potassium hydrate, and then heating it with excess of this alkali for thirty minutes on a water bath. The product is filtered, acidified with acetic acid, and precipitated by alcohol. Thus prepared it is a snow-white amorphous substance, readily soluble in water, it slowly reduces Fehling's solution and gives a pure blue colour with iodine.

Action of Enzymes on Starch.

When enzymes (or unorganised ferments) are allowed to act upon starch, the starch molecule is broken up into others of less complexity, and soluble products are eventually produced. When diastase is added to starch paste, total liquefaction is brought about in a very short time. At this stage iodine gives the characteristic blue reaction, indicating the presence of soluble starch. On the continued action of the ferment, the iodine no longer gives a blue colour, but the reddish-brown, characteristic of erythrodextrin. Eventually achroodextrin is produced, and iodine ceases to give a colour reaction. Simultaneously with the above changes maltose is formed and in increasing quantities as the reaction proceeds, also intermediate products, termed amyloins, which are molecular aggregates of dextrose and the amylin group.

Diastase, being the ferment contained in malted barley, it will be seen how valuable is malt extract for aiding the digestion of starchy foods.

Similar is the action of the ferments present in the body, the ptyalin of the saliva, the pancreatin of the pancreatic fluid, and the animal diastase of intestinal mucus. In the case, however, of these animal ferments, the maltose produced is further hydrolysed into dextrose.

A great deal of work has been done on the hydrolysis of starch by diastase and acids, in the endeavour to elucidate the molecular constitution of starch. From the nature of the products formed, it is evident that the molecule is very highly complex, and Brown and Morris have shown that in the case of soluble starch, the molecular weight cannot be less than 32,400, corresponding to a formula $5(C_{12}H_{20}O_{10})_{20}$.

Hydrolysis of Starch by Acids.

With dilute acids, Johnson gives, for the expression of the hydrolytic action, the following equations:—

$$(C_{12}H_{20}O_{10})_n + 2(H_2O)_m = \begin{matrix}(C_{12}H_{20}O_{10})_{n-m} \\ (C_6H_{12}O_6)_m\end{matrix} + C_6H_{12}O_6)_m$$

$$\begin{matrix}(C_{12}H_{20}O_{10})_{n-m} \\ (C_6H_{12}O_6)_m\end{matrix} + (C_6H_{12}O_6)_m + 2(H_2O)_{n-m} = 2(C_6H_{12}O_6)_n$$

This differs from the hydrolysis effected by diastase, in that glucose is produced and gluco-amylins, the amyloins that would be formed by diastase being converted at the moment of their formation into dextrose and gluco-amylins. Johnson is of opinion (*q. v. Ch. Soc. J.*, 1898) that the molecule of starch is probably formed by the condensation of a large number of molecules of dextrose. In the first place, two molecules of dextrose condense to form maltose, and then a large number of maltose molecules further condense to form starch. As a result of his extensive investigation, he represents figuratively in what he calls a "starch $\sigma\chi\eta\mu\alpha$," the probable nature of the starch molecule.

Johnson thus explains this $\sigma\chi\eta\mu\alpha$. Each amylin group (between the large brackets) is composed of two maltose molecules (separated by the dotted lines) each of the latter being composed of two dextrose molecules. To show the points where the dextrose molecules condense to maltose and the latter to amylin groups the H_2O molecules are enclosed in brackets. As is seen the two dextrose molecules condense in a secondary group HC.$\overline{\text{OH H}}$O.CH, whilst the maltose molecules condense in the primary group $H_2C.O\overline{\text{H HO}}.CH_2$, the former becoming HC.O—CH and the latter $H_2C.O—CH_2$. The two aldehyde groups of the original dextrose molecules condense in the amylin group as is shown above. This explains the non-reducing character of starch. According to this $\sigma\chi\eta\mu\alpha$, the molecular weight of starch can be any multiple of $(C_6H_{10}O_5)_4$.

The Uses of Starch.

The uses of starch are many. It is employed largely for laundry purposes, for the sizing and stiffening of cloth, as an adhesive agent, and for the manufacture of dextrin or British gum, it also enters largely into the composition of toilet powders, and is extensively employed for the sophistication of foods and drugs, but above all its chief use to man lies in its great value as an article of food, its function in this respect being to supply heat and energy. The number of edible starches is legion, they are obtained all over the world from an infinite variety of sources; it is impossible to allude to them here other than to mention that any interested will find in a paper read by P. L. Simmonds before the Society of Arts a full and interesting account of them. This paper is printed in the *Pharmaceutical Journal* for the year 1873.

Source of Starch.	Time required for digestion when boiled in hours.	Grains per pound of C and N.		Thermal effect of 10 grains in the body. 10 grains produces sufficient heat.	
		C	N	To raise x lbs. of water 1° F	Equiv. to lifting x lbs. 1 ft. high.
Oats		2,768	140	x = 10·1	x = 7,800
Wheat { Flour	3½-4	2,656	120	9·87	7,623
Wheat { Bread		1,968	92	5·52	4,263
Rice	1	39%	1%	9·66	7,454
Pea	2½	2,683	252	9·57	7,487
Arrowroot	1¾	2,555	—	10·06	7,766
Potato				2 6	1,977
Carrot				1·36	1,031
Barley	2	2,500	68		
Rye		2,660	86		
Maize	3-3½	2,800	121-6		
Sago	1¾	2,555	1-75		
Tapioca	(identical with arrowroot).				
Macaroni	Contains 73·8% of starch and 11·1 % albuminoids.				
Semolina*	12-15% gluten —very nutritious.				

* Obtained from finest and hardest Wheat—Spain, Odessa, and South Italy.

The value of a starch as a complete article of food lies largely in the combination with it of nitrogenous material as gluten. The cereal starches and leguminous meals, pea meal, etc., for this reason constitute particularly valuable food-stuffs and artificial starchy foods, such as macaroni, which contain albuminous matter obtained from white of egg, are highly nutritious, and are largely used in Italy. In the accompanying table are shown some data of common everyday starchy foods which may be interesting.

EXTRACTS FROM CONSULAR REPORTS.

COD-FISH WERE FATTER last year than in some of the previous years, consequently the produce of cod-liver oil in Norway was larger than was expected in proportion to the quantity of cod-fish caught—viz., 40,000,000, against 61,000,000 in the previous year. The exportation of cod-liver oil amounted to 43,000 barrels, against 49,000 barrels in 1897. The price of steam refined medicinal oil at Bergen was 72 kr. (£4) per barrel at the opening of the season, but at the end of the year the quotation was 57 kr. (£3 3s.).

A CALCIUM-CARBIDE FACTORY, to be established at Flekkefiord, is also reported as under the consideration of a Norwegian company. The factory is to be built and connected to a waterfall of 6,000 horse-power. Vice-Consul Franklin, commenting on the fact of so many new factories being erected in Norway, remarks that the rate at which companies have been formed to open different kinds of new industries is simply astonishing, and goes to prove the general prosperity of the communities all round.

IN ADDITION TO RUBBER, which is the chief article of export from Iquitos (Peru), the district is said to yield sarsaparilla, vanilla, cocoa, copaiba, and various gums. None of these, however, are regular articles of trade owing to the expense and scarcity of labour, although there can be little doubt that they and many other natural products of the country might with improved labour be cultivated successfully. The products of the district are stated to be practically unknown, and will require much time for development.

EXPERIMENTS ARE NOW BEING MADE, according to Vice-Consul Venn in his report on the trade and commerce of Pisco (Peru), in the cultivation of the castor-oil bean, and so far they tend to show that this cultivation will yield much better returns than cotton. The cost of cultivation of the castor-oil bean is said to be very much less than that of cotton. The shrubs commence to yield beans in about ten months from the seeds being planted, and can be constantly cropped the year round for five or six years. This is a great advantage over cotton, for the haste with which cotton has to be harvested once the pods open, and the consequent enormous competition for labour, form one of the most serious drawbacks to its cultivation.

THE MINERAL BATHS OF YURA (Peru), some 28 kiloms. from Arequipa, are now the scene of a new industry in the country, viz., the bottling of the ferruginous and sulphurous waters that abound there for home consumption and export. It is claimed for these waters that they are equal in quality to any of the German article, and quite a demand is said to have sprung up for them. A soap factory has also been established in the district and is reported to be doing moderately well.

OF COCA LEAVES, 617,100lb, value approximately £15,427, were exported from Cuzco last year, the average price during the year being 6 soles 25c. per drum of 25lb in Cuzco. The shipments went principally to Hamburg. There appears to have been a considerable falling off in the quantity of coca leaves exported during the last few years, for in 1897 658,700lb were shipped and in 1896 as much as 937,800lb.

SELECTED PRACTICAL FORMULÆ.

OINTMENT FOR SCABIES.

Leistikow recommends the following ointment for scabies:—Beta-naphthol, 77 grs.; precip. sulphur, 150 grs.; storax, powd. pyrethrum, of each 7 drms.; lard, 3 ozs. This ointment rubbed in once a day for three days in succession, during which the patient should wear flannel next the skin.

FLOOR WAX.

Hard paraffin, 3710 Gm.; powdered boric acid, 450 Gm.; lavender oil, 4 Gm.; neroli oil, 20 drops. The paraffin is melted and the other components are carefully added.—*Pharm. Ztg.*, **44**, 135.

INFLUENZA REMEDIES.

(1) For abatement of the fever; lactophenine, 75 centigrammes Send ten such powders. One powder in a wafer or in hot lemonade three times per diem; or lactophenine 50 centigrammes. D.S. One powder every two to three hours. (2) For influenza neuralgia: Lactophenine, 65 centigrammes; quinine hydrobromide, 20 centigrammes. M.f. pulv. One such powder in a wafer or hot lemonade three times a day. Or lactophenine, 3 Gm.; quinine hydrobromide, 1 Gm.; cacao butter, 10 Gm.; mass and divide into five suppositories. One such suppository to be used three times per diem. In the convalescent stage: Ferratin, 30 centigrammes; quinine hydrochloride, 20 centigrammes. To make a powder. One powder to be taken a quarter of an hour after meals three times per diem.—*Pharm. Ztg.*, **44**, 134.

FOR PERSPIRING HANDS.

Borax, salicylic acid, aa 75; boric acid, 25; glycerin, 25; dilute alcohol, 50. This mixture to be rubbed in three times per diem.—*Pharm. Ztg.*, **44**, 134.

TOOTHACHE REMEDIES.

(1) Ol. cajeputi, ol. caryophyll., aa 1.0; chloroform, 2.0. (2) Camphor, chloral hydrat., aa 8.0; spir. menth. pip., 120.0. (3) Ol. caryophyll., tinct. cannab. ind. chloroform p. æqual. (4) Ol. menth. pip., spirit ætheris, tinc. opii, p. æqual. (5) Menthol, 8; ether, 100; ol. caryophyll., 60; extr. aconiti fluid, 4. (6) Ol. eucalypti, 4; mastich, 8; camphor, 45; morphine (alkaloid), 5.5; chloroform, 75; alcohol q.s. ad 150.—*Pharm. Ztg.*, **44**, 135.

SOAP DENTIFRICE.

Powdered hard soap, 20; glycerin q.s. to dissolve with heat. Rub down sufficient carmine and eosine with a little powdered soap, to produce a rose tint, add salicylic acid, 50 centigrammes; oil of star anise, 1 Gm. When cool, a pasty mass will be obtained, which may be put up in suitable pots.—*Bullet. Com.*, **27**, 179.

COURT PLASTER.

Pieces of fine silk (marceline) are stretched on a frame similar to that used in embroidery, which is adjusted until the surface of the material is drawn quite firm and tight. The wrong side of the silk is then coated, by means of a soft brush, with a mixture of white gelatin, 50 Gms. in warm water, 400 Gms. When dry, three or four more coats are laid on of a mixture of fine isinglass, 1 kilo; in warm water, 3.5 kilos alcohol (90 per cent.), 2 kilos; sugar, 100 Gms.; glycerin, 100 Gms.; salicylic acid, 5 Gms. Each coat of the application must be quite dry before the next is laid on while tepid. The silk is finally coated on the other side with a mixture of tincture of benzoin, 1 part, and alcohol (90 per cent.) 3 parts. When quite dry the silk is cut up into suitable squares, and put up for sale in the customary envelopes.—*Pharm. Ztg.*, **44** 15, 127.

PHARMACEUTICAL SOCIETY.

EXAMINATIONS IN LONDON.

July, 1899.

MAJOR EXAMINATION.

Candidates examined	32
„ failed	15
„ passed	17

Bennett, Charles Thomas
Bunting, Sydney
Clarke, Frederick Stanley
Evans, John
Fisher, Sidney Ralph Parkinson
Forster, William
Garbett, Charles
Hirst, Frederick Beaumont
Hyde, Charles
Livesey, Henry Ayrton Alexander
Meadley, George Holmes
Millidge, Philip Henry
Pattison, George
Thackray, Charles Frederick
Vallet, Cyril Edward Franklin
Wheeler, Alice Maud
Wild, Thomas Jabez

MINOR EXAMINATION.

Candidates examined	449
„ failed	317
„ passed	132

Aitken, Robert Douglas
Andress, Richard
Appleyard, Charles Percival
Baker, Cyril Henry
Baker, George Bertram
Barley, Maurice Arthur Hurd
Bathurst, Ernest Frank
Bell, Frederick Alexander
Bell, William Austin
Beveridge, Charles Ernest
Beynon, John Thomas
Birt, Henry
Bloor, Richard Hardy
Bonello, Francis
Boon, John Harold
Bowden, Harry Drysdale
Brown, Joseph Winspear
Bryan, Howard William
Buckingham, Frank Edward
Butler, John Howard
Buxton, Arthur
Cable, Alice Mildred
Carter, Charles Edward
Chafer, James William
Chapman, Herbert
Clarke, Henry Pitman
Clegg, Harry Brook
Coleman, Joseph
Corlett, Thomas Henry
Corrall, George Frederick
Cowburn, Joseph R.
Cowling, Ernest
Davies, David Morgan
Davies, Harry
Davies, Thomas Timothy
Davies, William Osborne
Davies, William Oswal
Dearden, Theodore Ernest
Deck, Reginald
Derbyshire, Charles Henry
Doughton, Samuel Davies
Evans, David Harries
French, George Walker
Gair, Duncan
Glasspool, Alfred George
Gower, Herbert Charles Alfred
Gray, Percy Bunting
Green, John Holt
Griffiths, Edwin
Harger, Clement
Harmer, George Clayton
Harris, John
Hawkins, Philip
Hewlett, Sydenham Arthur
Hill, Thomas
Hobbs, Henry Allmond
Hughes, Richard Osborne
James, William Alfred
Jesson, Albert Robert
Jones, Henry Humphreys
Jones, Hugh James
Lane, Sidney William
Latham, Frank
Lee, Arthur
Legge, Harry George Bernard
Lenton, Walter Henry
Lewis, Arthur Willie
Livesey, George Samuel Theodore
Llewellyn, David Lewis
Lloyd, Gwilym Henry
Long, Edward Frank
McBryde, James
McGhie, John Knowles
McIntyre, George
Maddison, Edwin Robson
Maddison, Thomas William
Manning, Frederick William
Marchant, Walter Sawyer
Martin, Edwin George
Meakins, John James
Miner, William Harold
Morgan, Howell
Normansell, John William
Norris, Harold
Oddy, Herbert
Owen, William Hibbert
Padwick, Kingsley John
Panchaud, Frederick
Patridge, Ernest William
Pettifer, Frank
Pickles, Frank
Pinchen, Colin George
Pratt, Leonard Dudley
Prebble, Ernest
Pyman, Frank
Redpath, Stanley
Roberts, Arnold
Robinson, John George
Rogers, Edward Wilson
Ruoff, Francis Hermann
Saunders, Charles Barnard
Schneider, Edward Paul
Scholefield, William Edward
Shearman, Christopher William
Slatter, Wilfrid Thomas
Snook, John Francis
Sparrow, Arthur Barrington
Spilman, John James
Spooner, William Cushing
Stone, George
Stones, William Henry
Sutcliffe, William
Tasker, Dudley Bayzand
Taylor, Emma Bennett
Taylor, George Alan
Thomas, William John
Thompson, Edgar Joseph
Tilley, Ernest Alfred
Trick, Percival William Clement
Turner, Andrew Harper
Twigg, John George
Waterhouse, Frederick Herbert
Watkins, Alfred
Weiss, Richard
Whitworth, Arthur Upsall
Wigglesworth, James William
Wigglesworth, William
Williams, David John
Williams, William Thomas
Wilson, William Mathew
Woodall, Robert Thomas
Woollatt, Percy Charles

MODIFIED EXAMINATION.

One candidate was examined, and passed.

Knight, Henry

FIRST EXAMINATION.

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's Examination :—

Abelson, Barnett; Merthyr
Barnes, James Hector; Birmingham
Barton, Ernest Alfred; London
Bevis, George Frederick; Portsmouth
Bickley, Benjamin; Chester
Birkett, Wyndham D.; Southampton
Botham, William; Manchester
Brazier, Wilfrid N.; Stourbridge
Butterfield, Greenwood; Dewsbury
Buxton, Sydney; Lincoln
Cleghorn, George R.; Edinburgh
Collitt, Bernard; Gainsborough
Deakin, Walter Woodyatt; Northwich
Dick, Andrew Douglas; Douglas
Eacott, Robert G.; Stone
Fox, Thomas Bevan; Sheffield
Gardam, William John; Ripon
Harvey, Harold Minter; Dover
Hill, William Thomas; Chorley
Holcroft, Charles F.; Bloxwich
Hoyles, Percy; Skedby Manor
Hutchinson, Walter; Headingley
Knape, Henry; Burnley
Longstaff, William Charles; Houghton
Nowell, Arthur Herbert; Handsworth
Oldfield, Leonard; Manchester
Oxley, Harold G.; Brant Broughton
Plattin, Spencer H.; Fakenham
Pounden, Frances R.; Hungerford
Priestley, Joseph; Stonyhurst
Raynor, Edward Joseph; Boston
Ryall, Malcolm W.; Stoke
Scott, Thomas; Glasgow
Shapley, James Bernard; Torquay
Sharp, Henry William; Sherborne
Stoneman, John Edey; Dawlish
West, Francis Paynter; Liskeard
Whaley, Francis Thomas B.; Kingston
Wood, Harold; Clapton
Wray, Sydney Edward; Grimsby
Wreathall, Robert D.; Hull

DENTAL NOTES.

A VOLUMINOUS AND INSTRUCTIVE CATALOGUE has been issued by the Dental Manufacturing Company, Lexington Street, W. Besides being profusely illustrated with all the newest dental instruments and appliances, it contains annotations upon the recent alterations in the British Pharmacopœia, local anæsthesia, some new and unofficial remedies used in dental surgery, microscopical reagents and preparations for histological and bacteriological work; also formulæ of some proprietary lotions and mouth washes. The useful information it contains makes a work of reference. The illustrations are excellent throughout, and the index is well arranged. Our readers will do well to procure a copy.

TO PREVENT TEETH CRACKING WHEN SOLDERING.—Before a tooth is backed, the holes in the metal backing should be countersunk on both sides. This allows for any irregularity of mineral around the pins of the tooth, which would prevent the metal backing if not countersunk, fitting quite flush, and consequently much endanger the tooth during the process of riveting. The pins should only be riveted sufficiently to secure the backing and prevent the tooth shifting. If riveted too tightly, the tooth will invariably crack under fire, owing to expansion of the metal. Whenever possible bend the pins in preference to riveting.

IN TAKING PLASTER OF PARIS IMPRESSIONS, let the patient thoroughly rinse out the mouth with a little milk immediately before the tray is inserted.

AFTER ZINC DIES ARE CAST they should be thoroughly annealed before use in an oven until they are too hot to be held in the hand. This makes them very much tougher and stronger than unannealed dies.—*Ash's Circular.*

ZINC OXIDE AND EUGENOL are recommended in *Items* for making a filling quite equal to the best cement. The eugenol should be made to take up as much zinc oxide as possible without becoming crumbly. It is valuable for covering the floor of deep cavities previous to filling, and as a covering for dressings, or where a non-irritating thermol protector and antiseptic filling is required.

LIQUID DENTIFRICE.—A preparation which has a considerable reputation in France as a liquid dentifrice is stated to be composed of alcohol (96 per cent.), 1,000; Mitcham peppermint oil. 30; aniseed oil, 5; oil of *Acorus calamus*, 0·5. Finely powdered cochineal and cream of tartar, of each 5, are used to tint the solution. The mixed ingredients are set aside for 14 days before filtering.—*Brit. Jour. Dent. Science.*

THE STUDENTS' COLUMNS.

ZOOLOGICAL NOTES FOR PHARMACISTS.—XVII.

Distribution.

The distribution of animals is studied from two points of view—horizontally—in which case the surface of the earth is divided into certain regions, each having a more or less characteristic fauna—or vertically—where they are grouped according to the vertical position of their habitat from sea bottom to mountain top. In the first case the position and limit of these zoo-geographical regions can only be satisfactorily determined by a study of such forms as are prevented from dispersal by various disabilities, such as inhabitants of fresh water incapable of existence in any other medium, and terrestrial forms which can neither fly nor swim, nor are small enough to be carried away by winds, and so have no natural means of migration from their original place. In such a determination the comparatively shallow seas and straits which have been formed within geological time, such as between England and Europe, Spain and N. Africa, and Papua and Australia, are of no account compared with lofty mountain ranges as the Himalaya, and vast uninhabitable deserts as Sahara, which have been impassable barriers during the history of the animal kingdom.

In the vertical arrangement we have marine, freshwater, aerial, terrestrial, and alpine fauna. The marine fauna are divided into littoral or shore animals, pelagic forms, or such as appear in the open sea at or near the surface, and deep sea animals, occurring at vast depths. The mass of floating organisms is again spoken of collectively as the "plankton," whilst such as freely move of their own accord constitute the "nekton," and those that remain fixed or creeping on the bottom of the sea form the "benthos." The following is a rough indication of the range and habitat of the more interesting groups that have been mentioned:—

Protozoa.—Very widely distributed, chiefly in fresh water. Mycetozoa are terrestrial, and Foraminifera and Radiolaria are exclusively marine.

Porifera.—All marine, with the exception of one family which occurs in fresh water, appear in all seas and at all depths, the deep-sea forms being of the non-calcareous siliceous type.

Hirudinea.—Mostly freshwater inhabitants. A few are marine, and several species of land leeches infest tropical forests in all parts of the world.

Cephalopoda.—All marine, some littoral, many pelagic, and most abundant in warm seas.

Pisces.—The subdivisions and orders of this large class are so widely distributed over the world both in sea and fresh water that it is almost impossible to define the limit of any group higher than a family or genus. The Ganoid fishes, which include the sturgeons, inhabit fresh water except in one or two cases, and are confined to rivers of the Northern Hemisphere. The various species of Gadus, with the exception of one deep-sea form, frequent the shore in temperate regions, as do most other fishes used as human food. Gadus is common round the north temperate shores of Newfoundland, Norway and the British Islands.

Aves may be terrestrial or aerial in their habit. The large majority are aerial, and include all such as are able to spend any length of time on the wing. Terrestrial birds are either entirely or almost flightless such as the ostrich and its allies and the Gallinæ, which order includes poultry and game. Many Gallinæ, as the domestic fowl, are natives of E. Asia and the E. Indian Archipelago.

Mammalia.—Cetaceans are marine with few exceptions, the Balœnidæ are usually sought for in cold regions, but Physeter is found in temperate and warm seas. Australia and Polynesia appear to have no native ungulates. The ox belongs to the old world with the exception of one North American species, the bison. The sheep, more or less Alpine in its native habit, belongs originally to W. Asia, America has one species and Africa one. Deer are pretty widely distributed and are frequently Alpine in habit. Moschus is a native of the Himalaya and mountains of S.E. Asia. The true swine are confined to the old world, whilst rodents are most widely distributed, Castor being a native of Europe and North America.

EXPLANATORY NOTES ON THE B.P. 1898.

Pilulæ.—The official formulæ for pill masses have been subjected to considerable alteration so far as their excipients are concerned. In numerous instances the new syrupus glucosi has replaced the confection of roses, syrup, glycerin, and treacle in the various 1885 B.P. formulæ. Owing to the *slightly* hygroscopic nature of glucose, pill masses made with syrup of glucose are not so apt to get hard and unworkable as those made with simple syrup or confection of roses; on the other hand they are not so sticky as those made with glycerin and treacle. Moreover pills cut from masses containing much glycerin usually remain too soft, and have a tendency to "sweat" and stick together. Probably, therefore, the substitution of glucose for the other excipients will prove to be advantageous in most cases. It should always be remembered that the official formulæ are constructed for the most part to yield masses from which portions may be cut and rolled as required. Apart from the changes in excipient, the following are the chief alterations in composition to be noted:—

PILULA ALOES ET MYRRHÆ.—The saffron is omitted on economic grounds, since it is not now credited with possessing any useful pharmacological action.

PILULA FERRI.—Exsiccated ferrous sulphate and sodium carbonate are employed in place of crystallised ferrous sulphate and potassium carbonate (which contains about 16 per cent. of water). The exclusion of the water of crystallisation contained in the two latter salts enables one to effect the reaction between the iron salt and the alkaline carbonate in the presence of a relatively considerable quantity of syrup and glycerin, which protect the ferrous carbonate, owing to the well-known property possessed by syrup and glycerin of retarding the oxidation of ferrous to ferric compounds. If the hydrous salts were employed under these conditions, the mass produced would be so soft and aqueous that an undue proportion of gum acacia and tragacanth would be required to produce a plastic pill mass. In making pilula ferri according to the new formula, care should be taken to see that the salts employed are really free from water, since a very small quantity of water so introduced will produce a paste instead of a pill mass.

PILULA PHOSPHORI.—The phosphorus in place of being incorporated in a melted condition with balsam of tolu and yellow wax is to be added in the form of a carbon bisulphide solution to a mixture of lard and white wax. The alteration in strength should be carefully noted, the present formula being approximately twice as strong as that of the B.P., 1885.

The omissions comprise three pill masses: pilula conii composita, which has practically fallen into disuse; pilula ferri carbonatis, which is replaced by pilula ferri, and pilula ferri iodidi. The last mentioned is acknowledged to be an unsatisfactory form in which to administer ferrous iodide.

The only addition to the official formulæ is pilula quininæ sulphatis. The formula adopted may be regarded as deciding the question which has often been debated—whether the addition of tartaric acid in making quinine pills was admissible or not. Tartaric acid undoubtedly enables a much smaller pill to be produced from a given weight of quinine than can be obtained by the use of ordinary plastic excipients alone, such as syrup, glycerin of tragacanth, etc.

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WHAT DIRECTION IS PHARMACEUTICAL LEGISLATION TO BE ATTEMPTED?

SINCE the publication of the suggestions submitted to the LORD CHANCELLOR as expressing the views of the Pharmaceutical Society's Council in regard to amendment of the Pharmacy Act, 1868, there has been abundant evidence of the interest taken in this subject by chemists throughout the country. At most of the more important provincial centres the details of the suggestions have been discussed at meetings of the respective local associations, and resolutions have been passed which invariably express sympathy with the general principle embodied in the suggestions put forward by the Council as the mouthpiece of registered chemists throughout the country as well as members of the Pharmaceutical Society. As stated by the late President, Mr. WALTER HILLS, when moving the adoption of the report of the Law and Parliamentary Committee last February, the suggestions then made really involve a reversion to the principle, underlying the Pharmacy Act, 1868, that the keeper of a chemist's shop should be legally qualified as that Act provides, and they propose a remedy for the departure from that principle which has resulted from a defect in the Act; they also propose legislative extension of that principle to the compounding and dispensing of medicines, by which the object of pharmacy law would be more completely attained, in the public interest, and the business of the chemist would acquire a more professional character, in conformity with the practice of other countries. In that respect the Council's suggestions have received unanimous approval, as shown by the resolutions passed in regard to them, first by the Dewsbury Association and subsequently by other Associations, as well as by the remarks of the honorary secretary of the North East Lancashire Chemists' Association, who has on various occasions given particularly emphatic expression to the view that the qualification demanded by the State in connection with a chemist's business confers on qualified persons exclusive right to use the title of chemist in that connection. But in other respects approval of the suggestions has been in several instances more or less qualified by considerations relating to various subordinate details, such as interference with the exemption now provided for the continuance of a deceased chemist's business by executors and for the benefit of the widow; the practicability of the proposed restriction of the sale of medicines, and questions as to the practical teaching of dispensing to apprentices. Objections raised on these grounds have been to some extent the result of "misconception"; but in relation to what is known as the widows' clause of the Pharmacy Act they appear to have been of such a nature as to raise the question whether the chemist's business is to be regarded only as a branch of trade or as having a distinctive professional character.

Having regard to the various published expressions of opinion relating to amendment of the Pharmacy Act, the question just referred to appears to be the point on which there is a distinct diversity in the views held by chemists as to what is desirable in their own interest. While the advocates of endeavouring to acquire professional status, in accordance with the ideal of the Pharmaceutical Society, recognise that any kind of exemption from the necessity for qualification of the proprietor of a business would be inconsistent with the claim for exclusive privilege of qualified persons, others—regarding the matter from a trade point of view—are unwilling to sacrifice the advantages sometimes attaching to the opportunity afforded, under the existing law, for carrying on a business after the death of the qualified proprietor. Whether these two different views can be reconciled in any practical manner by chemists among themselves remains to be seen; but, in the absence of any definite proposal having that object, attention may be drawn to the circumstance that when the subject of pharmaceutical legislation has been hitherto considered from the public point of view, apart from the interests of chemists themselves, the tendency has always been to regard their business as a trade and to favour the view that qualification of the proprietor of a chemist's business is by no means essential, but that, in the public interest, every requirement would be satisfied by the personal qualification of the individuals engaged in carrying out the operations connected with a chemist's business. That was certainly the view taken by the House of Lords, in preference to the one contended for by the Pharmaceutical Society which has always sought to make personal qualification of the proprietor or proprietors of a pharmaceutical business the prime necessity for the proper conduct of that business, as well as for the control, superintendence, and teaching of assistants and apprentices. It is probably the more popular view of the matter which has induced the LORD CHANCELLOR to propose an amendment of the Pharmacy Act that would, as he thinks, sufficiently remove the present anomaly, resulting from judicial construction of the Act, which has enabled companies to assume the title and carry on the business of a chemist without even necessarily employing qualified assistants.

In addition to the difficulty already referred to, as surrounding amendment of pharmacy law, and arising from old standing internal differences of opinion, there is another serious difficulty which has been created from without through the exercise of the chemist's business by unqualified persons incorporated under the Companies Acts, and, therefore, outside the scope of the Pharmacy Act,

1868, according to judicial construction of it. On that point also there is important difference of opinion among chemists. On the one hand, some have argued that since the House of Lords' construction of the Pharmacy Act, 1868, has proved so subversive of the obvious public purpose of the Act, and so prejudicial to the just claims of qualified persons, there is—from a common-sense point of view—ample opportunity afforded for seeking amended legislation to remedy the defects of the Act. But with many others, disinclination to accept the other consequences of such an amendment has prevailed to such an extent as to prove an insuperable obstacle. Meanwhile, companies constituted of unqualified persons have obtained a footing, and on that account are disposed to claim that they have thus acquired a vested interest which entitles them even to act in direct opposition to the spirit of the provisions of the Pharmacy Act. That such a position should be taken by the companies referred to is more intelligible than the objection made, on that account, by chemists to the Council's suggestions. But the fact must be recognised that this particular objection to the Council's suggestions has recently met with increased support from chemists, and has even found some expression in the Council without calling forth, in either case, any countervailing manifestation of preference for taking a line of action that would dispute the claim made by companies of unqualified persons. Under all these conflicting conditions the prospect of obtaining practically unanimous support from all registered persons seems to be at least as remote as that of securing the equally indispensable support from the Government, and in the absence of these two factors, so essential to success, the outlook of pharmaceutical legislation is at present far from being encouraging.

"PLYMOUTH RE-VISITED."

JUST as we go to press, an advance copy has been received of a handbook bearing the above title, which has been specially prepared by the Plymouth Local Committee for presentation to the members of the British Pharmaceutical Conference who attend the meeting next week. The contents of the book include a detailed programme of the coming week's proceedings, a well-written and most interesting article on Plymouth and its history, by Mr. HANSFORD WORTH; a brief sketch of the geology of Plymouth, by the same capable writer; a practical guide to the flora of Plymouth, by Messrs. E. M. HOLMES and O. A. READE; photographic notes by Mr. J. DAVY TURNEY, the untiring Local Secretary of the Conference; cycling notes by Mr. W. H. WOODS; and some useful information compiled for the use of visitors by Mr. A. D. BREEZE. The illustrations include portraits of Mr. J. C. C. PAYNE, J.P., President of the Conference, and of the members of the Local Executive Committee, in addition to a number of superbly printed photographs by Messrs. HEATH AND CO. It would be impossible to speak too highly of the manner in which the work of printing has been performed by Mr. J. H. KEYS, of Plymouth, who is evidently a perfect master of his art. In conclusion, we must congratulate the Plymouth Local Committee on the brilliant realisation of an excellent idea, and also the members of the Conference who are to be the fortunate recipients of such a beautiful souvenir of Plymouth and its surroundings.

ANNOTATIONS.

THE QUALIFICATIONS WHICH ENTITLE an individual to practise as a doctor or a dentist should, in the opinion of *Truth*, be defined by law, and practice without those qualifications should be made a punishable offence. Everything short of that is held to be "mere tinkering." That view as to desirable regulation of medical practice is heartily echoed by the *British Medical Journal* as a "sentiment" affording reasonable hope that public opinion may be brought to perceive that such an amendment of the medical acts is necessary for the public weal, and the expression of opinion by *Truth* is valued because the general tendency of that paper is not in the direction of advocating any form of restrictive legislation unless there be strong and good cause shown for it. The further opinion expressed by *Truth* in regard to the Lord Chancellor's proposed legislation affecting the practice of pharmacy may for the same reason be regarded as affording pharmacists some ground for hoping that their qualifications will also meet with recognition from the public and the Legislature similar to that thought desirable in the case of medical practitioners.

THE MEDICAL AID ASSOCIATION DIFFICULTY is referred to in this week's issue of *Truth*, where it is stated that the only possible objection to the arrangement by which subscribers to "a sort of club" are entitled to medical attendance in return for their subscriptions, rests on trade union grounds. It is presumed that the view of those doctors who object to the practice is that it enables the members to obtain medical advice at lower rates than they would have to pay as individual patients consulting a doctor on their own account. The doctor, therefore, who thus contracts for his professional services is to be treated as a "blackleg" and struck off the Register. As a matter of principle, it appears to *Truth* that if the professional union—the General Medical Council—thus attempted to restrict the liberty of the doctors to make general contracts for medical attendance, it would very considerably strain its statutory powers; and it is questioned whether Parliament, had it ever seen the matter in this light, would have given to a professional organisation powers capable of being used for such a purpose. But, however that may be, the proposed interference with the Medical Aid Associations is thought likely to prove in practice extremely unjustifiable and ill-advised. "The members of those Associations are poor people, who in the ordinary way could not afford to employ such a doctor. The result, of a professional boycott of such associations would simply mean, therefore, that the members would go to the nearest hospital, where they would obtain advice gratis." Again, it is asked, how does a contract on the part of a doctor made with a body of patients collectively differ in principle from the contracts which are frequently made by doctors with patients individually? Suppose, for instance, that a private individual compounds with his medical attendant, as many people do, on the terms that he is to have the doctor's services for himself and household, whenever required, for a payment of fifty pounds a year. It may happen that there are one or two bad illnesses in the house, or a serious epidemic which affects the whole family, with the result that at he end of the year the payment to the doctor per visit works out at about one-half what he would have charged had he been paid by the job, instead of by contract. How, asks *Truth*, does this differ from the case of the club? In conclusion, it is pertinently remarked that if the medical profession are wise they will be very careful how they stir up the many ticklish questions connected with professional attendance by contract.

THE PLYMOUTH CONFERENCE ARRANGEMENTS are now complete and no more tickets can be issued for the meeting next week. Of course, any member of the B.P.C. is entitled to attend the

Sessions of Conference, but unless he has previously procured tickets from the Hon. Local Secretary, he will be unable to take part in any of the festivities arranged for by the local Committee. With respect to the garden party at Down Park, Yelverton, invitations to which are being sent by the Mayor and Mayoress of Plymouth to everyone who has applied for books of tickets, it is suggested that brakes should be engaged to convey the visitors from Plymouth. The distance is about ten miles, and Yelverton can be reached by train if preferred, but if brakes were engaged, the party would drive round Roborough Down—the southern edge of Dartmoor—and after attending the garden party the drive would be continued to Burrator, where the wonderful new reservoir is to be seen, over the dam to Sheepstor, and then over the moor to Plympton, arriving at Plymouth again about 8.30 p.m. The fare for this drive would be about 4s. per head, and those who would like to drive rather than go to Yelverton by train must communicate at once with Mr. C. J. Park, 23, Mutley Plain, Plymouth. The general travelling arrangements were referred to at length last week, but it may not be amiss to state that any member of the Conference can secure tickets for Plymouth for himself and friends at a single fare and a quarter each for the double journey, from any station on the Great Western, Midland, and London and South-Western systems. A certificate signed by Mr. W. A. H. Naylor must be forthcoming for each person for whom a ticket is required, and will be supplied by him on receipt of a stamped addressed envelope at 38, Southwark Street, London, S.E. The special tickets will be issued from July 22 to July 28, and will be available for return up to and including Saturday, July 29. The London and South-Western Railway Company also intimates that, during the sitting of the Conference, return tickets at the single-journey fare (minimum 1s. 6d.) will be issued to members upon production of their cards of membership, or letters of invitation to the meeting, from Plymouth station to any station within a radius of fifty miles. The tickets will be available for the return jouney on the day of issue or the following day.

The Apotheker Verein of Germany holds its annual meeting this year at Danzig, commencing on August 21 and lasting until the 26th. This meeting corresponds to the annual meeting of the Pharmaceutical Society, and the sittings are chiefly occupied with the discussion of political matters affecting the interests of German pharmacists as well as the administrative affairs of the Association, for which purpose the numerous local branches of the Verein are represented at the annual meeting by delegates, who alone are entitled to give a vote in the decision of any question brought before the meeting for consideration.

The Federation of Local Pharmaceutical Associations is announced to hold its annual meeting at Plymouth, on Wednesday, July 26, when the usual reports will be received, officers elected, and resolutions proposed by delegates from affiliated associations. Mr. J. Smith, of Liverpool, will propose that nominations of Local Secretaries of the Pharmaceutical Society should proceed from local associations and their committees, and that the Society's Local Secretaries should be appointed by the associations to represent them on the Federation, also that a closer co-operation between local associations and the Society's local secretaries should be aimed at. Mr. C. J. Park, of Plymouth, will propose that each association shall have the right to appoint one delegate for each twenty-five members. The Burnley and District Chemists' Association desires the appointment of an organising secretary, but that modest requirement is quite overshadowed by the suggestions of the North-East Lancashire Chemists' Association. In the first place, that body is of opinion that it is the urgent business of the Federation to bring about early and full discussion of the policy of the Council of the Pharmaceutical Society, "with a view to eliminating fallacious ideas (*sic*), and uniting the country upon definite lines." There is to be the "earliest possible" settlement of the question of chemists' titles, and a "large" extension of Part II. of the Poison Schedule. But, over and above all this, the Lancashire contingent is to propose a brand new constitution for the Federation. All the affiliated associations are to be arranged in sectional groups — North Eastern, North Western, Midland, Southern, and Scottish — and the representatives of all the associations in a group are to meet at a convenient centre whenever occasion requires. This reads somewhat like a parody of Mr. G. T. W. Newsholme's suggestions for the improvement of local organisation. Again, the representatives of each section are to constitute the Executive Committee of the Federation, which may be called together at any time during the year if requests to that effect be received by the Secretary from the representatives of three sections. The Secretary is also to make further attempts to secure the adhesion of all associations not yet affiliated with the Federation, and to do various other things which honorary secretaries have so far, and not unreasonably under the circumstances, found it difficult to spare time to do. In fact, what looks remarkably like a revolution of the Federation is threatened, and after that has been effected other marvels in the world of pharmacy may doubtless be anticipated.

The Sale of Proprietary Articles was the subject of a paper read by Alderman Ireland, J.P., of Dublin, at the meeting of the Federation of Grocers' Associations last week, in which he urged that the time has come when owing to the extent that proprietary articles are being forced on the retail trader by every conceivable method—it should be considered how best their introduction can be stopped and a system devised whereby each trader shall purchase every article from the manufacturer and sell it as his own, on its own merits, with his own name attached and not that of another. In view of the extension of the pernicious system of cutting prices adopted by so many dealers in proprietary articles, and the difficulty of maintaining a standard price, the discouragement of the sale of proprietary articles of all kinds—by every fair and legitimate means—was strongly advocated. Otherwise it becomes a question whether the necessity of learning a business will continue to exist, as it would appear to be only necessary to employ assistants who are capable of handing over packages received from the manufacturers, the result being that the trader is simply living and working for the manufacturer. It was recommended that every trader, if he be a judge of his business, and one who has commenced at the bottom rung of the ladder, should buy an article on its merits, and put his own name on it. Though a little time may elapse before his customers will appreciate the article, yet if it be the right article and that which he states it is, they will soon find him and it out, and he will very soon make a name and reputation for himself rather than for another. It was contended that the retailer who best caters for his customers and the public is one who knows his business best. But to vend proprietary articles no knowledge is required, and those people who have the least knowledge of the business they are engaged in are the persons who do the most cutting.

Anæsthesia Extraordinary ought to have been the heading of a paragraph which recently appeared in the *Daily Telegraph*, a medical student at St. Thomas's Hospital having sent the following contribution to the history of anæsthetics: A pet tortoise, owned by a lady in South London, was badly worried by the house-dog, so the owner decided to have the maimed reptile put out of existence. A friend, a medical student, undertook to achieve the business of killing with a minimum of pain, so he placed the thing in a box along with a duster saturated with chloroform. "The next

morning it was found that the dog, which had apparently jumped on the box with the idea of again mauling his victim, had been overcome by the fumes of the substance escaping out of a hole in the receptacle, and was lying dead, while the tortoise, which had been doomed to destruction, was alive and comparatively brisk in its movements, and looked as though it had considerably benefited by the chloroform." Now, it so happens that it is extremely difficult to kill dogs by means of chloroform, and the account of the manner of this particular dog's death is distinctly lacking in the sense of reality. Indeed, on the whole, it is not unreasonable to assume that the medical student, after the manner of his kind, was simply attempting to gauge the credulity of the *Daily Telegraph*.

THE HANDLING AND SALE OF POISONS require great care and discrimination on the part of the pharmacist, as the *Pharmaceutical Era* points out in a recent issue, and so far as the British pharmacist is concerned that care and discrimination are displayed almost invariably. He usually takes precautions far in excess of what the law calls for, and, as a result, accidents caused by poisons which have been sold by a registered chemist are of the extremist rarity. The common sense and knowledge of human nature possessed and used by him are considerable; he knows the legal requirements governing the sale of poisons, how poisonous substances should be labelled, and, more often than not, the probable disposition of the poison by the customer. Not only does he carry out the provisions enumerated by the law; in addition he imposes upon himself others, dictated by common sense and business foresight—labelling every poisonous substance he sells, calling the attention of the customer to the dangerous nature of the substance bought, ascertaining definitely whether it is the substance wanted, and advising the customer not to keep it along with harmless household medicines. But, assuming that all or most of the above-mentioned precautions are taken by registered chemists in Great Britain, their attention may nevertheless be directed profitably to the *Era's* suggestion that it is within the power of the pharmacist to instruct the public, through his customers, of the necessity of reading carefully the directions placed upon every package or bottle of medicine before any of it is administered or used in any way. "Not only should the directions placed upon the usual domestic remedies be understood, but those placed upon proprietary medicines as well. Great good may come from instruction of this character, and it is the duty of every manufacturer of any remedy to place upon it in language that cannot be misunderstood, full directions and instructions for administration and use. These remarks are emphasised by the many fatal accidents which have resulted within the past year from too careless administration of proprietary headache powders and other remedies. Let the pharmacist disseminate information of this character, whenever and wherever possible. Such a course costs him nothing, and it may be the means of saving a human life."

A DIPLOMA AS A PRE-REQUISITE TO EXAMINATION is regarded as a necessity of the times by many American pharmacists, but a discussion upon the subject at the latest annual meeting of the New York State Pharmaceutical Association ended in a majority voting adversely to the proposal. It should be explained that the possession of a diploma in pharmacy does not, of necessity, imply the right to practise pharmacy in the United States. A student may go through a three years' curriculum at one of the leading colleges, and gain a so-called degree in pharmacy, but he must yet present himself for examination before the State Board of Pharmacy before he can obtain a licence to practise. And, it may be remarked parenthetically, considering that candidates are at liberty to present themselves for examination before State Boards without being required to show proof of having undergone any course of training or study, the conduct of those who take a two or three years' course at a college is worthy of all praise. According to the *Pharmaceutical Era* the sentiment in favour of insisting upon the production of a college diploma prior to examination for the licence to practise pharmacy is fast growing, and though the objectors urge that the colleges do not give the right sort and amount of education, when it is demanded of them they will be forced to provide it or go out of business. The diploma, it is pointed out, is not to be considered evidence of all that is desired, it is merely to be a pre-requisite to examination by the Board of Pharmacy. It does not take from the Board any of its powers, but gives the Board the additional power of insisting upon an additional acquirement, to guard more stringently against the registration of imperfectly qualified men. Such a regulation would soon eliminate the inferior colleges, as their graduates could not pass the examination by the Board, and there would quickly be established among the reputable colleges that uniformity of standard, the lack of which has long been their weak point. The diploma requirement would not cause hardship to anyone. "No rights will be taken away from any now in business, while to those yet to enter the profession it guarantees protection against incompetents and nincompoops, and, what is better still, it insists that they, themselves, shall secure a sound, systematic and thorough education. Some think this a hardship, it is really a blessing. Two or three years at a college costs no more in money or labour than several years in a store performing the multitudinous duties of 'the boy' and the unregistered clerk." By requiring a young man to be properly equipped for the profession he would not be abused or injured in the least, but rather receive a favour and benefit for which he would ever after be deeply grateful.

THE PROPOSAL OF THE CHEMIST to do all in his power to prevent the syndicate druggist from trading as a pharmaceutical chemist, even though he employs properly qualified assistants, will, according to Mr. A. J. Giles, Secretary of the Federation of Grocers' Associations, who writes to the *Grocer*, have no chance of becoming law for the present unless the chemists can induce Lord Dudley to alter his Companies Bill. But, he thinks, although there seems no likelihood of a new Statute dealing with the question, the syndicate druggists have put themselves into a strong position of defence, with a "war chest" that will enable them to resist the attack vigorously. It will be well also, he says, for the ordinary retail distributor to watch carefully the action of the Pharmaceutical Society, "whose every move is directed towards an extension of that monopoly which is injurious to the public interests as well as to the trader." It is, of course, needless to say that the injurious "monopoly" is not defined by Mr. Giles, who, like most other writers who take his prejudiced view of the matter, is fond of writing vaguely when he has no case. He contents himself with asserting that the basis of the claim for this "extension of monopoly" (*sic*) is the safety of the public, and that the weakness of the claim is to be seen in the frequent reports of cases in which poison has been carelessly sold in chemists shops with sad results. Again, it is hardly necessary to state that Mr. Giles does not quote a single instance in support of his utterly erroneous statement. He merely strings words together recklessly, and incoherently asserts that "the chemists want to keep the selling of all pharmaceutical preparations in their own hands, they most unhesitatingly go into the grocery trade, and invade the doctor's realm by prescribing as well as dispensing, and the result in both cases can hardly be said to be perfectly satisfactory to the public." Having travelled so far over his uncertain ground, Mr. Giles clumsily retreats, but as he does so he throws a quasi-Parthian shot by stating that there is every reason for the retail grocer to support the syndicate druggist in the action which he is taking to resist the granting of "further powers of monopoly" to the chemist.

PLYMOUTH REVISITED.

After the lapse of twenty-two years, it is not unreasonable to assume that only a comparatively small number of those who are actively engaged in the practice of pharmacy retain very vivid impressions of the place where the members of the British Pharmaceutical Conference assembled in 1877, when the late Professor Redwood presided and a most successful meeting was held. For the benefit of the newer generation of pharmacists, therefore, the following brief notes are published on the eve of the 1899 meeting at Plymouth.

The town is situated in the extreme south-west of Devonshire, and as far as surrounding natural beauties are concerned, it cannot be equalled in England. The beautiful river Tamar separates it from Cornwall on the west; it is bounded by the Plym on the east; Plymouth Sound forms a superb frontage to the south, and on the northern side the tors of Southern Dartmoor constitute an appropriate and picturesque background.

As a centre for holiday makers, Plymouth is unsurpassed, excursions innumerable offering themselves alike to pedestrians, cyclists, and those who prefer to travel by coach, steamer or railway. The rivers Tamar, Tavy, Plym, Lynher and Yealm are available for oarsmen; steamer excursions to Looe and Fowey, Torquay, Dartmouth, etc., enable visitors to gain a fair impression of the Devon and Cornwall coasts; Dartmoor offers much more variety in the form of walks and climbs than can be found in most other districts; and anglers, antiquarians, botanists and geologists can find unstinted employment and recreation on every hand.

Plymouth may be conveniently reached by sea, road, or rail, and intending visitors who have not yet decided whether to travel by steamer, cycle, or railway would do well to consult the pages of Ward, Lock and Co.'s illustrated guide to Plymouth (price 1s.), which contains a useful plan of the Three Towns—Plymouth, Stonehouse, and Devonport, and a map of South Devon, in addition to a mass of information of the most varied character.

The Three Towns, considered as a whole, constitute the capital of the West Country, and owing to their situation partake in great measure of the characteristics of both Devonshire and Cornwall. At the same time Plymouth, Stonehouse, and Devonport are three distinct entities, each having its own local governing body. Plymouth proper lies to the east, where the commercial harbour is found; Devonport, to the west, is the site of Britain's greatest naval arsenal; and Stonehouse—sandwiched in between the other two, with no further outlet for expansion—is the connecting link which virtually makes the three towns one, with a population approaching two hundred thousand.

Two hamlets named Sutton appear to have existed originally where Plymouth and Devonport now stand, and Sutton-super-Plymouth, as Plymouth was formerly named, took rank as a leading seaport at a fairly early period in the history of England. In the year 1287 it was the port of rendezvous for the fleet of more than three hundred ships, which took part in the expedition to Guienne. The following year Plymouth sent its first deputies to Parliament, and from that time onward the town has been prominent in many ways. The defeat of the Spanish Armada was an event that very closely interested the inhabitants of the seaport where the English fleet lay waiting for the foe whose world-wide power it was to destroy utterly. The captains of the fleet—Drake, Hawkins, Raleigh, Frobisher, Grenville, Howard, and many others—were whiling away the time with a game of bowls on the "Hoe," when a comrade brought the news that the Spanish vessels had been seen, and is not the story familiar to everyone how Drake insisted upon finishing the game, observing that there was time enough to do that before thrashing the Spaniards? The Civil War found Plymouth on the side of the Parliament, and it resisted sieges and blockades for four long years. It is also famous for the fact that the passengers of the "Mayflower" last touched English ground ther in 1620, a record on the Barbican bearing witness to the event. But it is needless to deal further with the history of the town in these pages, as it receives full consideration at the hands of an expert in the handbook prepared by the Local Committee at Plymouth for presentation to all who attend the meeting next week.

Arriving in Plymouth at the Great Western Railway terminus, it is but a few minutes' walk to the Hoe, one of the most famous and attractive promenades in England, and, not without reason, described as the most breezy and pleasant open space in South Devon. The Hoe Park slopes upwards from the town towards the asphalted plateau, with its winding paths and artistically laid out flower beds, the Spanish Armada Memorial, and a statue of Sir Francis Drake. On the seaward side of the Hoe are grassy slopes intersected by winding paths and steps leading to the carriage way, which skirts the waters of Plymouth Sound. The promenade pier here provides a convenient landing place, and also serves as a pleasant lounge. The pavilion at the end of the pier is one of the favourite resorts of visitors, and will be a familiar spot to British pharmacists before many days have passed. Bathing accommodation is provided close by and can be indulged in by ladies at any time of the day. The Citadel, a fortification erected by Charles II. to overawe the town, and the Royal Marine Biological Laboratory, are also near the Hoe, and both will be found well worth a visit of inspection. To the east of the Laboratory is Sutton Pool, the ancient harbour of Plymouth, a creek of the Cattewater where the English fleet lay in wait for the Armada. The Barbican adjoining, where the fish market will be found, is the oldest portion of ancient Plymouth and the point from which the town radiated. The inscription commemorating the sailing of the "Mayflower" will be found there as well as many curious examples of old-time architecture.

Of the buildings in the town, it must suffice to refer to those with which the members of the Conference and their friends will become chiefly acquainted. In the first place, there is the Royal Hotel, the headquarters of the Conference. The Hotel is quite near to the Hoe, and the Assembly Rooms there will be open all day whilst the meetings continue. The meetings are to be held in the Western Law Courts, which are close at hand, as is also the Corn Exchange, where the luncheons will be served. The exact relative position of these and other buildings of special interest can be ascertained readily by reference to the plan printed in the pink circular and reproduced on a smaller scale in the special handbook which has been prepared. The Guildhall and Municipal Buildings are well worth a visit, and St. Andrew's Church (the mother church of the district) possesses many points of interest. It is said to be one of the finest parish churches in the kingdom and a thoroughly typical example, with its long nave and aisles and waggon roof, of the characteristic Devonshire church architecture of the Perpendicular period. The Athenæum is the home of the Plymouth Institution and of the Devon and Cornwall Natural History Society.

A capital system of trams enables visitors to get about Plymouth with ease, and Stonehouse and Devonport are quickly reached by this means. Keyham Yard, at Devonport, is the most extensive place in the world for the repair and fitting out of war steamers. Government buildings occupy the foreshore of the Hamoaze, as the estuary of the Tamar, used as a great naval anchorage, is named. The Royal Albert Bridge, one of Brunel's greatest triumphs, crosses the Tamar at a height of a hundred feet above high water, and touches the Cornish bank at Saltash. Down stream are to be seen miles of warships of various types, from old-fashioned three-deckers to the speediest torpedo boats and destroyers. The victualling yard is at Devil's Point, opposite which are the beautiful wooded heights of Mount Edgcumbe. The Royal Naval Hospital is at Stonehouse. But space will not permit even of a mere enumera-

tion of all the places of interest in and about the Three Towns The local Committee's handbook must be referred to for fuller information, whilst the illustrated guide already mentioned may be profitably consulted for descriptions of short walks around Plymouth; excursions by river and sea; longer excursions by rail, road, or moorland track; and short excursions into Cornwall. It is enough to say that—given even moderately fair weather—the most critical taste should find satisfaction in the capital of the West Country and its surroundings, and that pharmacists who may decide to spend a holiday in the district are certain to come away contented with the results of their visit.

FORMULÆ, METHODS, AND REACTIONS,

KNOWN BY THE NAMES OF THEIR AUTHORS.

(Supplementary List.)*

McClellan Forney (Alcohol and Turpentine in Essential Oils).—Mix 5 drops of the oil with 1 drop of iodine pentabromide. See *Am. Journ. Pharm.* for 1882, p. 546.

Mack (Strychnine).—With sulphuric acid and manganese dioxide, strychnine gives a dark blue colour, which changes to violet, pink, and yellow.

MacMunn (Indican).—This is a modification of Hammarsten's reaction, in which the urine is treated with hydrochloric acid and a few drops of nitric acid instead of with chlorinated lime solution.

MacWilliam (Albumin).—A concentrated aqueous solution of salicyl-sulphonic acid gives a white precipitate with albumin. The precipitate dissolves, on heating, in the presence of albumoses or peptones, and separates out again on cooling.

Magnier de la Source (Uric Acid).—Triturate the sediment from urine with water, add a few drops of bromine water, and evaporate. If uric acid be present the residue is brick-red; on dissolving it in potassium hydroxide solution a blue colour results, but with ammonia the solution is purple.

Maier (Iodine).—A blue colour is produced on adding a very dilute solution of potassium iodide to a solution of an iodide mixed with starch paste and sulphuric acid.

Maier (Turpentine in Essential Oils).—Note the optical behaviour of the oils in a polarising apparatus. See *Am. Journ. Pharm.*, **37**, 338.

Maisch (Croton Oil).—Oils suspected to contain croton oil are treated with alcoholic potash solution, water and hydrochloric acid are added to the separated alkaline layer, and the oil which separates is applied to the skin. A peculiar eruption is the result if croton oil be present.

Maisch (Essential Oils).—Note the appearance (1) on letting 1 drop of bromine fall upon 5 drops of oil in a watch-glass, (2) on adding 5 drops of ethereal solution of bromine (ether 5, bromine 1) to 5 drops of oil. See 'Proc. Am. Pharm. Assoc.,' for 1859, p. 338.

Maisch (Nitrobenzol in Almond Oil).—(1) On shaking 2 or 3 C.c. of the oil with half its weight of fused potassium hydroxide a reddish-yellow colour is produced which quickly changes to green; on adding water a green layer separates and turns red within twenty-four hours. (2) Dissolve 1 part of the oil in 12 of alcohol, add 9 of potassium hydroxide (? solution) and evaporate to about 14. If the oil be pure the residue is brownish red, contains no crystals, and dissolves in water; with nitrobenzol it is crystalline and insoluble in water.

Maisch (Quinine).—A voluminous crystalline but jelly-like precipitate is thrown down on adding a concentrated solution of an alkaline acetate to a solution of quinine sulphate.

Maisch (Turmeric in Rhubarb).—When rhubarb powder containing turmeric is shaken for one or two minutes with absolute alcohol and the liquid filtered off, the yellow filtrate is turned brown with concentrated solution of borax and the colour becomes only a little lighter on adding hydrochloric acid. In the case of pure rhubarb, the acid at once changes the colour to light yellow.

Malerba (Acetone).—Fluids containing acetone, such as urine, are coloured red by demethyl-paraphenylene-diamine solution. The spectrum of the red solution is similar to that of oxyhæmoglobin.

Man (Microscopical Fixing Solution).—Mercuric chloride 12, sodium chloride, 0·75; picric acid, 1; tannin, 1; in water, 1,000. Another formula is tannin, 1; picric acid, 1; and saturated solution of mercuric chloride in 0·75 per cent. salt solution, 200.

Mandel (Precipitant for Proteids).—A 5 per cent. solution of chromic acid forms a delicate reagent for albuminoids; a turbidity results with a dilution of one part of albumin in 50,000 parts of water. If the solution is first acidulated with acetic or citric acid, the precipitate subsides very rapidly. A 10 per cent. solution of chromic acid may be used instead of nitric acid for Heller's zone reaction for albumin.

Mandelin (Strychnine).—A little strychnine is mixed in a watch glass with a few drops of a 1 per cent. solution of sodium vanadate in concentrated sulphuric acid. On the appearance of a dark colour, the glass is tilted to allow the fluid to run off, and the residue develops a beautiful blue colour, which changes to vermillion and reddish yellow. On the addition of a little alkali a permanent pink to purple colour is obtained.

Mangin (Cellulose).—(1) The microscopical section is first macerated in a solution of iodine, 0·5; potassium iodide, 1·5; water, 100, and sulphuric acid (2 volumes of concentrated acid to 1 of water) is then added. Cellulose is indicated by a blue colour. The section may be treated directly with one of the following solutions:—(1) Zinc chloride, 20; iodine, 1·3; potassium iodide, 6·5; water, 10·5; or (2) with saturated calcium chloride solution, 10; potassium iodide, 0·5; iodine, 0·1; or (3) with concentrated phosphoric acid, 25; potassium iodide, 0·5, and a few crystals of iodine. (2) Another reagent is a solution of free iodine in iodic acid; the section is dipped in water or alcohol, and then dried, a few drops of the reagent are added, and the preparation washed in water. Cellulose is thus coloured black.

Marchand (Cinchona Alkaloids).—Note the effects of nascent oxygen from lead peroxide and sulphuric acid.—See *Am. Journ. Pharm.*, **16**, 198; **30**, 244.

Marchand (Iodine).—A rose to violet colour with dry starch, excess of hydrochloric acid and potassium bichromate.

Marchand (Olive Oil).—Note the colour reactions with sulphuric acid.

Marchand (Organic Matter in Water).—The presence of suspended organic matter is revealed on placing the water in a flask surrounded by back paper, in which two rectangular apertures are cut so as to be opposite, and passing a beam of light through the water.

Marchand (Strychnine).—On triturating strychnine with sulphuric acid containing 1 per cent. of nitric acid, and adding lead peroxide, a blue colour is produced, which changes to violet, green, and yellow.

Marme (Alkaloids).—Verven modifies this by dissolving potassium iodide, 10; cadmium iodide, 5; in distilled water, 100; five parts of the alkaloidal solution slightly acidulated are added to the reagent.

Marquis (Morphine).—The reagent consists of a mixture of 10 C.c. of sulphuric acid and 10 drops of concentrated oxymethylsulphonic acid solution.

Marsh (Indicator).—An infusion of dahlia petals, containing ½ fl. oz. sulphuric acid and 2 grs. mercuric chloride to the pint, is neutralised with ammonia. Alkalies turn the infusion green, and acids change the colour to red.

* After Wilder, Schneider, Altschul, and others. Continued from page 20, a

Martin (Nitric Acid).—A solution of diphenylamine in sulphuric acid and water gives a blue to black colour when a liquid containing nitric acid is added drop by drop.

Maschke (Glucose in Urine).—Dissolve crystallised sodium tungstate 30, in 30 p. c. acetic acid 75, and water 120. A black deposit is formed on adding to urine containing glucose one-third its volume of the above solution, filtering if necessary, adding half the volume of concentrated soda solution and a small fragment of basic bismuth nitrate, then boiling.

Maschke (Indicator).—An alcoholic solution of hæmatoxylin is changed from brownish-yellow to purplish red by alkalies.

Maschke (Molybdenum).—A blue colour is produced on placing 2 drops of sulphuric acid upon platinum foil, dusting upon the liquid a little of the powdered substance containing molybdenum, heating till vapours begin to escape, then cooling and breathing upon the foil.

Maschke (Nitrous Acid in Water).—The bluish colour produced on adding 6 to 10 drops of diluted acetic acid, followed by 1 or 2 drops of blue molybdic acid solution, disappears within an hour if nitrous acid be present.

Masset (Biliary Matter).—A grass-green colour is produced on adding 2 or 3 drops of sulphuric acid and a crystal of potassium nitrite to 2 C.c. of urine containing biliary matter.

Massie (Fixed Oils).—Note the change of colour on adding 5 Gm. of nitric acid to 10 of oil, and stirring with a glass rod for two minutes. Then add 1 Gm. of mercury, stir a few times during three or four minutes, and note the colour reactions.

Mayençon-Bergeret (Arsenic).—On exposing mercuric chloride paper to arseniuretted hydrogen, it is coloured lemon-yellow to light brown.

Mazzara (Glucose).—A green precipitate is thrown down on heating the liquid with nickel chloride in presence of a little potassium hydroxide.

Mehu (Albumin).—In applying this test (see *P. J.* [4 , **5**, 211), add 1 C.c. of the reagent (Phenol 1, acetic acid 1, 90 p. c. alcohol 2) to 10 C.c. of the liquid, after adding 5 C.c. of crude nitric acid ; then shake well and allow to deposit. The acid may be advantageously replaced by 5 C.c. of saturated sodium sulphate solution. A flocculent precipitate is thrown down.

Mein (Absinthiin).—Dissolves in sulphuric acid with a brownish colour, which soon turns greenish blue and becomes dark blue on adding water.

Meldola (Nitrous Acid).—A solution of 0·5 Gm. of para-amido benzolazodimethyl aniline in 1 litre of diluted hydrochloric acid. A few drops of the reagent added to the fluid to be examined, followed by a few drops of hydrochloric acid and subsequently by ammonia, develops a blue colour in the presence of nitrites; the reagent keeps well for an indefinite period, contrasting in this respect favourably with the phenylenediamine solution of Griess.

Mene (Phenol).—Bromine water gives a yellowish-white precipitate with carbolic acid.

Merck (Opium).—Treat with potash solution and shake with ether, then dip a strip of filter paper into the ethereal solution, moisten it with hydrochloric acid and expose to the vapour of boiling water. The paper should then turn red.

Merget (Mercury).—Alternative methods to those previously described (see *P.J.* [4], **5**, 211) are (1) to expose a strip of filtering paper moistened with ammoniacal silver nitrate solution and dried, to mercury vapour, which produces a black stain ; (2) to dip a copper wire in the liquid containing mercury, dry with filter paper and wrap up in tissue paper which has been moistened with ammoniacal silver nitrate solution. The mercury produces a black stain in this case also.

Merkel (Fixing Solution).—Chromic acid solution 0·025 per cent. 1 part, platinum chloride solution 0·25 per cent. 1 part. The solution takes a long time to act, but the preparations stain well.

Mermet (Carbonic Oxide).—The following solutions must be freshly prepared :—Solution A. : Silver nitrate 2 or 2-3 Gm. dissolved in water 1,000 C.c. Solution B. : A few drops of nitric acid free from chloride are added to a litre of boiling water. Then permanganate solution is added until a permanent red colour is obtained. In this 1 Gm. of permanganate is dissolved ; the reagent is prepared by mixing 20 C.c. of solution with 1 C.c. of solution B, and 1 C.c. of pure nitric acid, diluting with distilled water to 50 C.c. The reagent is decolourised by carbonic oxide also by sulphuretted hydrogen.

Mermet (Sulphocarbonates).—A currant-red colour is produced on adding an ammoniacal solution of nickel sulphate or chloride, which has been diluted with water until almost colourless.

Merz (Fixed Oils.)—On mixing an adulterated oil with an equal volume of pure oil and shaking gently the mixture appears streaky.

Merz (Phosphoric Acid).—If a drop of liquid containing free phosphoric acid, or a little of the dry substance mixed with sulphuric acid, is placed in the loop of a platinum wire and held close to the lower part of a hydrogen flame, the latter is coloured green.

Merz (Turpentine in Essential Oils).—These oils become milky if pure, on shaking with an equal volume of poppy-seed oil, but they remain clear if turpentine be present.

Mialhe (Cruciferous Oils).—On saponifying the oils of cruciferous plants with potash solution and filtering the filtrate is coloured black on adding silver nitrate.

Michailow (Proteids).—The substance in solution is mixed with ferrous sulphate, then poured upon concentrated sulphuric acid. On the addition of very little nitric acid the familiar reddish brown zone develops to a blood red colour in the presence of proteids.

Miller (Indicator).—Tropæolin, or methyl-orange, is changed from yellow to crimson by mineral acids, but it is indifferent to carbon dioxide and to sulphuretted hydrogen.

Miquel (Culture Solution).—Peptone, 20 ; sodium chloride, 5 ; wood ash, 0·1 ; in water, 1,000.

Moddermann (Ammonia).—A very dilute solution of copper sulphate becomes turbid on adding ammonia.

Moer Van de (Cytisine).—A 0.5 per cent. solution of ferric chloride and 0·05 per cent. solution of hydrogen peroxide gives first a red, then a blue colour with solution of cytisine.

Moerner (Acetone).—If urine containing acetone be heated with a little of potassium iodide solution and excess of ferric chloride intensely irritating vapours are given off.

Mohler (Tartaric Acid).—If a little solid tartaric acid or a tartrate be heated with a few drops of a solution of resorcin 1 in concentrated sulphuric acid 100, until sulphuric acid vapours develop, the fluid becomes of a fine wine red colour: the smallest trace of tartaric acid is sufficient.

Mohr (Antimonous Acid).—The acid, or any of its compounds, is dissolved in an aqueous solution of tartaric acid, the excess of acid neutralised with sodic carbonate, then a cold saturated solution of sodium bicarbonate is added in the proportion of 10 C.c. to each 0·1 Gm. of Sb_2O_3. The clear solution is titrated with N/10 iodine with starch indicator. The titration must be conducted immediately the solution of bicarbonate has been added, 1 C.c. N/10 iodine = 0·006 Gm. of antimony.

Mohr (Chlorides).—This is the familiar volumetric process with decinormal silver nitrate, using potassic chromate as an indicator.

Mohr's (Solution).—The potassium permanganate solution generally used in volumetric analysis.

Mohr (Free Mineral Acids).—(1) Add a few drops of potassium sulphocyanide solution to a light yellow solution of ferric acetate, free from alkaline acetates. Traces of mineral acid turn the mixture blood red, but the colour disappears on adding an excess of sodium acetate. See also P. J. [4] **5**, 212 ; (2) potassium iodide starch paste, with a light-yellow solution of ferric acetate, is turned red by traces of mineral acid ; (3) on adding cane sugar to a

solution containing sulphuric acid, and evaporating to dryness on a water-bath, a blackened residue is left.

Mohr (NITRO GLYCERIN).—A purple to dark-green colour is produced on extracting with ether or chloroform, mixing with a few drops of aniline, evaporating, and adding a few drops of sulphuric acid.

Mohr (POTASSIUM SALTS).—A saturated solution of potassium and sodium acid tartrates precipitates potassium salts from neutral solutions.

Molher's (REAGENT).—See Gayon's reagent.

Molisch (WOOD PULP).—To a 20 per cent. solution of thymol in absolute alcohol, water is added until no more thymol separates. The solution is set aside for some hours with an excess of potassium chlorate, and then filtered. Paper made with wood pulp moistened with this solution gives a bright blue colour on the addition of a drop of concentrated hydrochloric acid.

Morgan (MERCURY).—A silvery stain appears on placing 2 drops of the liquid on a piece of bright copper, and adding strong potassium iodide solution.

Morrell (LINSEED OIL).—Pure oil is coloured sea-green to greenish yellow on mixing 10 parts by weight with 3 of crude nitric acid and allowing to stand for a time. Adulterated oil assumes a light yellow colour.

Morson (CREOSOTE : PHENOL).—Creosote is insoluble in glycerin ; phenol is soluble.

Morton (ARSENIC).—The solution is placed in an apparatus similar to Doebereiner's lamp and an electric current passes through to decompose the water, thus replacing the zinc and sulphuric acid.

Muller (CAUSTIC SODA IN CARBONATE).—In the presence of caustic soda potassium permanganate solution turns green.

Muir (BISMUTH).—A brownish-black precipitate is thrown down on heating with a solution of stannous chloride, 1, and tartaric acid, 3, in a sufficiency of potassium hydroxide solution.

Mylius (GALLIC ACID),—In this modification of Pettenkofer's reaction, one drop of furfurol solution and 1 C.c. of concentrated sulphuric acid are added to each cubic centimetre of the alcoholic solution of gallic acid, cooling if necessary. The resulting red colouration is permanent for some time changing gradually to violet. Compare Udransky's modification of Pettenkofer's reaction.

ANALYTICAL NOTES.

SODIUM HYPOPHOSPHITE IN KJELDAHL'S NITROGEN PROCESS.

When mercury is employed to aid the oxidation of nitrogenous matter in Kjeldahl's process, sodium sulphide is generally used to remove the metal. Maquenne and Roux find that sodium hypophosphite is preferable for the purpose, since it effectually reduces the mercury salts, and obviates the formation of insoluble sulphur compounds, which are difficult to decompose with alkali, or of volatile sulphur compounds which may distil over with the ammonia, vitiating the results. They employ a gramme of hypophosphite, which is added to the sulphuric acid solution after dilution. The mixture is warmed to 60° to 70° C., to complete the reduction, and cooled before the addition of the alkali. The results obtained are a trifle higher than those from experiments conducted with sulphide, and accord better with those obtained with the soda lime method.—*Bull. de la Soc. Chim. de Paris*, **21**, 312.

DETECTION OF FORMALDEHYDE IN MILK BY PHLOROGLUCIN.

According to Jorissen's test, 0.1 Gm. of phloroglucin is dissolved in water 100 C.c., and 1 to 2 C.c. of this solution are added to 8 to 10 C.c. of the milk to be tested, together with a few drops of a solution of caustic potash or soda. A red colour is developed in the presence of formaldehyde. L. Vanino finds that strong solutions of formaldehyde, from 10 to 30 per cent., give no reaction whatever, or only a feeble one. A 3 per cent. solution, however, gives a raspberry colour, while the most distinct reaction is obtained with a dilution below 0.5 per cent. ; 0.00004 per cent. of formaldehyde gives a distinct reaction, but this appears to be the limit.—*Phar. Centr.*, **40**, 101.

SOCIETY OF CHEMICAL INDUSTRY.

The annual meeting of this Society was held at Newcastle-on-Tyne, as briefly reported last week. About two hundred delegates from all parts of the kingdom attended. The business part of the gathering began at the Durham College of Science, and the Annual General Meeting was afterwards held in the Chemical College's Theatre. Mr. GEORGE BEILBY (Edinburgh), President, was in the chair, and the company comprised Mr. John Pattinson, Newcastle; Professor Bedson, Newcastle; Mr. G. F. France, Newcastle; Mr. F. S. Newall (Chairman of the Newcastle Section) ; Professor G. G. Henderson, Glasgow ; Dr. C. A. Kohn, Liverpool ; Mr. Thomas Tyrer, London ; Mr. D. Howard, London ; Dr. G. Schack Sommers, Liverpool ; Mr. B. Redwood, London ; Mr. B. E. R. Newlands, London ; Mr. C. G. Cresswell (General Secretary ; and Mr. Samuel Hall (Hon. Treasurer). The Mayor of Newcastle (Councillor Geo. Harkus) attended for the purpose of welcoming the delegates.

After the usual formal business, the General Secretary, Mr. C. G. Cresswell, handed in the following list of the new Council . for the ensuing year's Society :—President, Professor C. F. Chandler, M.D., Ph.D. (of New York). Vice-Presisidents: George Beilby, R. Forbes Carpenter, Professor F. Clowes, D.Sc., George E. Davis, John Heron, David Howard, Dr. C. A. Kohn, Ivan Levinstein, B. E. R. Newlands, Dr. E. Schunk, F.R.S., Wm. Thorp, B.Sc., R. C. Woodcock. Ordinary members of the Council : Sir John Evans, K.C.B., F.R.S., Sir David Gamble, Bart., C.B., W. Winwood Gossage, E. Grant Hooper, Dr. Rudolph Messel, J. M. C. Paton, John Pattinson, Dr. Fred B. Power, Sir Robert Pullar, Walter F. Reid, Dr. Wm. S. Squire, E. C. C. Stanford ; Hon. Treasurer, Samuel Hall ; Hon. Foreign Secretary, Dr. Ludwig Mond, F.R.S. ; General Secretary, Charles G. Cresswell.

The PRESIDENT then announced that Professor Chandler, of New York, the President-elect, had not been able to cross the Atlantic to attend this year's meeting. He had, however, written a letter which would be submitted by the General Secretary. The annual report then followed. From it it is learned that the members now on the register number 3,304, as compared with 3,185 at the previous annual meeting.

Mr. SAMUEL HALL, Hon. Treasurer, presented his statement, and replying to questions, said that the collective index would cost about £1,280. This was for about 2,500 copies. The original subscribers would get copies for 5s. each, although such actually cost 10s. each.

Mr. BOVERTON REDWOOD (chairman of the London section) proposed London as the next place of meeting, seeing that they would be near the Paris Exhibition, which is to be held next year.

Mr. B. E. R NEWLANDS, London, seconded, when the proposal was carried unanimously.

The PRESIDENT afterwards amid applause delivered his address, the chief topics treated on being "The Coal Supply and Smoke Nuisance," Remedial Appliances," "Effects of New Processes on the Markets," "Production and Distribution of Fuel Gas," "Domestic Heating" ; and to cover all points a conference is suggested. On the coal supply, the rapid exhaustion of British coalfields, the President said, makes it absolutely desirable to go into the subject of dealing with the reckless waste that is daily going on in the running to waste of the smoke and gases in the ordinary burning of fuel in common fire grates. In place of seeing crude coal thrown into furnaces and tossed on fire grates, causing the masses to daily inhale finely divided carbon and other deleterious matter, it would be better by processes of distillation to secure all bye-products without impairing any loss whatever in the necessary heat for manufacturing and domestic purposes. For metallurgical and chemical works of all kinds, fuel gas is the most suitable, being smokeless and more easily under control. He thought the time was not far distant, when centres for the production and distribution of fuel gas would be established in all industrial districts to the general benefit and health of surrounding places. Coming to the question of thirty-five million tons of raw coal annually burned for domestic purposes, much attention is being given to the ultimate position of ordinary fuel gas for cooking, heating, ventilation and other uses. As a means of bringing all of the different interests concerned into line, it was suggested that the Society might arrange for the holding of a conference on the subject of fuel and smoke, at which the leading technical societies, as well as the industries concerned, should be fully represented. The President was cordially thanked for his

very able address. Later on in the afternoon (Wednesday) the visitors were invited to a garden party by the Mayor, at Leazes Park, where upwards of 2,000 citizens took part. In the evening a conversazione was held at the Hancock Museum, Barras Bridge, where perhaps is to be found the finest and rarest collection of stuffed birds in any part of the world, to say nothing of pre-historic fauna, found in the coal measures of the district. The subsequent days were spent in visits to local places of interest, as may be seen from the list appended :—

River Excursion. The steamer "Siren," from Newcastle to the Sea; visit to the Works of the Wallsend Slipway and Engineering Company, Limited: demonstration with the Hon. Chas. A. Parsons' boat, the "Turbinia," off the mouth of the river. Visit to Messrs. C. S. Swan and Hunter's Shipbuilding Yard, Whitburn Colliery. Descent of Whitburn Pit. Inspection of the limestone quarries on the coast. Durham Coke and Bye-Products Company, Lanchester. Simon-Carve Coke Ovens and plant for recovery of bye-products. Elswick Ordnance Works. The Aerated Water Works of the Newcastle Breweries, Limited. Messrs. Locke, Blackett and Co. Dutch process of white lead manufacture. Redheugh Works of The Newcastle and Gateshead Gas Co. Mechanical charging of retorts and sulphur recovery in the Claus kiln. Northumberland County Council's Experimental Farm, Cockle Park, near Morpeth. Elswick Ordnance Works. Messrs. Maling's Ford Potteries. Messrs. The United Alkali Company's Allhusen Works. The Chance Sulphur Recovery Process. Messrs. Palmer's Shipbuilding and Iron Company, Limited, Jarrow.

NEW REMEDIES.

Betaine for Tetanus.—Betaine hydrochloride forms colourless monoclinic crystals, soluble in water. Roger and Josué claim to have discovered that betaine neutralises the toxin of tetanus, but it remains to be proved if this property is capable of application in practical medicine.—*Merck's Report*, 1898, 41.

Orthoform in Toothache.—Hildbrandt (*Med. Press*) states that orthoform immediately and completely relieves the severe pain due to pulpitis in a decayed tooth. A plug of cotton wool saturated with an alcoholic solution of orthoform is introduced into the cavity. As the remedy is free from toxic properties it may be safely applied by the patient without danger.—*Therap. Gaz.* **22**, 270.

For Stomatitis in Children.—In Germany a mixture of borax 4, tincture of myrrh 8, and syrup of mulberries 6 is much used.—*Pediatrics*, **7**, 66.

For Fissures of the Hands.—Mix menthol 1 black, salol 1, olive oil 1, and make up with lanolin to 200.—*Pediatrics*, **7**, 366.

Ointment for Acne Rosacea.—Precipitated sulphur 60 to 240 grains, salicylic acid 10 to 30 grains, oil of sweet almonds 1fl.drm., lanolin 1 oz. Rub to a perfectly smooth ointment. Apply at night after washing.—*Therap. Gaz.* **22**, 238.

Lactic Acid in Irritant Skin Diseases.—Du Castel finds lactic acid to be an excellent means of allaying the intense itching of many skin diseases such as urticaria, prurigo, and other similar affections; the remedy is particularly successful with juvenile patients. It is given in the form of drops, from six to twenty, in sweetened water, according to the age of the patient. With adults as much as 1·5 to 2 Gms. per diem may be given; with moderate doses no ill effects are observed even after prolonged use. The good effects in allaying the irritating itching were very marked in all those cases where digestive derangement exists.—*L'Union Pharm.*, **40**, 199.

Menthophenol.—This is a mixture of menthol 3 and phenol 1, which forms a transparent aromatic fluid. It is analgesic and antiseptic in action; in dilute solution, such as fifteen drops to a tumblerful of water, it forms an excellent gargle; in stronger solution it may be used as an antiseptic dressing, while the hot 3 to 5 per cent. solution in warm water may be used as an analgesic in minor operations.—*Rev. Med. Pharm.*, **6**, 131.

LETTERS TO THE EDITOR.

NOTICE TO CORRESPONDENTS.—All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received, if specially arranged for, as late as Thursday morning. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C., and Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

Liquor Ferri Perchlor. Fort. B.P.

Sir,—I think if Mr. Bird will revise his calculations regarding liquor ferri perchlor. fort. B.P. he will find he has made a mistake at the outset in saying that 12½ fl. oz. acid. hydrochlor. only contains 4·609 oz. weight HCl, with a specific gravity of 1·160. 12½ fl. oz. acid. hydrochlor. weighs 14·5 oz., and so contains 5·1 oz. HCl. 5·1 oz. HCl will dissolve 3·917 oz. Fe., so that at the finish of operation 17½ fl. oz. of liquor will contain 3·917 oz. Fe. Therefore, 5 fl. oz. will contain 1·119 oz. Fe., equivalent to 1·68 oz. Fe_2O_3. Thus the B.P. is theoretically correct in stating that 5 C.c. should give 1·6 gramme Fe_2O_3.

Rothbury, July 15, 1899. G. H. Athey.

Mr. F. C. J. Bird writes to correct two slight errors in his letter published last week. In the first line the name "F. A. Allen" should be "F. J. Allen," and in line eighteen "5 Gm." should be "5 C.c."

The Company Trading Question.

Sir,—Mr. Glass asks qualified chemists various questions and also supplies the answers, a very convenient but not a convincing method of argument. He tells us that we can never have a monopoly in the sale of drugs because it would interfere with the principles of free trade; really he ought to know that this is not a question of free trade at all. It does not alter the fact at all that McCrae tells him so. Mr. McCrae may not know. Indeed, I believe he does not understand what he is talking about. I believe he would go further than Jesse Boot; he would employ doctors and lawyers, which shows us what he knows. I understand he obtained a considerable number of votes by supporting some rather extreme trades union business—so we see that with him the workman has rights, but the chemist, the doctor, and the lawyer have none. Let Mr. McCrae begin with the lawyers! It is our duty in interviewing these people to be in a position to combat preconceived impressions; and to give them sound argument. Again, Mr. Glass asks "What is the most we can get?" (he is not modest when he proceeds to answer that question). Really now, how can we tell him? Surely it depends upon our leaders, our organisation, and ourselves; but to go with cap in hand without even proof of being a deserving mendicant—well, it is not creditable to "Auld Reekie." Mr. Glass should really think this matter over again; for if, as he says, the Council's suggestions embody what he considers just, what is the sense of asking for anything else?

Blackburn, July 15, 1899. R. Lord Gifford.

The Present Position of Registered Chemists.

Sir,—It seems more than ever important that qualified chemists should know where they are, and where they are likely to get to.

In approaching the remedying of our grievances, people entitled to hearing appear to go in one or other of three lines of thought and argument; these may be classified as follows:—(1) The Council's suggestions, are generally allowed to indicate what pharmacists oughtto strive for. To bring these, taken literally, into effect would necessitate legislation, apparently hopeless and impracticable, but efforts can be based upon these suggestions. Why can we not for example consider they would be met by first settling the question of title and everything involved by that, and afterwards insist upon a natural exten ion of Part 2 of the Schedule. (2) We have the line of thought the Edinburgh chemists seem to pursue, viz., the recognition and registration of unqualified people and companies. That this line is possible for qualified chemists to take simply astounds us; we could not have thought it possible. (3) We have the line of thought which thinks from a trader's point of view, and would grasp every opportunity for trade advantage, *e.g.*, doctor's dispensing is attacked on the ground of resulting advantage to chemists. There can be much said for this policy, but I will endeavour to show it is mischievous and fallacious. Is interference with dispensing practicable? How would an outsider (say the Lord Chancellor) view our intervention? Naturally as a body without a curriculum, presuming to regulate the affairs of another body which has a five years' curriculum. The thing is absurd. The sensible procedure would seem to be, to realise our weakness as a body relatively to the medical profession, and begin by making them our friends. How would that advantage us? We will deal with facts. Doctors now commonly send patients to stores to get medicines and prescriptions made up, in the idea that they are saving patients money, and giving at the same time an illustration of the doctor's solicitude on the patient's behalf. The practical result of this is disastrous to the chemist, because it confirms in the strongest manner the general impression of the public, that stores are cheap and "just as good." Now this is mere thoughtlessness on the part of the medical profession, and it is not difficult to get a better understanding with them. Chemists should look at this matter broad-mindedly, because it follows inevitably, that with doctors insisting, in their everyday work, upon the necessity of a qualification, more grist and status will be brought to chemists than in any other way. This is a broad view, a practical view, and, we have strong reason for saying, a true view. The only solution of the "Dispensing by Doctors" question will be found in rationalising the practice of Pharmacy. To us, who pose as common-sense people, it appears the wisest course would be the adoption of the Council's policy as the base of operation, and acting upon it; at the same time there is no reason for ignoring trade advantages, as practical people, whenever they can be acquired. It is incompatible, however, with the Council's position to have any cognisance of trade interests. Its duty is to administer the Pharmacy Acts, to see that chemists are adequately qualified, to conserve the rights and extend the privileges of those who qualify; well, then, our legitimate objects are to assert the right of the chemist to the exclusive use of his legally acquired title, and also to claim that the time has arrived for fulfilling the manifest intention of the Pharmacy Act of 1868, viz., additions to the Poison Schedule. We submit that the Council might with all advantage immediately cause agitation throughout the country on the question of titles. I do not think there is any doubt that if this were done at once, insisted upon and persisted in on every and any occasion and with all people, practical results would soon follow. Let this be done and let us show that it is no pretence but business, and the first result will be entire unanimity amongst qualified chemists, hearty support from the medical, and all other professions, and indeed all disinterested thought. I believe that with the Council's initiative and earnest interest this landmark, this Magna Charta could be established. Let us ask with one voice for the one right we undoubtedly were intended to acquire in the examination room and nothing can resist us. We have already delayed too long; but now our enemy is the intensely smart business men, who are honeycombing the country with the title of "chemist," evidently the tradesman's idea of obtaining a vested interest. Events are moving quickly, and we are not awaking. There are those of our own body who meekly say these parasites have already acquired our rights. It will be to the everlasting disgrace of the present race of chemists if it allows its title to be quietly filched. And it will prove to history that in Bloomsbury Square chemists lost their manhood and became fitted only for slaves.

Blackburn, July 15, 1899. R. L. GIFFORD.

Presentation to Mr. Henry Wootton, B.Sc.

Sir,—A presentation is being made to Mr. Wootton, late of the Westminster College of Pharmacy, and as it is desired to let as many old students as possible know the date and time, I shall be obliged if you will kindly permit me to announce in this week's issue of the Journal that the presentation will take place at a smoking concert to be held at the "Swan" Hotel, Clapham Road (opposite Stockwell electric station) on Monday, July 31, at 8.30 p.m. It is hoped that as many as possible will attend.

Southwark, S.E., July 19, 1899. A. ROBERTS.

The Proposed Testimonial to Mr. A. C. Wootton.

Sir,—At a meeting of the Committee, appointed on July 10, to arrange for a complimentary dinner to Mr. A. C. Wootton, in acknowledgment of his services to the drug trade while Editor of the *Chemist and Druggist*, it was decided that the dinner should be given in the first week of October. It had also been decided at the meeting on July 10 that Mr. Wootton's portrait should be presented to him, but, in consequence of the strongly expressed wish of Mr. Wootton, the Committee has abandoned this, and has decided to compile an album of signed portraits of the subscribers to the dinner, for presentation to Mr. Wootton. A Sub-Committee, consisting of Messrs. John Thompson (Chairman), Henry S. Wellcome, Albert Cooper, J. Morgan Richards, F. W. Fletcher, W. S. Glyn-Jones, and W. Edwards, jun., was appointed to carry out the arrangements. Mr. W. Edwards, jun., 157, Queen Victoria Street, E.C., and Mr. W. S. Glyn-Jones, 2, Stonecutter Street, E.C., are acting as Secretaries. May we request that all inquiries regarding the dinner should be addressed to us,

W. EDWARDS, JUNR., } *Hon.*
W. S. GLYN-JONES, } *Secretaries.*

London, July 19, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Botanical (F. G.—31/15).—It is a specimen of *Plantago lanceolata*, with the bracts developed into small leaves.

Botanical (T. K.—31/12).—(1) In too imperfect a condition for identification (2) *Cochlearia armoracia*; (3) *Beta maritima*; (4) Probably *Ranunculus sceleratus*, but the leaves are too imperfect to permit of identification.

Preparation of B.P. Lamellæ (B. J. K.—31/23).—The basis may be prepared (*vide* Lucas's 'Practical Pharmacy') by soaking 180 grains of transparent gelatin in a mixture of 15 minims of glycerin and 2 ozs. of distilled water. When the gelatin is softened apply heat until solution is affected and strain through muslin. The medicament in solution is added to the liquefied basis, and the medicated mass spread on plate glass which has been thinly coated with white beeswax and heated to about 38° C. A thick writing paper shape with an opening 4 ins. square should be pasted evenly over the waxed glass prior to heating it, and the mass should be spread evenly so as to occupy the space exactly. Afterwards dry the gelatin film at a temperature not exceeding 38° C. for fourteen days. Then detach from the glass and cut out discs having a diameter of ½in. by means of a shoemaker's eyelet-hole punch. To 80 grains of basis, add, for atropine lamellæ, 20 minims of solution of atropine sulphate; for cocaine lamellæ, add 20 grains of cocaine hydrochloride dissolved in 20 minims of distilled water; for homatropine lamellæ, add 10 grains of homatropine hydrobromide dissolved in 20 minims of distilled water; for physostigmine lamellæ, add 1 grain of physostigmine sulphate dissolved in 20 minims of water.

THE ASSAY OF THE OFFICIAL LIQUID EXTRACT, WINE AND VINEGAR, OF IPECACUANHA.*

BY E. H. FARR, F.C.S., AND R. WRIGHT, F.C.S.
Pharmaceutical Chemists.

The process for the determination of the alkaloids in liquid extract of ipecacuanha is undoubtedly the most unsatisfactory of all the official assay processes, and has been subjected to severe and well-merited criticism and unqualified condemnation by Wilson.† It possesses every fault possible to such a process, without a single compensating advantage. It would indeed be impossible to imagine a method of assay more complicated, more wasteful of material or more tedious in operation. And when to this is added the fact proved by Wilson and fully confirmed by our own experiments that a considerable amount of alkaloid is lost in the lead precipitate, together with the further fact, now pointed out for the first time, that the residue finally weighed and reckoned as "total alkaloids" contains from 12 to 20 per cent. of foreign matter, it will be agreed that the process can only be adequately characterised by a phrase not to be found in any pharmaceutical vocabulary.

The alternative process proposed by Wilson is in several respects a great improvement upon the official one, and has received commendatory notice from Moss, who states that "it yields the alkaloids in a purer condition, with greater accuracy and expedition." ‡

The practical testing of both processes, together with a critical examination of the entire subject of ipecacuanha assay has, however, convinced us that it yet remains for practical pharmacists and laboratory experts to devise a process of assay for the galenical preparations of the drug which shall combine the requisites of economy, simplicity, and accuracy, with rapidity of working.

The object of this note is to place on record the results of experiments which it is hoped may contribute somewhat towards the attainment of this end.

Before doing so, it may be well to allude a little more in detail to what we consider to be the faults and drawbacks of the two processes above mentioned.

(*a*) One fault common to both is that the quantity of material used in each determination is far greater than is either necessary or desirable.

The official monograph for the preparation of the liquid extract (which is satisfactory to this extent, that it yields an active and stable preparation, free from an unduly large proportion of inert matter) provides for the production of about 800 C.c. of finished product, 20 C.c. of which is forthwith directed to be employed in the assay process.

The process is equally wasteful in chloroform, 75 C.c. of which is used for the extraction of about 0.4 Gm. (six grains) of alkaloids. This objection is emphasised when it is considered that for an assay process like this, only so much material need be taken as is calculated to contain from 0.02 to 0.05 Gm. alkaloids. For the assay of the liquid extract of ipecacuanha 1 or 2 C.c. is ample in the hands of an expert, and in no circumstances should more than 5 C.c. be employed.

When a much greater quantity is taken, the amount of resinous matter present renders it almost impossible to shake out the alkaloids without resorting to a special method for the prior removal of the resinous extractive. It is in the carrying out of this part of the official process that the principal loss of alkaloid occurs.

(*b*) There is a further loss involved in the undue dilution of the liquid. This objection applies in a lesser degree to Wilson's process, where distinct traces of alkaloid are left both in the mother liquor and also in the ether-chloroform washings. Wilson claims that if his modification is carefully worked, the precautionary treatment of these washings with acidulated water is unnecessary. This statement is not borne out by our experience, for in performing the operation one of us has recovered as much as 0.002 Gm., and in one case 0.005 Gm. weighed alkaloid.

In a third determination the wash-water thus employed was added to the mother liquor from which the alkaloids had been removed. To the mixed liquids alcohol was added in quantity sufficient to re-dissolve separated matter, the liquid rendered slightly acid with diluted sulphuric acid and then placed on a water-bath and evaporated to small bulk. An excess of ammonia was then added, and the alkaloids shaken out with chloroform. In this experiment 0.009 Gm. almost pure alkaloid was recovered.

(*c*) In both processes the mistake is made of regarding the weighed product as pure, or approximately pure, alkaloid. According to Wilson's own showing, however, this could not possibly be the case, seeing that the results obtained by weighing were invariably much higher than those indicated by titration.

In his note on the subject he does hint at the possible presence of some impurity, but accounts for the great discrepancy between the gravimetric and volumetric results by supposing the presence of a third alkaloid having a much higher molecular weight than those of the principal alkaloids.* It is true that Paul and Cownley,† in their classic research on the chemistry of ipecacuanha, recorded the discovery of a third alkaloid having a higher molecular weight than those of emetine and cephaeline, but the amount found by them (0·04 per cent. of the total in one specimen of the root and 2 per cent. in another specimen) is quite insufficient to affect the results at all seriously. And a subsequent consideration of the chemistry of the ipecacuanha alkaloids by Hesse‡ serves to confirm our opinion, founded upon a number of experiments, that for volumetric determinations, an equivalent calculated from the molecular weights of emetine and cephaeline gives perfectly accurate and reliable results.

The method employed in order to establish the fact that the alkaloidal residues obtained by the official and Wilson's processes contained other than alkaloidal matter was as follows:—

The crude alkaloids from 5 C.c. of liquid extract were dried in an air oven at a temperature below 80° C., till of constant weight, and the weight noted. The residue was then dissolved in water containing 1 per cent. of sulphuric acid, and the alkaloids precipitated by the addition of an excess of solution of iodine with potassium, iodide, the precipitate filtered off, washed with weak iodine water, and allowed to drain. The alkaloidal hydriodides were then washed through a hole pierced in the bottom of the filter into a bottle and decomposed by the addition of an excess of sodium thiosulphate. The solution was filtered into a separator, the filter washed with a little water and the filtrate and washings bulked. A slight excess of ammonia was then added, and the alkaloids shaken out with chloroform. The chloroformic solutions were bulked and evaporated and the alkaloidal residue dried and weighed. It was then dissolved in a little alcohol a calculated excess of HCl/10, with some distilled water added and the liquid titrated back with NaHO/20; cochineal being used as indicator.

In order to render the test perfectly conclusive, each determination was performed in duplicate; in the first, the impure alkaloid was titrated, and in the second, the alkaloid from an equal volume of liquid extract, purified by the method above-mentioned, was similarly treated.

The following results were obtained:—

	By Weight.	By Titration.
Experiment 1.—Impure Alkaloid	0·097	0·070
„ Purified ditto	0·072	0·070
Experiment 2.—Impure Alkaloid	0·098	0·086
„ Purified ditto	0·087	0·036

* Read before the British Pharmaceutical Conference, at Plymouth, July, 1899.
† *Ph. Journal* [3], **4**, 3.
‡ *Pharm. Journal* [4], **7**, 347.

* *Pharm. Journ.* [4], **7**, 3.
† *Pharm. Journ.* [3], **20**, 252.
‡ *Pharm. Journ.* [4] **8**, 99.

The proper equivalent based upon the mean of the molecular weights of emetine and cephaeline is 0.023939 Gm., or practically 0.024 Gm. for each cubic centimetre of HCl/10.

For the purpose of our experiments several ipecacuanha percolates and fluid extracts were used.

The following assay processes were employed:—

1. The official process.
2. Wilson's alternative process.*
3. Our proposed process.
4. A modification of No. 3 for rapid working.

The details of No. 3 are as follow:—

Five C.c. of the fluid extract is placed in a small porcelain dish, 10 drops of diluted sulphuric acid B.P. added, with 5 C.c. of water, and the mixture evaporated over a water-bath until the volume of liquid is reduced to about 3 C.c. This is run into a separator, the dish carefully rinsed with 10 drops of water, and then with 15 C.c. of chloroform, the whole being transferred to the separator. An excess of ammonia is added, and the mixture well shaken, and allowed to stand until the chloroform has separated. This is run off, and the agitation and separation repeated with two successive quantities of 5 C.c. of chloroform. The chloroformic solutions are bulked, and the alkaloids extracted by shaking with three successive quantities of 10 C.c. 1 per cent. sulphuric acid. The acid alkaloidal solutions are drawn off in turn and mixed. The alkaloids are finally recovered from this solution by repeating the treatment with ammonia and chloroform. The solution of the alkaloids in chloroform is then evaporated in a tared dish over a water-bath until all chloroform has been removed. The weight is taken, and the alkaloidal residue titrated with HCl/10 and NaHO/20 as previously described.

4. Two C.c. of the fluid extract is acidified and evaporated, and the alkaloids extracted with chloroform as described under No. 3. The chloroformic solution of the alkaloids is evaporated to dryness and the residue titrated at once.

The following results were obtained:—

	No. 1.		No. 2.		No. 3.		No. 4.	
	Weight.	Titration.	Weight.	Titration.	Weight.	Titration.	Weight.	Titration.
B.P. process	1·92	1·60	1·64	1·26	1·83	1·41	1·88	1·25
Wilson's ,,	2·23	1·93	1·35	1·57	1·97	1·64	1·95	1·62
F. & W. ,,	2·20	2·02	1·90	1·78	2·04	1·82	2·06	1·73
Quick ,,		1·97		1·74		1·80		1·72

No. 4 is proposed as a rapid process for employment in laboratories where economy of time is an object. The whole process can be performed in half an hour, and the results are practically accurate. It should be noted that in this case the solution for titration is opalescent, owing to the presence of traces of fat and resin. It is, therefore, necessary, in order to obtain accurate results, to dilute the solution largely with distilled water, and to observe the end of the reaction with corresponding care.

In practised hands it will present no great difficulty.

In working by the official process the amount of alkaloid in the lead precipitate was determined in each case. The results merely confirm those obtained by Wilson, and are, therefore, not recorded. In working process No. 3, should there be any sign of emulsification, separation of the chloroform may be induced by standing the containing vessel in hot water.

The improvements claimed for the method of assay now proposed over the official method and that of Wilson are as follows:—

1. The bulk of the liquid is kept as small as possible, thus rendering the separation of the chloroform easier and more complete.

2. The partial purification of the alkaloids by shaking out with acidulated water before the final extraction.

3. The substitution of a volumetric for a gravimetric standard. We have clearly proved that the alkaloids obtained from the liquid extract by means of solvents contain a large and variable amount of impurity. This can be separated, and the alkaloids obtained by precipitation as periodides in a practically pure condition. The process is, however, a somewhat tedious one, and seeing that the alkaloids can readily be determined by titration of the crude residue we have no hesitation whatever in recommending the substitution of an alkaloidal standard depending upon titration alone for the present one.

The titration itself presents no difficulty whatever, as the end of the reaction is clearly marked and is very sharp and precise.

For the determination of the alkaloidal value of the wine and vinegar we recommend the following modification:—

Fifty C.c. of the sample is placed in a porcelain dish, 10 drops of diluted sulphuric acid added, and the liquid evaporated to about 5 C.c. It is then transferred to a separator, the dish rinsed with a few drops of water and 10 C.c. of chloroform, and the alkaloids separated and determined exactly as described in the process recommended for the fluid extract.

Several commercial samples of the wine were determined by this method with the results shown in the following table:—

Sample.	Alkaloid obtained. By Weight.	Alkaloid obtained. By Titration.	Percentage in Wine.
No. 1.	0·031	0·031	0·062
No. 2.	0·022	0·022	0·044
No. 3.	0·042	0·040	0·080
No. 4.	0·012	0·012	0·024
No. 5.	0·040	0·036	0·072
No. 6.	0·022	0·021	0·042
Average.	0·028	0·027	0·054

The alkaloids from the wine were almost colourless, and the titration results show that they are yielded in an almost perfectly pure condition. This is evidently attributable to the fact that the impurity present in the crude alkaloids from the liquid extract, and which is most probably of a resinous nature, is thrown down and filtered out in the process of conversion into the wine.

The vinegar was not examined, but as it is prepared by simple dilution of the fluid extract, it is evident that the process employed for the wine is equally applicable to this preparation.

* *Pharm. Journ.* [3], **4**, 3.

FLY PAPERS.—*Sticky Paste.*—(1) A mixture of resin, 150; linseed oil, 50; honey, 18. (2) Colza oil, 70; resin, 30. (3) Resin, 600; linsced oil, 380; yellow wax, 20, melt and strain. (4) Resin, 10; crude turpentine, 5; rape oil, 5; honey, 1. (5) Boil linseed oil in an iron vessel in the open until it catches fire. Let it burn until a drop taken out of the pot is stringy, then add yellow wax to attract the flies. Sesame oil, 5; resin 11. Melt together. *Non-Poisonous Fly Paper.*—(1) Quassia decoction (1:10), 1·25, are mixed with brown sugar, 6; ground pepper, 3, and exposed on plates with blotting paper. (2) Ground pepper, 1; brown sugar, 1; are mixed with milk, 15, and the mixture exposed on plates with or without bibulous paper. (3) Quassia wood, 75, are boiled with water, 200, until evaporated to one-half, strained and mixed with cobalt chloride, 5; tartar emetic, 1; tincture of long pepper (1:3 dilute alcohol), 40; blotting paper saturated with the solution is exposed on plates. (4) Potassium bichromate, 5; sugar, 15; essential oil of pepper, 1, are mixed with water, 60, and alcohol, 10, added. Unsized paper is saturated with this solution, and then dried. *Sticky Fly Paper.*—A mixture of resin, 600; poppy seed oil 300; honey, 100, is spread on parchment. *Dusting Powder for Flies.*—Powdered orris root, 4; powdered starch, 15; cucalyptol, 1, are mixed and put up in a tin with a perforated lid. Powdered long pepper, 5; powdered quassia, 1; powdered sugar, 10, are mixed and moistened with dilute alcohol, 4. The mixture is dried and again powdered.—*Pharm. Ztg.*, **44**, 349.

THE ASSAY OF THE LIQUID EXTRACT AND WINE OF IPECACUANHA OF THE B.P., 1898.*

BY W. A. H. NAYLOR, F.I.C., AND JOHN J. BRYANT.

The process directed for the assay of the liquid extract of ipecacuanha of the British Pharmacopœia, 1898, has caused widespread dissatisfaction among practical pharmacists. It is tedious, complex, prodigal of time and wasteful of alkaloidal product.

For some months past our attention has been devoted to remedying these defects, and numerous experiments have been conducted with the object of devising a process that would possess the essential qualities of accuracy, speed and facility of manipulation.

Wilson's statement that the Pharmacopœia process is inaccurate is amply confirmed by the figures in the following tables from five separate determinations of the same liquid extract.

TABLE I.—PHARMACOPŒIA METHOD, SHOWING LOSS.

Lead Ppt.		Result in grammes per 100 C.c. liquid ext.	Loss (by difference) between the mean of two results by Wilson's process.†
Washing Water used for washing only.	Time, in hours, taken up in washing.		
½ litre	5	1·94	0·25
1 litre	10	2·00	0·19
1½ litres	13	2·030	0·16
2 litres	16	2·065	0·125
2½ litres	20	2·105	0·085

Another serious objection to the Pharmacopœia process is the extraction of the alkaloid from such a large volume of liquor as results from the combined washings of the lead precipitate and the excess of lead as sulphate produced by decomposition with the diluted acid. The loss of alkaloids entailed may be minimised either by shaking out the washings in small portions at a time or by previously evaporating them to a small bulk, the tendency in either case being to make the process more lengthy and tedious.

Wilson‡ has published a process which is a great improvement on the official one, inasmuch as it is more accurate, and provided the liquid extract operated upon is not of an exceptionally resinous nature it may be assayed by it in much less time. The solvent he employs in the early part of the process extracts matter that would otherwise be finally weighed as alkaloid, while a large portion of the resinous constituents remain in the acidified liquor in a precipitated and insoluble state. The presence of this insoluble matter renders subsequent separations under certain conditions both difficult and tedious. In two or three samples of liquid extract to such an extent has the insoluble matter interfered that, after making the liquid alkaline with ammonia and shaking up vigorously with the chloroform ether, the solvent showed little tendency to separate after several hours and even days, although the separator was immersed in hot water. The important point to note is that the separations are comparatively speedy or prolonged according as the resinous constituents vary.

Of the methods we have tried the following deserve notice:—

1. *The Lime Process.*—To 5 Gm. of slaked lime in a basin add 5 C.c. of liquid extract, care being taken to prevent the latter from coming into direct contact with the containing vessel. The measure is rinsed with alcohol and the rinsings added to the lime mixture, and the whole dried over a water-bath. The dry residue is next exhausted in a Soxhlet by boiling ether. The ethereal solution is extracted with ½ per cent. sulphuric acid, and the latter with ammonia and chloroform. The residue from the chloroformic extractions was dried and weighed.

Our only object in including Glenard's process is to point out the exact cause of the low results yielded by it. The explanation is rendered possible by the elaborate researches of Paul and Cownley on ipecacuanha. Small quantities of the alkaloids, emetine, and cephaeline in a pure condition were treated alone and separately by the lime process exactly as with the liquid extract, the alkaloid being first dissolved in alcohol. The results here tabulated clearly show that the loss of alkaloid is due to the action of the lime on the cephaeline, the emetine being uninfluenced by the treatment.

TABLE II.—LIME PROCESS WITH PURE ALKALOIDS.

Alkaloid.	Amount taken.	Amount returned.	Per cent. returned.	Per cent. loss.
Emetine	0·100	0·098	98	2
Cephaeline	0·074	0·060	81·09	18·91

We note Paul and Cownley in their researches make the statement that "Glenard's extraction by means of lime and ether and recrystallisation of the hydrochloride are precisely the conditions most favourable for eliminating cephacline, and insuring the production of pure emetine. (*P. J.* [3], **25**, 115.)

2. *Kieselguhr Process.*—To 5 Gm. of kieselguhr, freed from every trace of lime, placed in a porcelain basin, add 5 C.c. of the liquid extract, and dry the mixture over the water-bath. The dry powder, after transference to a Soxhlet, is then treated throughout by Ransom's* ammoniated chloroform process. The chief drawbacks to this method are the time and care required for its exact performance.

3. *Process.*—To 5 C.c. of the liquid extract, placed in a porcelain basin, add 2 drops of diluted sulphuric acid, and heat over the water, bath gently to drive off the spirit. The acid solution is then transferred to a separator, together with the small portions of water used for washing the basin, ammonia is added in excess, followed by 10 C.c. of chloroform and agitated. The agitation and separation with chloroform is twice repeated. The chloroformic solutions are mixed and extracted with 10 C.c. of ½ per cent. sulphuric acid thrice repeated. The separated acid solutions are united, rendered alkaline with ammonia, and extracted with three successive 10 C.c.'s of chloroform. The chloroformic solutions are evaporated and the residue dried, weighed, and titrated with N/10 HCl. Although the process is not open to the charge of inaccuracy it has the one serious defect of consuming much time, owing to the great difficulty with which the separations take place, even when the separator is immersed in hot water. After giving this process a fair trial and experimenting further we decided to abandon it and to adopt the following:—

4. *Process.*—Place 10 C.c. of liquid extract in a basin over a warm water-bath until the alcohol is dissipated. The solution is transferred to a 50 C.c. flask, and the basin is washed with small portions at a time of a mixture of 2 C.c. of diluted sulphuric acid and 30 C.c. of water. The solution is filtered and water passed through the filter until the volume measures 50 C.c. Of the filtrate 25 C.c., representing 5 C.c. of liquid extract, are transferred to a separator, together with the small portions of water used for washing the measure, and the solution is shaken up with 10 C.c. of chloroform. After removal of the separated chloroform the solution is agitated with another 10 C.c. of chloroform, which after separation is also withdrawn. The solution is then made alkaline with ammonia and extracted successively with 3 × 10 C.c. of chloroform. The chloroform solutions are mixed, evaporated, and the residue weighed and titrated with N/10 HCl.

The accuracy of this process is shown in the appended table, which gives strictly comparable results on the same sample of liquid extract. An additional recommendation is the rapidity with which the assay can be made. Its distinctive feature is the removal of the resinous substances by a rapid and simple method without loss of alkaloid, thereby making possible the quick separation of the chloroformic solutions.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

† Which is 2·19 grammes per 100 C.c.

‡ *Pharmaceutical Journal* [4], **7**, 3.

* 'Year-Book of Pharm.,' 1887, p. 450.

TABLE III.—COMPARATIVE RESULTS.

Process.	Amount of liquid extract taken in C.c.'s.	Weight of alkaloid obtained.	C.c.'s of N/10 HCl absorbed.	Yield of alkaloid by titration.	Amount of impurity.	Alkaloid in Gms. per 100 C.c. liquid extract by weighing.	Alkaloid in Gms. per 100 C.c. liquid extract by titration.
B.P. 1898....	20	0·402	14·0	0·3374	0·0646	2·010	1·687
Wilson's....	20	0·400	13·5	0·32535	0·07465	2·000	1·62675
Lime	5	0·088	2·8	0·06748	0·02052	1·760	1·3496
Kieselguhr .	5	0·106	4·0	0·0964	0·0096	2·120	1·928
No. 3.....	5	0·114	4·2	0·10122	0·01278	2·28	2·0244
No. 4.....	5	0·110	4·1	0·09881	0 01119	2·20	1·9782

In the above examinations the separations in most cases were troublesome, owing to the nature of the liquid extract being very resinous.

The calculations are made upon the basis that 1 C.c. of N/10 HCl is equivalent to 0·0241 Gm. of mixed alkaloids, titration being conducted as given in the B.P., 1898, page 104, under belladonna assay.

As alkaloidal residues differ in their degrees of purity, we are of opinion that their amount should not be determined by gravimetric processes, but that their titration should be insisted on.

In the following table the results given are obtained from six samples of liquid extract by the foregoing processes, titrations excepted, and by the processes respectively of Wilson and the Pharmacopœia.

TABLE IV.—ASSAYS OF LIQUID EXTRACT.*

No. of sample.	B.P. 1898 process.	Wilson's process.	Lime process.	Process No. 3.	Process No. 4.
1 (*a*)	1·94	2·25	1·28	—	—
(*b*)	2·0	2·13	1·38	—	—
2 (*a*)	2·94	3·16	2·2	3·384	—
(*b*)	2·995	3·11	2·1	3·296	—
3 (*a*)	1·90	2·053	1·452	2·268	2·273
(*b*)	1·905	2·014	1·521	2·301	2·289
4 (*a*)	3·025	3·275	1·64	3·584	3·528
(*b*)	3·001	3·112	1·484	3·406	3·413
5 (*a*)	1·886	2·013	1·382	2·304	2·289
(*b*)	1·950	1·998	1·525	2·288	2·249
6 (*a*)	1·996	2·135	1·463	2·401	2·368
(*b*)	1·935	2·104	1·612	2·397	2·349

For the assay of the wine the following adaptation of the previous process is recommended. 100 C.c. is evaporated over the water-bath to 10 C.c., a little kieselguhr stirred in, the mixture transferred to a beaker and the basin washed with the mixture of 2 C.c. of dilute sulphuric acid, and 30 C.c. of water. The solution is then filtered and water passed through the filter until the volume measures 50 C.c. Of this filtrate 25 C.c. is taken, which, represents 50 C.c. of the wine, and the remaining operations are conducted as detailed in process No. 4.

The appended table shows the results yielded by three samples of wine.

TABLE V.—VINUM IPECACUANHÆ, B.P. '98, ASSAYED BY PROCESS 4.

Sample.	Amount of wine taken.	Weight of alkaloid obtained	C.c.'s of N/10 HCl consumed.	Alkaloid amount by titration	Amount of impurity.	Alkaloid in grammes per 100 C.c. of wine. by weighing.	Alkaloid in grammes per 100 C.c. of wine. by titration.
1 (*a*)	The representative of 50 C.c. for each assay.	0·039	1·5	0·03615	0·00285	0·078	0·0723
(*b*)		0·037	1·4	0·03374	0·00326	0·074	0·06748
2 (*a*)		0·044	1·8	0·04331	0·00069	0·088	0·08662
(*b*)		0·040	1·65	0·039765	0·000235	0·080	0·07953
(*a*)		0·033	1·3	0·03133	0·00167	0·066	0·06266
(*b*)		0·030	1·2	0·02892	0·00108	0·060	0·05784

* The figures refer to grammes of alkaloid per 100 C.c.

MISCIBLE LIQUID EXTRACT OF IPECACUANHA.*

BY F. C. J. BIRD.

The liquid extract of ipecacuanha of the present Pharmacopœia is, undoubtedly, a great improvement on the dried acetic extract official in the last edition of that work. The new preparation possesses the advantages of standard strength, good keeping properties, and fine aroma of the root, but these good qualities are accompanied by the minor defect, from a pharmaceutical point of view, of precipitation when diluted with weak alcoholic or aqueous liquids.

The cause of this precipitation is usually attributed to the presence of resinous substances in the liquid extract, although the view has been advanced that the turbidity is partly due to the decomposition product of a peculiar pectin compound. There have been no published statements as to the nature of the deposit which in the official formula for the wine is directed to be filtered out, but if the wine be not free from astringent matter the sediment will certainly contain a little alkaloid. A liquid extract not forming a precipitate on dilution would, therefore, not only save filtration, but what is often of greater importance, avoid the 48 hours' delay incidental to the preparation of vinum ipecacuanhæ by the present B.P. formula.

The constituents of ipecacuanha root, isolated and identified by various observers, are the following :—Emetine, cephaeline, and a third alkaloid (unnamed), ipecacuanhic acid, volatile oil, fat, resin, and sugar, all of which are probably contained in the official liquid extract. There are also present in the root pectin, waxy bodies, dextrin, mucilage, albuminous substances, starch (in large proportion), and colouring matter. Other principles of doubtful existence have also been described.

The resins of ipecacuanha have never been credited with either emetic, diaphoretic, or expectorant effects, and their entire or partial removal can hardly affect the medicinal action of any preparation of the drug, at least as far as those particular properties are concerned.

When an equal volume of water is added to liquid extract of ipecacuanha and the mixture allowed to stand the filtered liquid will generally be found to form a perfectly bright solution when diluted with detannated sherry wine, and the following process for rendering the official liquid extract "miscible" is based on this fact.

Liquid extract of ipecacuanha B.P.....	1,000 C.c.
Distilled water	1,000 C.c.

Mix, and allow to stand in a cool place for twenty-four hours. Filter and wash the residue on the filter paper with a little distilled water until colourless, keeping the washings separate. Acidify the filtrate with acetic acid, *q.s.*, to a very faint acid reaction. Distil by the heat of a water bath until the distillate (as shown by volume and sp. gr.) contains 400 C.c. absolute alcohol. This will generally measure about 520 C.c. Reserve this portion of the distillate, and continue the distillation to recover remaining alcohol. Evaporate the residue on the water bath to about 420 C.c. Allow to cool, and pour off the bright liquid from any slight deposit of oily or resinous matter adherent to the dish. Add this to the reserved distillate. Rinse the dish with the washings obtained in the first part of the process. Filter if necessary, and evaporate sufficiently to make the total volume of the preparation equal 1,000 C.c.

The finished product of the above formula gives a bright mixture with detannated wine, yields from 2 to 2·25 per cent. alkaloid by the B.P. method of assay, and compares favourably in point of aroma with the original preparation, nearly the whole of the odorous principles coming over with the reserved distillate. On determining the alkaloid in a sample of miscible extract there was found to have been no appreciable loss in the process. Similarly a glycerole of ipecacuahna may be prepared as follows :—

Liquid extract of ipecacuanha.....	1,000 C.c.
Distilled water	1,000 C.c.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

Mix as before, allow to stand, filter and wash the residue, evaporating the washings separately. Acidify the filtrate with acetic acid to a very faint acid reaction, distil off the alcohol, and evaporate on a water bath (adding the evaporated washings toward the end)

To	500 C.c.
Add Glycerin	500 C.c.

This also forms a clear solution with detannated wine, syrups or aqueous liquids. It contains the B.P. proportion of alkaloid, and for many obvious purposes furnishes a convenient preparation of ipecacuanha.

An alternative process for the direct preparation of miscible liquid extract of ipecacuanha was also tried, and found to work well. It is as follows:—

Ipecacuanha root in No. 120 powder	2,250 Gms.
Calcium hydroxide	225 Gms.
Alcohol (90 per cent.)	a sufficiency.

Pack the powdered ipecacuanha root lightly but uniformly in a conical percolator, add successive portions of 400 C.c. of the alcohol at intervals of twelve hours until the liquid begins to drop from the percolator; close the lower orifice, and set aside for twenty-four hours. Then percolate slowly until 700 C.c. have been collected. Continue the process as detailed in the Pharmacopœia. Recover the alcohol from the remaining percolates, evaporate on a water bath to a soft extract, dissolve in the reserved portion and assay by B.P. method. Finally dilute with alcohol (90 per cent.) to a volume that shall contain 5 Gms. of the alkaloids in 100 C.c.

Take of liquid extract of ipecacuanha (5 per cent.)	900 C.c.
Distilled water	100 C.c.

Mix, set aside for twenty-four hours in a cool place and filter. Wash the filter with sufficient distilled water to produce 2,000 C.c.

Ipecacuanha, when percolated with rectified spirit, can be used in the very finest powder, complete extraction of the alkaloids when coarse powder is employed being very tedious. By pouring the menstruum directly on the drug in a dry state, without previous moistening, as recommended above, and using the ipecacuanha in very fine powder, an intensely strong reserve percolate collects in the receiver. Even an alcohol as dilute as 20 per cent. will successfully percolate ipecacuanha in No. 120 powder provided the drug be first uniformly mixed with an equal weight of dry sand. The 5 per cent. liquid extract can also be made by repercolation, but the process just described is preferable.

The statement has frequently been made that alcohol of about 90 per cent. is the best solvent for extracting ipecacuanha; but very little published information exists on the value for this purpose of alcohol of other strengths. The only experimental investigation to determine the point appears to have been made by Mr. J. C. Umney some seven or eight years ago. He, however, worked with crushed root and an ammoniacal menstruum, somewhat different conditions to those obtaining in the case of a very finely powdered root and a purely alcoholic menstrum. It is easy to imagine that dilute alcohol, acting on a comparatively large mass of tissue, such as would be presented by crushed root, would extract the alkaloid from the cells at the surface with facility, but by the swelling of the water-soluble constituents its action on the cells in the interior of the mass of tissue would be impeded and the alkaloid would be imperfectly dissolved out by a limited volume of solvent. Under altered conditions different results may be expected, and the few experiments tabulated below apparently show that other strengths of alcohol are, with the drug in very fine powder, equally as effective as rectified spirit. Strong tinctures were prepared by macerating 1 part of ipecacuanha in No. 120 powder in 3 parts of alcoholic menstruum for three days, with frequent agitation. Equal portions of each were then filtered off, and the alkaloid strength determined by titration.

	No. 1 90% alcohol	No. 2 70% alcohol	No. 3 60% alcohol	No. 4 45% alcohol	No. 5 20% alcohol
Colour of tincture	Brown	Full brown darker than (1)	Deep brown, most intense colour	Brown between 2 and 3	Pale brown
Per cent. alkaloid	0·5	0·6	0·62	0·6	0·34

Of these tinctures, Nos. 1 and 2 gave a copious turbidity on dilution with detannated sherry. The 60 per cent. tincture showed but a moderate opalescence, and the 45 per cent. formed an almost bright mixture. It seemed probable, therefore, that an alcoholic menstruum of from 40 to 30 per cent. strength, if it could be made to extract the whole of the alkaloid and did not dissolve out an objectionable proportion of the water-soluble bodies of the root, might by simple percolation furnish a liquid extract miscible with wine. Experiments were, therefore, commenced in this direction, but I regret that the results were not sufficiently advanced to bring before this meeting of the Conference.

JOHORE IPECACUANHA.*

BY JOHN C. UMNEY AND RALPH S. SWINTON.

The recent importation of a quantity of ipecacuanha from Johore (Straits Settlements) is, at the moment when the drug is so scarce and of such high market value, of considerable importance. The root is with little doubt derived from *Psychotria ipecacuanha*, the species that yields the Rio or Brazilian root. In characters the root differs but little from that imported from Brazil, but in the particular shipment upon which these notes are based, the root was practically free from stem and the anulations more prominent.

In general appearance, however, there is but little difference as compared with a sample of bold picked Brazilian ipecacuanha root.

Microscopic examination of the powder of cultivated ipecacuanha imported from Singapore has already been made by Greenish (*Pharm. Journal* [3] **25**, 688), who reported that it is identical in physical character, in structure and in the size of the starch grains with the Brazilian root, and is practically indistinguishable from it

In the present instance microscopic examination of the powder. showed absolutely no differences as compared with powdered Rio root, free as far as possible from stem.

The *Chemist and Druggist* (May 26, 1888) states that a sample imported from Johore contained 1·4 per cent. of emetine, whilst Ransom examined a sample of the root cultivated in India and reported (*Pharm. Journal* [3] **18**, 400) that it contained 1·7 per cent. of emetine.

The chemical researches of Paul and Cownley on the ipecacuanha alkaloids and the physiological experiments of Dr. Wild, have made it possible on the one hand and necessary on the other to push the investigation further and ascertain whether the alkaloids contained in the root are the same as in the Brazilian variety, and in what relative proportions, if more than emetine only, they exist.

It will be remembered that the ratio of emetine and cephaeline in the Brazilian and Carthagena varieties is approximately as under (disregarding the small proportions of the third alkaloid) :—

	Emetine.	Cephaeline.
Brazilian	75	25
Carthagena	45	55

The processes detailed by Paul and Cownley (*Pharm. Journal* [4], **2**, 321) have been followed, which consist in extracting the total alkaloids with amyl alcohol and determining the proportions of cephaeline and emetine by taking advantage of the solubility of the former in soda solution.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

The proportion of total alkaloids was found to be 1·7 per cent., but some little difficulty was experienced in arriving at concordant results in the determination of the relative proportions of emetine and cephaeline.

The following are the mean of three experiments :—

		Percentage proportion.
Emetine	1·24 per cent.	72·94
Cephaeline	0·39 ,, ,,	22·94
3rd alkaloid or other alkaloids	0·07 ,, ,,	4·12
	1·70	100·00

These results point to the conclusion that the ipecacuanha root is, so far as the relative proportion of alkaloids are concerned, practically identical with the Brazilian, except that in the experiments that we have made there appears to exist a larger proportion of the third alkaloid, which may or may not be identical with that contained in the Rio ipecacuanha, which, in our experience, varies somewhat.

Without, of course, deciding upon the relative value of this Johore root upon one shipment only, as compared with the Brazilian, it appears to differ from it in containing a lower proportion of total alkaloids than the average Brazilian roots unmixed with stems.

Time has not permitted the extended examination of the other constituents of the root, but we have noted that the extractive yielded by the Johore root is not so great as that yielded by the Brazilian, and that the precipitate yielded by basic lead acetate solution in the extractive freed from alcohol, is very much greater in the case of the Rio root than the Johore.

These results may, of course, point to some difference in the value of the root for dysentery and allied purposes where its action may not be dependent upon the alkaloids that it contains.

So far as our observations go, however, there appears to be no reason why this root, which corresponds most closely with the official Brazilian variety, should not be used in medicine for standard preparations of ipecacuanha, unless of course it be proved that the third alkaloid, or other alkaloids, differ from that contained in the Brazilian root in character and have powerful physiological action.

THE ALKALOIDAL STRENGTH OF COMMERCIAL SAMPLES OF THE OFFICIAL PREPARATIONS OF JABORANDI.*

BY E. H. FARR, F.C.S., AND R. WRIGHT, F.C.S.

Pharmaceutical Chemists.

For several years past we have had great difficulty in preparing standard preparations of jaborandi from commercial samples of the leaves, and it occurred to us that an investigation into the strength of the tincture and liquid extract as found in pharmacy would not only serve to show whether such an experience was common to pharmacists generally, but might also yield results possessing some degree of interest to the members of this Conference. For the purpose of the inquiry twelve samples of each of the official preparations were obtained from various sources, and the results embodied in this note may be taken to represent the average strength of the preparations as found in pharmacy at the present time.

The process employed for the determination of the alkaloids was the one devised by us in connection with our previous work on the tincture of this drug.†

The details are as follows :—

Fifty C.c. of the tincture (or ten of the fluid extract) is acidified with dilute sulphuric acid and evaporated over a water-bath to a syrupy consistence, 30 C.c. of 90 per cent. alcohol added, and the mixture well stirred and allowed to stand for an hour. The liquid portion is then separated by decantation or filtration, the mucilaginous deposit dissolved in a little acidulated water, and the treatment with alcohol repeated. The dish and filter are rinsed with a little alcohol, the filtrates and rinsings bulked and evaporated over a water-bath, water being added from time to time until all alcohol has been removed. The residual liquor is transferred to a separator, the dish rinsed with a few drops of water, and the rinsings run into the separator. The liquor in the separator is rendered alkaline with ammonia, and the alkaloids shaken out with two successive 15 C.c. of chloroform. In order to obtain them in a pure condition, they are withdrawn from the chloroformic solution by shaking with acidulated water, 25 C.c. of distilled water being mixed with 2 C.c. semi-normal sulphuric acid, and the mixture used in three portions. The mixed acid alkaloidal solutions are then rendered alkaline, and the alkaloids shaken out with chloroform as before. The chloroform is removed by evaporation over a water-bath and the alkaloids dried and weighed.

The gravimetric results were in each case checked by titration, the alkaloids being dissolved in a little alcohol, a calculated excess of HCl/10 with some distilled water added, and the solution brought back with NaHO/20. Cochineal was used as the indicator. The results of the analyses are shown on the accompanying table.

Table showing the amount of alkaloids, in grammes, from 100 C.c. of the tincture and liquid extract of jaborandi.

No.	Tincture.	Liquid Extract.
1	0·025	0·240
2	0·032	0·090
3	0·024	0·190
4	0·050	0·210
5	0·084	0·090
6	0·020	0·160
7	0·022	0·120
8	0·012	0·090
9	0·044	0·190
10	0·064	0·030
11	0·040	0·170
12	0·018	0·210
Average	0·036	0·150

Before proceeding to indicate the principal conclusion to be drawn from these results, it will be well to consider for a moment the question as to what ought to be the approximate alkaloidal standard for a tincture and fluid extract, having in view the doses given in the British Pharmacopœia. Our calculations are based upon the average dose of the salts of pilocarpine, which may be taken at from $\frac{1}{20}$ to $\frac{1}{2}$ grain (0·0032 to 0·032 Gm.).

For a tincture having a fixed dose of from $\frac{1}{2}$ to 1 fluid drachm (1·8 to 3·6 C.c.) the alkaloidal standard should be about 0·15 per cent. (0·15 Gm. in 100 C.c.).

By a similar method of calculation the liquid extract should contain roughly from 0·8 to 1 per cent. alkaloids.

Looking at the question from this standpoint it is evident that the galenical preparations of the drug found in retail pharmacies at the present time are very deficient in strength, only containing about one-fifth the proportion of active constituents which, judging from the official doses, they are supposed to contain.

For this condition of things we do not think that pharmacists can be held altogether responsible. In the year 1891, in connection with our work on the pharmacy of jaborandi, we prepared a series of eleven tinctures, by the official process, from samples of the leaves then obtainable through the regular sources of supply. Two of these yielded practically 0·150 per cent. of alkaloids; eight gave over 0·1 per cent., and the average for the whole series was 0·105 per cent. At the present time, according to our personal experience, it is practically impossible to obtain a sample of the drug which will give a 1 in 5 tincture having an alkaloidal content of 0·15 per cent.

* Read before the British Pharmaceutical Conference, at Plymouth, July, 1899.

† *Pharm Journ.*, [3], **22**, 3.

What is the explanation of this state of affairs? The most feasible one seems to be that for some reason or other the true jaborandi leaves (or at any rate leaves of the best quality) are being withdrawn from the drug markets, and so prevented from coming into the hands of pharmacists at all. It may be that manufacturers of pilocarpine salts buy up all samples of leaves rich in alkaloids, for, as all of us know to our cost, the present price of these salts is quite prohibitive. *Pari passu* with this dearth of the genuine article, quite a number of substitutes have been thrown upon the drug markets. Some of these have been described and figured by Holmes,* Greenish† and others, and Paul and Cownley‡ have shown that nearly all are valueless as substitutes for the original drug.

The consideration of this subject leads to the pertinent question, are the official leaves obtainable, and if so, where are they to be had?

This is a question of great practical importance, because, should the reply be in the negative, we shall have the curious picture of an official drug which cannot be obtained from wholesale druggists, and of official preparations sometimes prescribed by medical practitioners, which are not to be found in the pharmacies of this country.

It is a question which may very appropriately be propounded at a Conference like this, and one to which our drug-brokers and pharmacologists ought, and doubtless will, be able to furnish a reply.

THE ASSAY OF PREPARATIONS CONTAINING PILOCARPINE AND THE CHARACTERS OF PILOCARPINE NITRATE AND HYDROCHLORIDE.§

BY H. A. D. JOWETT, D.SC.

Our knowledge of the alkaloids of jaborandi is in a very unsatisfactory condition, especially that relating to the assay of preparations containing pilocarpine and to the characters of the two salts used in medicine, viz., the nitrate and hydrochloride.

As regards the assay, it is possible to determine the amount of total alkaloid contained in the leaves or their preparations with a fair degree of accuracy. This information, however, is of little value, for it gives us no indication of the amount of pilocarpine contained in the total alkaloid, and it must be assumed that on the pilocarpine alone depends the therapeutic value of the preparation.

The nitrate and hydrochloride are somewhat largely used in medicine, but the official characters of these salts as given in the various Pharmacopœias are very unsatisfactory and hardly serve to identify the alkaloid, much less to determine its purity. The only salt of pilocarpine officially recognised by the B.P. is the nitrate, of which the following description is given :—

"A white crystalline powder, soluble in 8 to 9 parts of cold water, slightly soluble in cold, freely soluble in hot alcohol (90 per cent.)."

In commerce the salt generally occurs in distinct crystals and can always be obtained in this form. A little more definite information should be given as to its solubility, the factors above mentioned for water being incorrect. The test for identity which is given can hardly be considered distinctive, and depends on the oxidation of the base by chromic acid and the appearance of the green colour of chrome alum. The only other proof of identity required is furnished by a physiological test which could hardly be carried out by the analytical chemist or pharmacist.

The purity is determined by the absence of a residue after ignition Whilst this test would preclude any inorganic impurity, it would afford no discrimination between pilocarpine and a mixture of the other alkaloids of jaborandi, and indeed the alkaloid might be accidentally or intentionally mixed with an organic impurity and still meet the Pharmacopœia requirements.

* *Pharm. Journ.*, [4], **1**, 520.
† *Pharm. Journ.*, [3], **24**, 381.
‡ *Pharm. Journ.*, [4], **3**, 1.
§ Read before the British Pharmaceutical Conference at P mouth, July, 1899.

The characters and tests for the hydrochloride, which is official in the U.S.P. and German Pharmacopœia, are better than those given for the nitrate in the B.P., but still leave room for improvement. The hydrochloride is described as consisting of "white deliquescent crystals, easily soluble in water and alcohol, sparingly soluble in ether or chloroform." As this salt is exceedingly soluble in the two former solvents, the general statement is sufficient.

The melting point is given as 197° in the U.S.P., and the usual reactions for alkaloid and the inorganic acidulous radical are required as proof of identity. The freedom from inorganic impurity is ensured by the ignition test.

The chromic acid colour reaction is given in the U.S.P., but not in the German Pharmacopœia, but both give a test which distinguishes this from most other alkaloids, including most of the associated alkaloids of jaborandi.

This test is the non-formation of a precipitate on the addition of ammonia to an aqueous solution of the salt. A solution of sodium hydrate gives a precipitate only with a concentrated solution of the alkaloidal salt.

Allen ('Organic Analysis,' **3**, pt. iii., p. 37) states that the alkaloid gives no reaction with picric acid, but I have found that a yellow precipitate of the picrate is thrown down, which dissolves on warming, then separates out in needles on cooling.

Paul and Cownley (*Ph. J.*, **57**, pp. 1, 437) have made some important observations with regard to the pilocarpine nitrate and hydrochloride of commerce. They found that commercial specimens of pilocarpine nitrate were far from pure, three samples examined melting at 141·7°, 150·5°, and 167·2° respectively; further, the crystallised nitrate obtained by them from different kinds of jaborandi leaves melted at different temperatures, viz., from 151·5°–162·7°, but no proof was adduced that these were the melting points of pure chemical substances. According to these chemists, a salt described as "pure pilocarpine nitrate" melted at 141·7°, and when recrystallised from alcohol in different fractions gave no considerable alteration in the melting point. They have also examined samples of pilocarpine hydrochloride on the market and found indications of the presence of more than one alkaloid. They remark that a possible explanation given, viz., that the impurity present was jaborine, requires more definite proof.

Petit and Polonowsky* have examined the salts of pilocarpine and give the following constants :—

Pilocarpine nitrate	Prisms soluble in 7 parts of water at 18°, in 146 parts alcohol (95 p.c.) at 18°. Melting point 177°-178° $[\alpha]_D = + 82{\cdot}2°$.
Pilocarpine hydrochloride	Anhydrous prisms, soluble in 0·4 parts of water, in 10 parts alcohol. Melting point 200°. $[\alpha]_D = + 91°$.

They also state that commercial specimens examined contained an impurity, stated to be pilocarpidine, to as large an extent as 50 per cent.

These results, however, relate to chemically pure products, and it is not always advisable to insist on this degree of purity for chemicals required for medicinal use, owing to the extra expense incurred not being commensurate with the corresponding therapeutic advantage.

These results, therefore, required confirmation and also investigation as to the ease with which such impurities are removed, and the effect of small amounts of such impurity on the physical constants of the pure salt. The question has also been raised as to the identity of the alkaloid pilocarpine, when obtained from different species of jaborandi leaves, the results of Paul and Cownley being insufficient to answer this question.

In the present communication I give a method for determining the amount of pilocarpine in the total alkaloid, then proof of the identity of pilocarpine from different sources, and finally the characters and tests for pilocarpine nitrate and hydrochloride.

* *Journ. de Pharmacie* [6], **5**, 370, 430, 475, and [6], **6**, 8.

ASSAY OF PREPARATIONS CONTAINING PILOCARPINE.

Several methods are available for extracting the total alkaloid from jaborandi or its preparations, and any of these may be used to obtain the mixture of amorphous bases.

The varnish obtained is dissolved in a small quantity of a saturated alcoholic solution of pilocarpine nitrate, and to this solution is added a strong alcoholic solution of nitric acid (freshly prepared) until the solution is faintly acid, and it is then set aside to crystallise, after the addition of a small crystal of pilocarpine nitrate. It is then allowed to stand for two hours without concentration, stirred vigorously, and any crystals which have separated are filtered off, drained by the filter pump, washed with the saturated alcoholic solution of pilocarpine nitrate, dried and weighed. If no crystals separate the total alkaloid contains not more than traces of pilocarpine.

From the weight of crystalline nitrate thus obtained, the percentage of bases in the total alkaloid yielding crystalline nitrate can be calculated.

It is sufficient in most cases to assume this to be pilocarpine, but if a very accurate determination be required the melting point and specific rotation of the nitrates should be determined, and from these data can be calculated the amount of pilocarpine present. My experience, however, is that it is quite sufficient to take the melting point, and as this is generally above 170°, the calculation can be made on the assumption that the crystalline nitrates consist entirely of pilocarpine. Assuming the other impurity to be pilocarpidine, and the constants given for that salt by Petit and Polonowsky to be correct, the percentage of pilocarpine present could be determined from the specific rotation of the mixed nitrates by the following formula :—

$$p = \frac{100}{43{\cdot}7 \times}\ (x - 38{\cdot}5)$$

When p = percentage of pilocarpine present in mixture, x = specific rotatory power of salt examined.

Good results will be obtained by this method of assay if as much as 0·5 Gm. of total alkaloid be taken.

The melting point will also serve as an indication of the proportion of pilocarpine present, if above 174° it may be calculated as pure pilocarpine, if from 167° – 174° from 80 – 90 p.c. pilocarpine

If the product melts below 167° it should be recrystallised from a small quantity of hot absolute alcohol and the weight taken of the crystalline nitrate thus obtained, and proceeded with as above. Whilst not claiming that this method gives results comparable in accuracy either with the methods for inorganic or organic analysis, or even those for determining the amount of total alkaloid, yet I do claim that it is more important to know, within limits of even 5 per cent., the amount of pilocarpine in the total alkaloid than to be able to determine the latter factor with greater accuracy, since this figure gives us absolutely no information as to the amount of pilocarpine present, whilst the method described does so within the limits of experimental error above indicated.

CHARACTERS OF PILOCARPINE NITRATE AND HYDROCHLORIDE.

In order to be certain of the identity of pilocarpine nitrate from various sources, I prepared the salt from two varieties of jaborandi leaves, viz., the true jaborandi and the small leaved variety, Maranham jaborandi, and I also purified some pilocarpine nitrate purchased from two manufacturers. I found that, contrary to the statements of Paul and Cownley, and Petit and Polonowsky, the nitrate is easily purified by repeated recrystallisation from strong alcohol, and this method was used to purify the salts.

The proof of the identity of the pilocarpine nitrate prepared from these different sources and of its chemical purity was furnished by the fact that the salt, after several recrystallisations from different solvents and when obtained in different fractions, underwent no change in the melting point or specific rotatory power, and that the physical constants of the purified salt from every source were identical. The physical constants of the pure salt were :—

	Jowett.	Petit and Polonowsky.
Melting Point	178°	177 – 178°
$[a]_D$ +	82·9°	+ 82·2°
Solubility in water	1 in 6·4 (at 20°).....	1 in 7 (at 18°).

A further proof of the identity of pilocarpine nitrate as obtained from different sources is furnished by the agreement of the factors obtained by me and those given by Petit and Polonowsky.

I am unable to understand why a sample of pilocarpine nitrate, melting point 141·7°, when recrystallised from alcohol in different fractions should give no alteration in the melting point, as I obtained the following results with a commercial specimen melting at 168°, and I have never met with a preparation with a lower melting point than 167°.

Melting points of pilocarpine nitrate after recrystallisation from alcohol :—

Melting point of original salt	=	168°	
After first recrystallisation	=	175°	
„ second „	=	176°	
„ third „	=	176°	
„ fourth „	=	178°	and $[a]_D$ = + 82·34°

The specimen referred to by Paul and Cownley must have been very impure.

I am able to confirm the observations of other chemists that the pilocarpine nitrate of commerce is impure. Two specimens were examined by me from different manufacturers, and both yielded by recrystallisation about 85 p.c. of pure pilocarpine nitrate.

The examination of these specimens gives the following results :—

A. Melting point 167° . $[a]_D$ = + 77·88°
B. Melting point 168° . $[a]_D$ = + 79·08°

The impurity consisted of a crystalline nitrate of much lower melting point and specific rotatory power. This would appear to be possibly pilocarpidine nitrate, but I am not in a position at present to state whether this is the case.

Pilocarpine hydrochloride was prepared in the usual way through the base from pure pilocarpine nitrate, and then purified by repeated recrystallisation till the melting point and specific rotary power were unchanged by further treatment.

The pure salt had the following physical constants :—

	Jowett.	Petit and Polonowsky.
Melting point = 204	— 205	200°
$[a]_D$	+ 91·74°	+ 91°

I attribute the higher figures obtained by me to the greater purity of the salt examined as though made from pure pilocarpine nitrate, it melted at 202°, but after recrystallisation at 204-205°.

The hydrochloride described by Paul and Cownley as melting at 192°-196° must have been impure, but there is no reason to suppose that this impurity was different from that found in the nitrate, and stated to be pilocarpidine, as I have found that the nitrate of low melting point obtained from commercial pilocarpine nitrate yields a hydrochloride melting below 200°; this would be a likely impurity. Having thus determined the physical constants of the pure substances I am able to suggest characters and tests for these salts. With regard to their purity I should not recommend that absolute purity be required, as the removal of the last traces of the other alkaloid requires an amount of recrystallisation out of proportion to the amount of impurity originally present. A nitrate melting at 175°-176° would not contain more than 1 per cent. of impurity, but would require three or more recrystallisations to be completely purified.

I would therefore suggest the following characters and tests :—

Pilocarpine Nitrate.—White distinct crystals, permanent in the air. Soluble in 6 to 7 parts of water at ordinary temperatures, and in 146 parts of cold alcohol (95 per cent.), and fairly soluble in boiling alcohol; almost insoluble in ether or chloroform.

When heated in a capillary tube the salt melts at 176° to 178°. The specific rotatory power in aqueous solution should be + 81° to

+ 83°. On ignition the salt yields no residue (absence of inorganic impurity). A concentrated aqueous solution gives no precipitate on the addition of ammonia water or aqueous solutions of sodium or potassium hydrate (distinction from most other alkaloids). Affords the characteristic tests for nitrate.

Pilocarpine Hydrochloride.—White crystals, deliquescent in damp air. Soluble in less than its own weight of water, and in 10 parts of absolute alcohol; almost insoluble in ether or chloroform.

When the salt, dried at 100°, is heated in a capillary tube, it melts at 200° to 204.

The specific rotatory power in aqueous solution should be + 90° to + 92°. On ignition the salt yields no residue (absence of inorganic impurity). A concentrated aqueous solution gives no precipitate on the addition of ammonia water, and only a few oily drops, on the addition of aqueous solution of sodium or potassium hydrate, which quickly redissolve (distinction from most other alkaloids). Affords the characteristic tests for chlorides.

These characters and tests would ensure such a product as would seem suitable for medicinal use; but if it be thought desirable that the chemically pure salts should be used, then the constants given for these salts must be used.

DELPHINIUM STAPHISAGRIA, L.*

BY E. M. HOLMES, F.L.S.,

Curator of the Museums of the Pharmaceutical Society.

Having been accustomed to grow *Delphinium staphisagria* in my garden from seedlings obtained by exchange from various botanic gardens, and knowing by experience that it is almost impossible to raise the plant from the commercial seed employed in pharmacy, I had, until lately, naturally supposed that the plant grown in botanic gardens was correctly named. It was only when I received seeds of *Delphinium staphisagria* from a continental botanic garden that I noticed that they were much smaller than, and had not the greyish tint characteristic of, those sold by druggists. When they were sown they produced the plant already well known to me by its pale lilac flower, a spur nearly as long as the calyx, pubescent stems, and a rigid habit different to other garden larkspurs. Judging from their larger size and greyish colour that stavesacre seeds could not be produced by this plant, I obtained last year, through the good offices of Messrs. Potter and Clarke, some fresh seed of the commercial kind, but on sowing them only two germinated. These, however, showed by their very hairy stem and leafstalks and the shape of the leaves that the plant was different to that which I had previously cultivated under the name of *Delphinium staphisagria*. Unfortunately the seedlings died during last winter, and I therefore, through the kindness of the same firm, obtained last April some living plants from the district where the seed is grown. One of these, forwarded to Kew Gardens, and another to the Botanic Gardens at Cambridge, flowered in June. The flowers were of a bright blue colour, with oval, obtuse sepals, and a very short spur, not exceeding two lines long. The stem and petioles, as in the two seedlings I had raised, were densely covered with spreading, long, soft hairs, intermixed with shorter glandular hairs. On comparing the plant with the specimens of *D. staphisagria* in the National Herbaria at Kew and South Kensington, I found that this plant was undoubtedly the *Delphinium staphisagria* of Linnæus, if the herbarium specimens were correctly named. To make sure of this, I compared it with Linnæus' own specimen in his herbarium, in the possession of the Linnean Society at Burlington House, with which I found it to correspond perfectly. There can, therefore, be no doubt that the plant at present in cultivation in botanic gardens in this country is not *Delphinium staphisagria*. A comparison of it with published figures of *Delphinium staphisagria* reveals the fact that in books, as well as in botanic gardens, two species have been confused under this name. The plant with pale lilac flowers evidently agrees with the figure given in Woodville's 'Medical Botany,' tab. 154, which is quoted by De Candolle ('Prodromus' i., p. 56) as being *Delphinium pictum*, Willd. To this species, therefore, the ordinary garden plant must be referred. By De Candolle, three species are separated from the rest of the genus *Delphinium* as a distinct section, characterised by the ventricose follicles, large seeds, short spur, and biennial habit. These are named *D. pictum*, Willd., *D. requienii*, D.C., and *D. staphisagria*, L. They are distinguished as follows:

D. requienii.—Spur usually as long as the calyx, petioles pilose.

D. pictum.—Spur scarcely shorter than the calyx, petioles pubescent.

D. staphisagria.—Spur very short, petioles pilose. One of the distinctive characters given by De Candolle under D. Requienii, viz., bratclets inserted on the middle of the pedicels, does not seem to be a constant feature, and the character that the length of the pedicels is "scarcely longer than that of the flower" in *D. pictum*, "twice as long" in *D. staphisagria*, does not appear to be dependable, the length of the pedicels varying from the base to the apex of the raceme in both species. No clue is given by this author to the colour of the flower nor to the shape of the petals or sepals. Nevertheless, the two plants *Delphinium pictum* and *D. staphisagria* are very distinct in possessing the following features:—

D. staphisagria.—Stem with long, soft spreading hairs intermixed with glandular hairs. Flowers bright blue with broadly elliptical sepals; spur very short, or almost obsolete; half hardy, growing best in shade; follicles ventricose, 10Mm. diam., 20 Mm. long, with long styles; seeds large, 1-5.

D. pictum—Stem pubescent, with shorter hairs. Flowers pale lilac with narrowly elliptical sepals; spur nearly equalling calyx in length; hardy, growing well in sunlight; follicles 5-6 Mm. diam., 15 mm. long, with shorter style; seeds smaller, 1-12.

In the latest monograph by Huth (Engler 'Botanischer Jahrbucher,' 1895, p. 481), *Delphinium pictum* is made a variety of *D. requienii*. This plant is, however, so rare in our national herbaria that it is difficult to point its distinctive features. In such specimens as I have seen the 5-7 linear segments of the upper leaves are very different from the 3, usually oblong, lanceolate segments of the upper leaves in *D. staphisagria*. The spur is as long as the calyx and the follicles are less ventricose.

The best illustrations of the three species that I have been able to find are as follow:—

Delphinium staphisagria (Linn. Sp. 750), T.F.L., Nees von Esenbeck, 'Pl. Med.,' tab. 394 (1832).

Delphinium pictum (Willd. Enum. 574), Woodville 'Medical Botany,' tab. 154 (1752).

Delphinium requienii (D.C., 'Fl Franc.' 5, p. 642), Delessert 'Icones Selectæ,' tab. 63 (1820).

In Nees' figure the sepals are rather more pointed than in the living plant, but as the illustration was drawn from a dried plant lent for the purpose by Professor Reichenbach, this may account for the inexactness of their shape. In every other respect it is an admirable representation of the plant. In a footnote, Nees von Esenbeck remarks that *D. staphisagria* is often confounded with *D. pictum*, a nearly allied species occurring abundantly in gardens, whilst *D. staphisagria* is rarely cultivated, and that *D. pictum* is distinguished by its less hairy stem, much shorter flower stalks, pale flowers, longer spur, and smaller seeds. The cultivation of the wrong species, under the name of *Delphinium staphisagria*, was also noticed in 1834 by Professor Wenderoth, who published an article on the subject in the *Pharmaceutische Centralblatt* of that date, in which he states that the seeds of *Delphinium pictum*, Willd., or *D. requienii*, D.C., were received from botanical gardens under the name of *D. staphisagria*, L., and remarked that the seeds were black instead of greyish brown, and barely half the size of stavesacre seeds. He, therefore, tried to grow the plant from the

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

commercial seeds, and after numerous fruitless efforts at last succeeded. The plant he obtained he considered to be new (and gave an illustration of the plant in 1835 in the same journal, sup. 1, p. 76), and named it *Delphinium officinale*, which he described as follows:—

D. villosum et villosi-glandulifcrum, caulc simpliusculo; foliis urceolato-palmatis, 5-7 *lobis, lobis inciso-dentatis, laciniisve integerrimis, acuminatis, pedunculis bracteolas, floresque longe superantibus.*

There is nothing in this description to indicate that Wenderoth's plant is distinct from *D. staphisagria*, Linn.* But he apparently founds his idea upon Sibthorp's figure in the 'Flora Græca,' since he says that the *D. staphisagria* has violet flowers tinged with yellowish green, almost as in *D. pictum*, only more vivid, larger in all dimensions, the filaments bent outwards in a semi-circle, and the anthers brown. The concave leaves and the more divided root leaves he considers characteristic of his *D. officinale*. But the flowers of Linnæus' specimen of *D. officinale* are blue, and the leaves are more or less concave in *D. pictum*, as well as in *D. staphisagria*, and the anthers are also brown in the latter before dehiscence. Professor Wenderoth therefore offers no characters for *D. officinale* that are not found in the *D. staphisagria* of Linnæus.

It seems probable that the confusion of ideas which has existed during the last two centuries concerning the stavesacre plant is largely due to the fact that the true plant is not hardy in our climate, whilst *D. pictum* appears to bc so. The following data will show how imperfectly the true plant was distinguished.

In 1578, J. Camerarius, in his 'Epitome de Plantis Matthioli,' p. 947, figures the plant with a short spur and a lower leaf quite correctly, with seven divisions, but in 1633, Gerard, in his 'Herbal,' figures it with a long spur, although he seems to have known the true plant, since he remarks, "It is with difficulty preserved in our cold countries, albeit in some mild winters I have kept it covered with a litle Ferne to defend it from injury of the March winde, which doth more harme unto plants that come forth of hot countries than doth the greatest frosts."

In 1737, Blackwell, in 'Herbarium Blackwellianum,' tab. 265, figured the flower correctly, but the fruit and seeds incorrectly.

In 1752, Woodvillc figured *D. pictum* under the name of *D. staphisagria*.

In 1806-1840, Sibthorp, in the 'Flora Græca' gives what is apparently a Grecian form of *D. staphisagria*, differing from the Linnean plant in the flowers being of a pinkish purple, tinged and striped with green (not pure blue), although agreeing in the short spur, and ventricose, but not ovate follicles. The figure in Stephenson and Churchill's 'Medical Plants,' 1837, **2**, No. 55, is copied from Sibthorp's work.

In 1830-1832, Reichenbach, in his 'Flora Germanica,' **4**, pl. 69, No. 4674, gives a good figure of the plant but no lower leaves.

In 1875-1880, Bentley and Trimen ('Med. Plants,' **1**, pl. 4) figured a plant obtained from the Apothecaries' Garden, at Chelsea, which appears to have been *D. pictum*, but which the artist has apparently modified in his drawing by adding the hairy character taken from specimens of true *D. staphisagria* in the Herbarium of the British Museum, where the drawings were made. Dr. Trimen's remark that the seeds in each follicle are 1—12 also indicates that the plant was not *D. staphisagria*.

In 1898 Koehler ('Med. Pflanz.,' **3**, 67) gave a figure of *D. staphisagria* with a short spur to the flower, but apparently taken from a genuine dried specimen, or possibly from Reichenbach's figure modified by a fresh specimen of *D. pictum*, since the colour of the flower is given as a greyish blue, or deep violet with a greenish apex, and the stem as pubescent, not villous. The petals also are represented as less oval and the follicles less ventricose than in the true plant. But the only figure hitherto published, which is worthy of reference in any future Pharmacopœia is that by Nees von Esenbeck, and this should replace the very composite and incorrect figure given in Bentley and Trimen's 'Medicinal Plants.'

The most recent and full description of the plant is given by Huth in his 'Monographie der Gattung "Delphinium"' published in Engler's *Jahrb.*, 1895, p. 481, etc. The chief distinctive features mentioned by Huth, in addition to those already referred to, are the greater height of *D. staphisagria*, 30-100 Cm. (*D. requienii*, 30-50 Cm.), the sepals "cœruleis virenti-vittatis rarum pallidis vel albis," the ventricose carpels 10 Mm. diam., 20 Mm. long, and the seeds 1-4, large, 5 Mm. in diameter, and of *D. requienii*, the bluish colour of the flowers. This author makes *D. pictum* a variety of *D. requienii*, with variegated leaves, and enumerates a second variety named "muscodorum" with more slender stem leaves and carpels, and a musky odour.

The true *D. staphisagria* extends from Tencriffe around both the northern and southern coasts of the Mediterranean to Asia Minor, according to specimens in the British National Herbaria in London from those regions. It is quite possible, therefore, that varieties having blossoms of different tints may occur. The evidence obtainable goes to show that the form of the plant from which the seed of commerce is obtained has clear blue flowers. The exact country from which the seeds are imported I have been unable to learn with certainty, but believe them to come from the Adriatic *via* Trieste. Camerarius speaks of the plant as growing wild at Crepanum in Illyria, but it is probably cultivated also.

* See also *Botanische Zeitung*, 1853, pp. 155-157.

ON THREE NATURAL RUBBER SUBSTITUTES.*

BY DAVID HOOPER, F.C.S., F.L.S.

There is a growing demand in Europe for indiarubber and guttapercha, principally on account of the needs of tyre manufacturers on the one hand, and those of electrical apparatus makers on the other. The produce of rubber-bearing districts is being drawn upon to an unprecedented extent, and the prices of the crude article are maintained sufficiently high to encourage enterprise among collectors and traders; any information with regard to new sources of supply readily arouses an interest, and inquiries by experts are at once established to compare samples with those of recognised origin.

The three elastic gums which form the subject of this paper were collected for the Department of Economic Products to the Government of India, and specimens of two of them were handed to me for examination by Dr. George Watt, C.I.E., the Official Reporter of the Department. The products are all peculiar to India, and allusion has been made to them at various times in departmental records and public journals, but, so far as I can ascertain, no adequate analyses appear to have been made, either of the natural exudations or of the coagulated rubbers.

The first substance of this kind which might be described is that obtained from the stem of the Banian (*Ficus bengalensis*), a tree with peculiar aërial roots growing from its branches, which is frequently met with in the plains. The sister tree, *Ficus elastica*, affords the indiarubber of Assam and Burma, and I am not aware that any other species besides this one is used for producing commercial rubber, notwithstanding the large number of plants belonging to this genus, which are indigenous in India and Malaya. Watts' 'Dictionary of Chemistry' records an instance of the gum from *F. Vogellii* yielding 33 per cent. of rubber, but on account of this small proportion it was considered of too low a quality to be of use to the trade. The sample of Banian tree gum was sent under the suspicion that it was used for the purpose of mixing with Assam rubber, and an opinion was asked as to whether such an admixture would be regarded as an adulteration. No very large quantity of it could be collected at the time of year when such juices are yielded,

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

and this, of course, would be a serious drawback in the event of a demand arising for the gum.

The rubber had a dirty white appearance, a sourish odour, and a tough consistence. It sank in water. In testing it with various solvents, it was found to dissolve without previously swelling in ether, chloroform, or carbon bisulphide. This property distinguishes it at once from the rubbers of *Ficus elastica* and *Hevea brasiliensis*. Another character was the perceptible loss it experienced when boiled with alcohol. In conducting a proximate analysis of the crude rubber, an estimation was made for moisture and ash in one portion of the cake, and another portion was boiled with alcohol (90 per cent.) to remove resinous matters. A soluble crystalline substance was extracted by means of boiling distilled water. The following results were obtained:—

Water	4·06
Resins	65·24
Caoutchouc	19·82
Aqueous extract	3·64
Ash	2·06
Dross, etc., undetermined	5·18
	100·00

The resins consisted of alban and fluavil in nearly equal proportions; the former occurred in white crystals melting at 175° C. and the latter was amorphous and yellow and softened at 50°. The purified caoutchouc was brownish in colour and possessed very feebly elastic properties. The large proportion of resins present in the gum is a damaging feature, and the analysis is not calculated to attract the attention of manufacturers of rubber goods to the secretion.

The second article which has been tried as a substitute for india-rubber, or rather of gutta-percha, is obtained from two common wild plants, *Calotropis gigantea* and *C. procera*, known in the vernacular as *Madar*. The milky juice or latex of these species of *Calotropis* have long been known to yield a form of gutta-percha. Dr. Riddell, of the Nizam's Army, pointed out this fact in 1852. In 1853 a small quantity of the separated gutta was examined by Professor T. Redwood, who found it to possess many properties in common with gutta-percha of commerce. Sir Richard Shakespeare, the Resident of Gwalior, subsequently caused the electrical properties of the gum to be tested, and the result showed that it was a bad insulator. Col. Pitcher, of Lucknow, also reported that it was unsuited for cable-making purposes, as it was a good conductor of electricity.

Dr. C. J. H. Warden, of Calcutta, made a very complete examination of the madar plant in 1885, and obtained from the bark a white crystalline resin madar-alban, a yellow resin madar-fluavil, black and bitter resins, besides a considerable proportion of caoutchouc. Dr. Warden tabulated the results of his analysis according to the percentages of proximate principles found in the bark. By calculation we are able to obtain the proportion which the various resinous principles bear to each other:—

Madar-alban	12·66
Madar-fluavil	48·86
Black acid resin	19·72
Caoutchouc	16·92
Yellow bitter resin	1·84
	100·00

The amount of caoutchouc is exceptionally low, and judging from the composition of analogous gums, Calotropis gutta would doubtless be condemned by the trade.

Confirmation of the above was sought by analysing, last March, a sample of the milky juice freshly obtained from the plants growing in Bengal. The latex was milky-white in colour, and had a strong nauseous odour, and a specific gravity of 1·0416 at 15° C. The liquor was miscible with water, but was coagulated on boiling, and precipitated with rectified spirit and solutions of ferric chloride and mercuric chloride. It yielded 18 per cent. of solid matter after boiling and washing the juice. The freshly separated and washed gutta was white, tough, and feebly ductile in the cold. A small portion was dried and boiled repeatedly with alcohol (90 per cent.) until nothing further was dissolved. The solvent removed 62 per cent. of resins consisting of madar-alban and madar-fluavil, and 25·54 per cent. of insoluble gum was left. This purified gum was soft, light brown in colour, and slightly elastic in the cold.

I have recently been informed that the Director-General of Telegraphs, Cairo, has experimented with Calotropis juice, and he found that it contained 40 per cent. of pure gutta. On testing this substance he found that the molecular arrangements were not the same as those of good gutta-percha, and he was not aware of any suitable process for improving its physical properties. There is no doubt that the resins which are intimately associated with caoutchouc play an important physiological part in its formation, and when the constitution of these bodies are more thoroughly studied, it is hoped that what are at present looked upon as bye-products will eventually, by chemical methods, be converted into useful compounds with highly elastic properties.

The third substance which I am about to describe as a rubber substitute is the coagulum of the milky juice of *Excœcaria agallocha*, Linn. This tree inhabits the tidal forests of India and Burma, and the sap which exudes from the bark when it is cut is said to be poisonous, hence the name "Blinding Tree" which is sometimes applied to it. The juice is certainly very acrid, and causes intense pain to the woodcutters who by accident happen to get some of it into their eyes. The name "Arbor Excœcans" given to the tree by Rumphius, is attributed to this cause. The Conservator of Forests, Southern Circle, Madras, states that a tree supposed to be this species is known in Travancore as the "Tiger's Milk Tree," as the juice is said to blister the skin. The Dictionary of Economic Products' says that the juice "remains fluid when preserved in a bottle, but it hardens when exposed to the air into a black caoutchouc-like substance."

During a tour made last October in the district of the Sunderbans, Bengal, I was able to collect a small supply of the milky juice. The *Excœcaria agallocha* in this district is called *Gengwa*, and the tree is largely cut for fuel, and sold to merchants in Calcutta. The tree is genuinely dreaded by the woodcutters on account of the irritating nature of the juice, but as this flows freely at certain times of the year, and is known to yield a kind of rubber, I was asked by the officer of the Forest Department to particularly ascertain its value in this respect.

The latex was a milk-white liquid, having an acid reaction and an odour of sour milk. It remained in a closed bottle for several weeks without separating or changing in colour. It mixed freely with water, but coagulated below the boiling point, and was also precipitated when spirit was added. The specific gravity at 15° C. was 1·0718. The following is an analysis of the latex:—

Water	61·94
Resin (fluavil)	28·85
Sol. in water	1·76
Albumin soluble	3·40
„ insoluble	4·05
	100·00

The resin, which was soluble in alcohol, ether, chloroform and bisulphide of carbon, was a clear, amber-coloured body, softening at 45° C., and fluid at 55°; it was unaffected by caustic soda solution and the diluted mineral acids. The resin gave off the odour of caoutchouc when burning, and produced a smoky flame peculiar to hydrocarbons. These characters are those of fluavil, but in this case it was unaccompanied by any substance related to caoutchouc or the white crystalline alban.

The soluble albumin coagulated like the white of egg when boiled with water; the insoluble albuminous matter remained after extract-

ing the gently evaporated juice successively with carbon bisulphide, alcohol, and distilled water. The acrid principle was removed with the fluavil-like resin.

An analysis has recently been published* of the milky juice of the *Excœcaria dallachyana*, Benth. a native of Australia. The examination was made by Mr. J. C. Brünnich on a sample of the juice which had a strong smell and a slight acid reaction; it was somewhat decomposed, and had a specific gravity at 15° of 1·0578. The report certified to the following composition:—

Water	61·65
Caoutchouc sol. in naphtha	19·61
Resins sol. in ether	0·58
Tannin sol. in alcohol	5·52
Pot. salts and org. acids, sol. in water	4·07
Albuminoids insol. in water	6·54
Undetermined and loss	2·03
	100·00

The centesimal composition of this juice has certain points of resemblance with that from the Indian species, but it is evidently not adapted for commercial purposes with its irritating properties and alcohol-soluble resins.

Although the three rubber-like substances may have no industrial future, I believe a useful purpose has been served in drawing attention to them in this paper, and giving what information we possess in order that inquiries for more suitable substitutes might be made in other directions.

THE LIBERATION OF CO_2 FROM SODIUM BICARBONATE BY HEAT.†

BY C. S. DYER.

The investigation of the above subject was taken on account of the absence of information in the text books, its importance in certain branches of pharmacy, and the somewhat misleading statements which have recently been published.

During my inquiry last year on the granular preparations, the question arose as to whether sodium bicarbonate decomposed in itself during the heat of granulation to any extent, and to test this point a small quantity was heated in an air bath for ten minutes at a temperature of 100°-105° C. and then weighed. The loss was about 2 per cent. This was assumed to be largely moisture, and the practical stability of the salt under those conditions was taken for granted without further experiment.

Since that date a paper by Mr. Cowie was read at Edinburgh, where he stated and maintained that bicarbonates decompose at a temperature of between 50° and 60° C. This surprising assertion naturally called for the clearing up of the matter.

Three processes were adopted, and the examination of the salt was carried out for comparatively short periods and at moderate temperatures only.

First Method.—There is the plain heating of the salt in an air bath and noting the loss in weight.

Second Method.—The volumetric method: that is, connect a tube containing the weighed salt with a nitrometer filled with mercury; heat the tube in a sulphuric acid bath and measure the gas evolved at various temperatures.

Third Method.—Heat the weighed salt in a U-tube immersed in a water bath; connect with potash bulbs and calcium chloride tubes; pass dried air through all and weigh separately the CO_2 and H_2O evolved, and check result by weighing the decomposing salt.

The apparatus is similar to that used for carbon combustions, substituting the U-tube for the combustion tube and furnace.

The results of the first and simplest method are as follow:—

$NaHCO_3$, 10 Gm., heated for ten minutes at 100° C., lost 0·77 per cent.; $NaHCO_3$, 10 Gm., heated for ten minutes at 100°-108° C., lost 0·93 per cent. additional; $NaHCO_3$, 10 Gm., heated for ten minutes at 105°-110° C., lost 1·27 per cent. additional; or, total loss, 3·17 per cent. 100° C. was the lowest temperature tried by this method.

So after heating for thirty minutes at temperatures 100°-110°, only 3.17 per cent. loss occurred. This simply bears out my last year's experiment, but does not carry much information.

The second method: 0·488 Gm. contained in a tube connected with a Lunge nitrometer filled with mercury was heated for periods of ten minutes successively at various temperatures with an interval between each to allow the gas to cool and be measured. Here are the results:—The 0·448 $NaHCO_3$ can evolve 65 C.c. of CO_2.

Centigrade temperature.		Time exposed.	Quantity of CO_2 evolved.
60°	Cooling interval between each.	10 minutes.	*Nil.*
80°		" "	*Nil.*
90°		" "	0·6 C.c.
100°		" "	1· C.c.
120°		" "	2· C.c.

After this the heat was continuously raised without cooling intervals to 178° C., fifteen minutes being the time so used.

130°	No interval	15 minutes aggregate.	9 C.c.	These of course are too high, as the amount of CO_2 evolved was read while the gas was hot.
135°			10 C.c.	
140°			14 C.c.	
150°			20 C.c.	
155°			25 C.c.	
160°			32 C.c.	
178°			50 C.c.	This after cooling declined to 33 C.c.

So the loss of CO_2 by weight up to 120° was 0·86 per cent. out of a possible 25 per cent. This is very slight, owing to the absence of air circulation. The loss at the high temperature at the end of experiment was only 15 per cent. of CO_2, or a little more than half the possible loss if the whole of the salt was converted into normal carbonate.

The third method: As previously described the weighed salt was successively heated for ten minutes at different temperatures, then removed from source of heat, and air was still passed through the apparatus for three minutes to wash out all traces of H_2O and CO_2.

The mean of a number of experiments is tabulated below; the quantity of salt used is calculated to 1 Gm.

No. of Experiment.	Temp.° Centigrade.	CO_2	H_2O.	Per cent. Loss in Weight of CO_2.	
				Each Experiment.	Aggregate.
1	50°—60°	0·0005	0·001	0·0015	
2	70°	0·001	0·003	0·004	0·0055
3	80°	0·001	0·004	0·005	0·0105
4	90°	0·007	0·005	0·012	0·0225
5	100°	0·012	0·006	0·018	0·0405
6	105°	0·021	0·009	0·030	0·0705
7	110°	0·040	0·016	0·056	0·1265

To comment on this table it appears that the liberation of CO_2 is practically *nil* at 60° C., and under then at 70° to 80° chiefly H_2O comes off, and, after the gas is set free, in regular increase as the heat rises.

Now a loss by heat alone is possible to the extent of 36·9 per cent. as expressed by the equation—

$$2NaHCO_3 = H_2O + CO_2 + Na_2CO_3$$

Examine the above table at 105°. When the salt has been heated for an aggregate period of one hour, only 7 per cent. by weight is lost, scarcely one-fifth of the total possible amount under these rather severe conditions.

As regards Mr. Cowie's experiments I have no doubt that they were perfectly accurate, but finding traces of CO_2 by a delicate test on exposing a bicarbonate to a temperature of about 55° C., is, in my opinion, not sufficient ground for declaring that the salt decomposes at that temperature to any practical extent, and probably the traces of CO_2 merely came over with the smal amount of moisture usually present. At temperatures below 100° dry sodium bicarbonate decomposes slowly; below 60° scarcely a all, and above 120° decidedly rapidly.

* *Queensland Agricultural Journal*, October, 1893, p. 285.

† Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

THE DETERMINATION OF DIABETIC GLUCOSE. PICRIC AND FEHLING METHODS COMPARED.*

BY R. H. PARKER, F.C.S.

Of the many available methods for the quantitative determination of diabetic glucose, the picric and Fehling tests offer most advantages to the busy pharmacist, particularly to such as cannot conveniently set apart counter space for the exclusive use of special apparatus.

The picric method is rapid, and with close attention to manipulative detail, constant results are easily obtained. The necessity however, of removing creatinine and other "interfering substances" in order to deal with small percentages of sugar, involves the expenditure of too much time for clinical purposes.

The Fehling method, when dealing with high percentages, is perfect, but if the sugar falls below 2 per cent, the cuprous oxide usually refuses to subside, so that rapid reading is impossible. Gerrard's "cyano-cupric" and Pavy's "ammonio-cupric" modifications dispose of this difficulty, but are less convenient, and for very small percentages their precision is marred by the colour reactions of normal constituents.

Noting the beautiful precision with which the Fehling test invariably reacts when dealing with high percentages, it occurred to me that the same result might be realised with specimens under two per cent. by adding a known quantity of glucose before determination. This proved eminently satisfactory, an aqueous solution of commercial glucose of known strength (from 6 to 8 per cent.) being used for the purpose; but as diabetic glucose reacts with Fehling's solution much more sharply than commercial glucose, even better results attend the use of a diabetic urine of similar sugar strength, preserved with 1 per cent. of formalin. On adding this to an equal volume of a sample giving the "non-subsiding" yellow cuprous oxide the mixture may be determined immediately, the Cu_2O then coming down as a dense, rapidly subsiding red precipitate.

Having observed occasional discrepancies between the Fehling and picric determinations, I have for a considerable period assayed samples by both methods, and in the following table the results are recorded arranged in sequence according to the amount of sugar indicated by Fehling. The Fehling's solution was taken as equivalent to 0·5 per cent. of glucose, and the value of the picric standard colour was fixed by the results obtained with the high percentage urines, and found to equal 0·059 per cent. Taking this as unity I have usually recorded the "picric indication" by a numeral indicating multiples of this unit.

TABLE I.

Fehling and Picric results compared.

Sample.	Glucose found, Fehling Method.	Glucose found, Picric Method.	Ratio of Results, F. to P.	Sp. Grav. of Sample.
	Per Cent.	Per Cent.		
1	0·2	0·33	1 : 1·65	1·021
2	0·36	0·55	1 : 1·53	1·027
3	0·4	0·52	1 : 1·30	1·013
4	0·4	0·50	1 : 1·25	1·023
5	0·42	0·59	1 : 1·40	1·025
6	0·54	0·57	1 : 1·06	1·011
7	0·59	0·79	1 : 1·34	1·024
8	0·6	0·65	1 : 1·08	1·016
9	0·7	1·00	1 : 1·43	1·030
10	0·8	0·94	1 : 1·18	1·024
11	0·84	0·94	1 : 1·12	1·025
12	1·0	1·09	1 : 1·09	1·024
13	1·2	1·2	1 : 1·00	1·025
14	1·2	1·2	1 : 1·00	1·025
15	1·8	1·8	1 : 1·00	1·024
16	2·05	2·1	—	1·020
17	2·1	2·1	—	1·027
18	2·1	2·1	—	1·014
19	2·2	2·2	—	1·027
20	2·5	2·6	—	1·030
21	2.55	2·6	—	1·014
22	2·6	2·6	—	1·028
23	2·7	2·6	—	1·024
24	2·7	2·7	—	1·033
25	2·9	2·8	—	1·020
26	3·6	3·5	—	1·025
27	4·2	4·2	—	1·036
28	5·5	5·9	—	1·041
29	6·0	6·0	—	1·033
30	6·6	6·6	—	1·034
31	8·8	8·9	—	1·041
32	8·8	8·8	—	1·043

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

It will be seen from this table that the determinations are always in close agreement when the sugar is over 1 per cent.; below this the divergence is considerable, increasing as the sugar diminishes and being usually intensified by increase of specific gravity. Evidently the "interfering substances" have a much more intense reducing power upon picric acid than upon Fehling's solution, and the discrepant results are simply conditioned by the quantitative position which the sugar holds in the total solids.

Further questions arise: (1) Is there a natural limit to the possible percentage of "interfering substances"? (2) How can "interfering substances" be most readily distinguished from glucose? On this quest I have studied the behaviour of the two tests as applied to non-diabetic samples on the one hand, and to diabetic samples, having a sugar indication below 0·5 per cent., on the other. In every case the sample was first treated with 25 per cent. of liquor potassæ and filtered (to remove phosphates, etc.). The picric results are recorded in terms of the dilution required to equal the colour standard (unity being equivalent to 0·059 per cent. glucose). The Fehling results record the behaviour of 1·25 volume of alkalised urine dropped slowly into one volume of boiling Fehling's solution, noting any change in colour, and the lapse of time after which opacity (if any) occurs.

Table 2 comprises all diabetic samples of low sugar percentage, while in Table 3 are collected all non-diabetic samples showing high picric indication.

Op. = opaque.

Tr. = translucent, opaque by reflected, bright by transmitted light.

N. D. = next day.

TABLE 2.

Diabetic samples with low Picric indication.

	Sp. Gravity.	Picric Indication 1 = 0·059 Glucose.	Behaviour with Fehling's Solution.
1	1·017	1·5	No opacity; N.D. upper portion more blue than lower.
2	1·011	1·8	No opacity; N.D. bottom third opaque.
3	1·018	2	No opacity; N.D. bottom half translucent green.
4	1·018	2·5	No opacity; N.D. no opacity, upper portion more blue.
5	1·025	3	No opacity; N.D. no opacity, upper portion more blue.
6	1·025	3	Brilliant green, no opacity.
7	1·016	3	No opacity; N.D. trace ochre ppt. and bottom 10th Tr.
8	1·024	4	Brilliant green, no opacity.
9	1·020	4	Tr. in 1 hour, Op. in 3 hours.
10	1·020	4	Do. do.
11	1·015	4	Op. in 30 seconds.
12	1·027	5	Tr. in 2 hours.
13	1·025	5	Op. in 1 minute.
14	1·018	5	Tr. in 2 minutes, Op. in 5 minutes.
15	1·022	5	Op. in 30 seconds.
16	1·021	5·5	Op. in 1 minute.
17	1·024	6	Op. in 2 minutes.
18	1·019	6	Op. at completion of ebullition.
19	1·026	8	Op. in 20 seconds.
20	1·025	8	Brilliant green, Op. in 30 seconds.
21	1·018	8	Op. before completion of ebullition Half strength = Op. at end of boiling Quarter strength = Op. in 1½ minute.

The difference between these two tables is very marked; in diabetic samples (Table 2) the peculiar translucency or opacity appears sooner or later in almost every case, even with a picric indication as low as 1·8. On the other hand, in non-diabetic samples (Table 3) no opacity whatever occurs. Moreover, it may be noted in Table 3 that a picric indication of 6 (equal to 0·35 per

cent. glucose) appears to be the highest limit for the occurrence of "interfering substances."

Table 3.

Non-diabetic samples with high Picric indication.

	Sp. Grav.	Picric Indication 1=·059 Glucose.	Behaviour with Fehling's Solution.
1	1·026	3	Brilliant, slightly green, no opacity.
2	1·025	4	Brilliant green, no opacity.
3	1·028	4	Do. do.
4	1·030	4·5	Brilliant olive green, no opacity.
5	1·025	4·5	Brilliant green, no opacity.
6	1·031	5	Scarcely altered.
7	1·024	6	Brilliant olive green, no opacity.
8	1·015	6	Very dark green, no opacity.
9	1·028	6	Do. do.
10	1·029	6	Brilliant green; N.D. bottom fourth Tr. (patient overfed and gouty).
11	1·025	7·5	Brilliant greenish brown, N.D. very slightly Tr. (dark brown sample; much salol derivatives).

Attention was next directed to the possibility of utilising the first appearance of opacity as a fixed point for quantitative observation of minute traces of glucose. In every case the sample was mixed with one-fourth its volume of liquor potassæ, filtered, and 1·25 volume of filtrate dropped slowly into one volume of boiling Fehling's solution. It was found (1) that highly saccharine urine diluted with water never gives opacity with Fehling's solution, the Cu_2O being always produced as a dense red precipitate; even 0·05 per cent. can readily be detected by the spot of red precipitate at the bottom of the test tube; and (2) that highly succharine urine, diluted with normal urine, gives a dense red precipitate down to 2 per cent. Below this the precipitate subsides less rapidly; below 1·5 per cent. the yellow ochre opacity appears during ebullition, and the Cu_2O is practically non-subsiding. At 0·4 per cent. the opacity still appears before ebullition is completed; at 0·3 per cent., just at the end of ebullition; at about 0·2 per cent. the solution remains unaltered blue during ebullition, but about a minute afterwards it changes rapidly to deep transparent green, then translucent, and finally opaque; at 0·1 per cent. the opacity appears five or ten minutes after ebullition; and at 0·05 per cent. no observable change takes place for some hours.

The first appearance of opacity is somewhat deferred by the normal constituents of urine; the following series of comparative experiments will illustrate this. A highly saccharine urine (containing 8·8 per cent. glucose) was diluted with normal urine to contain 0·5 per cent., this was further diluted to lower percentages (A) with water, and (B) with normal urine; the behaviour of each with Fehling's solution was then noted:—

0·4 per cent. { A. Opaque before end of boiling. B. Do. do.
0·3 per cent. { A. Opaque before end of boiling. B. Opaque just at end of boiling.
0·2 per cent. { A. Opaque just at end of boiling. B. Unaltered for two minutes, then translucent green for several hours.
0·1 per cent. { A. Opaque after twenty seconds. B. Unaltered for six minutes, then translucent green for several hours.
0·05 per cent. { A. Brilliant blue, no opacity, red deposit visible in a few minutes. B. Brilliant blue, no opacity, no deposit.

Conclusions.

1. The production of opacity in Fehling's solution by alkalised urine is characteristic of glucose.

2. "Interfering substances" do not produce this opacity, and rarely occur in greater quantity than a picric indication of 0·35 per cent. glucose.

3. When the picric indication falls below 0·4 per cent. the actual amount of glucose present (if any) may be approximately ascertained by noting the point at which opacity appears, diluting, if necessary, until the Fehling remains unaltered during ebullition and becomes opaque about a minute later. This dilution will be approximately 0·2 per cent.; a further halving of the strength should leave Fehling unaltered blue for five or ten minutes.

4. Samples of urine giving the non-subsiding yellow cuprous oxide may be rapidly assayed with Fehling's solution, if previously mixed with an equal volume of glucose solution of known strength (6 or 8 per cent.).

THE SALIENT FEATURES OF THE FLORA OF DEVONSHIRE.*

by G. Claridge Druce, M.A., F.L.S.

On two or three occasions I have been permitted by the generosity of your long-suffering Honorary Secretaries to intervene for a few moments between your truly pharmaceutical subjects and to give a slight sketch of the botany of the district which in our itinerations we are from time to time visiting. At Oxford I dealt with the physiography and botany of the Thames Valley, and showed that the scenery was influenced by the character of the strata through which the river cuts its way. And though that county exhibited no grand rocky cliffs, nor was there any mountainous chain to be encountered, yet in the rather obscure escarpments and in the rich and fertile meadows through which the full-fed river winds slowly through an almost endless plain, diversified occasionally with chalk hills richly clad with beech woods, the flora was large and possessed some plants of great interest and rarity. At Glasgow, as those who had the misfortune to be present may perhaps remember, I treated for a few moments on the special plants to be found native in Scotland, and I contrasted the flora of England with that country, and showed that between sixty and seventy Scottish species are not found south of the Border; and at that meeting I was enabled to state that I had been able to add another species to the group, namely, *Carex helvola*, which I gathered on Ben Lawers, where I have subsequently found that it was gathered as long ago as 1794 by Robert Brown, and a specimen of it labelled *C. cinerea* exists in the British Museum Herbarium.

At Belfast last year I discussed the peculiarities of the Irish flora, and pointed out that whereas 800 British species found the Irish Channel too wide a barrier to cross, on the contrary, twenty-three species are recorded for Ireland which are not found in either England or Scotland. I am afraid I have created another Irish grievance, but I have confidence in your President enough to believe he will save me from any untimely end if I once again cross to those hospitable shores. The truth is that after our pleasant meeting at Belfast I investigated the marsh about Mullaghmore Lough in Central Armagh, from whence a new species of sedge (*Carex rhynchophysa*) had been recently recorded, but which was not known to occur in Great Britain, the species being, in fact, limited to Finland, Russia, and Northern Europe. The discovery, therefore, of a sedge with this range of distribution in Ireland, but unknown in Scotland, was of peculiar interest to the phyto-geographer. However, my rather protracted search, and subsequent examination of authentic Irish specimens of the sedge called *C. rhynchophysa*, led me to believe that a mistake of identification† has occurred, and that although the Mullaghmore sedge is of considerable interest it is not *C. rhynchophysa*, but a peculiar form of *Carex rostrata* (a sedge having a wide range of distribution and variation in the United Kingdom) called var. *latifolia* by Ascherson. Perhaps the President will take my discovery of *Gentiana baltica* and *Callitriche obtusangula* in Co. Down as some amends for taking away one of the species recorded for Ireland, but not from Great Britain. This year I must plead an apology for addressing you, as I am comparatively a stranger to this lovely district, but whenever I have visited it I have been delighted with its scenery, its flora, and with other amenities which I must not waste your time by detailing. Few places are surrounded by such attractive country as the three towns, and I am quite sure everyone who goes with us up the Tamar will have but one opinion as to the rare

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

† See *Journ. Linn. Soc.*, p. 276 (1899).

beauty of Devon. The geology of the district is entirely different from that of the district of Oxford or Belfast; and, in fact, we have hard igneous rocks, granite and shales, slates, and crystalline limestone beds, which account for the bold and almost mountainous character of the scenery. Indeed, on Dartmoor, within twelve miles of Plymouth, we have hills attaining to 1,700 feet in altitude. I need say very little about the flora of the neighbourhood of Plymouth, since one of the very best local floras ever compiled is that which was written by my late friend, Mr. T. Archer Briggs. It is only to be hoped that a flora of the whole of the large county of Devon may be ere long issued on similar lines, although it will be a difficult task to accomplish. I have prepared a table showing roughly how the flora of Plymouth and Devonshire compares in numbers with that of Oxfordshire, Ireland, and the United Kingdom. But the difference is much greater than the figures would lead us to suppose. The county of Devon possesses over 100 species which are not native in Ireland, nearly 140 which are not native in Scotland, and nearly 180 which are absent from Oxfordshire. In the latter case this large number is made up to a considerable extent of maritime species, Oxfordshire being entirely inland. But we may state that probably the flora of Devonshire is not less in numbers than the flora of the whole of Ireland. I will not weary you with a detailed account of the rarieties of the county, but I may draw your attention to some of the more interesting. First among them is a small Iridaceous plant which occurs on the sands at Dawlish; but nowhere else on the British mainland, namely, *Trichonema columnæ* or *Romulea columnæ*, which has a wide range on the Mediterranean coasts. Another rarity confined to Devon and Cornwall is *Hypericum undulatum* (which may eventually be found in Ireland) and *H. linearifolium*, which is also confined to the Peninsula and one locality in Carnarvonshire. *Geranium versicolor* or *striatum* is quite naturalised about Plymouth. Two species of *Lotus*, namely, *angustissimus* and *hispidus*, which are limited to the southern coast of England, are not unfrequent about this town. Six Rosaceous plants of interest occur, namely, *Rosa micrantha* var. *Briggsii*, *Pyrus latifolia*, and a small fruited pear, *P. Cordata*, which has a wide range in the east of Europe and Western Asia. The three remaining species are Brambles, one of them being a very striking species first found in the neighbourhood of Llanberis, namely, *Rubus longithyrsiger*. The order *Umbelliferæ* affords two interesting species, namely, *Eryngium campestre*, which occurs close to the Hoe, and another, a woodland species, *Physospermum commutatum*, was for a long time thought to be a species endemic to the Peninsula, and called *P. cornubiense*, but is now considered to be identical with the Continental form named *commutatum*. *Valerianella eriocarpa* has been found as an introduced plant, as has a pretty Toad flax named *Linaria supina*, which is common on the Cattedown Quarries, to which it is supposed to have been introduced with ballast. The graceful little *Sibthorpia* is found in damp, shady places, while the handsome Labiate *Melittis melissophyllum* is found in many woods, and is interesting to us as containing coumarin. A curious Dock, *Rumex rupestris*, is not unfrequent by the coast. *Poa bulbosa*, a small, bulbous grass, occurs on the Hoe, but its headquarters in Britain are on the eastern coast. Another local grass *Glyceria Borreri* is found in muddy salt marshes. In addition to these, but outside the twelve-mile radius, are the White Rock rose, only known from Somerset and Devon; *Bupleurum aristatum*, a small Umbelliferous plant found near Torquay; *Lobelia urens*, restricted to Devon and Cornwall; *Senecio squalidus*, found near Bideford; *Ononis reclinata*, known with certainty only from Devonshire, where it is found in the eastern part of the county; *Aster linosyris*, a late flowering composite; *Scirpus holoschoenus*, only known from Devon and Somerset; a very rare fern, *Asplenium septentrionale*, two rare species of *Euphorbia*, namely, *E. peplis* and *E. hiberna* and *polycarpon* are also found. It will, therefore be seen from this brief enumeration how rich in rare species is this lovely county. And it is quite certain that systematic exploration of its large area would materially add to the numbers. I may add one sentence to congratulate the Conference on the presence of Mr E. M. Holmes, who has done so much in exploring the flora of this district, and whose algœological researches have done so much to enrich the knowledge of the marine flora of Great Britain. I may also add that on our excursion we shall see a variety of *Melampyrum pratense*, which I named some years ago as var. *hians*. near the Weir Head, and two years ago on the Cattedown Quarries I met with an interesting species of *Lepidium perfoliatum* which has a curious heterophyllous condition of foliage. On that occasion I also added, contemporaneously with my friend the Rev. E. S. Marshall, a new species of *Euphrasia* to Britain in finding *E. occidentalis* on the Devon coast. It had previously been known only from the Isle of Ushant.

ANALYTICAL NOTES ON THE B.P. LOZENGES.*

BY FREDERICK DAVIS.

It was my privilege to place before the members of the Conference of 1891, a report upon the medicated lozenges of the B.P., and the state of commercial qualities of the B.P. lozenges at that time being considered somewhat unsatisfactory, not only respecting the quantity of active ingredient contained in each lozenge, but in the quality and quantity of the excipient or bases used, Professor Attfield, in his report upon the British Pharmacopœia to the General Medical Council, mentioned my report, and suggested that at an interval further experiments should be conducted. These analyses were carried out by myself at intervals of about two years, but until the advent of the 1898 British Pharmacopœia no material improvement in the medicated commercial lozenges appears to have taken place; but it is now a pleasure to be able to report upon the satisfactory state of the commercial qualities of the B.P. lozenges taken as a whole. There is no doubt that the definite statement in the current British Pharmacopœia that each lozenge shall contain a definite weight of active ingredient, and that this definite weight shall be intermingled with a basis of specific composition, tends to greater accuracy.

The lozenges of the leading manufacturers vary in size and shape, but this does not now appear to influence the quantity of active ingredient present.

I append a table showing the quantity of active ingredient analytically found in each lozenge expressed as decimal of a grain, from six samples respectively.

It will be observed the quantity of active ingredient is very nearly that which the B.P. directs, and taking into consideration experimental error, the constants are good excepting in the lozenges of sodium bicarbonate and sulphur, and in these cases there appears to be a laxity in making which should not exist.

In the reduced iron lozenge the determination was calculated upon 75 per cent. basis of metallic purity.

In the rhatany and cocaine lozenge the cocaine hydrochloride only was determined, and similarly the morphine hydrochloride in the morphine and ipecac. lozenges.

No examination of the basis has been made in any case.

Sample.	Benzoic Acid.	Carbolic Acid.	Tannic Acid.	Bismuth.	Catechu.	Eucalyptus.	Reduced Iron.	Guaiacum.	Ipecac.	Krameria.	Krameria and Cocaine.	Morphine.	Morph. and Ipecac.	Potassium Chlorate.	Santonin.	Sodium Bicarbonate.	Sulphur.
I.....	·54	1·01	·51	2·1	Not determined.	Not determined.	1·2	Not determined.	Not determined.	Not determined.	·038	·028	·029	3·2	·98	4·2	6·5
II.....	·55	1·01	·50	2·08			1·1				·049	·030	·031	3·02	1·02	3·5	5·9
III.....	·52	1·12	·54	2·00			1·00				·044	·028	·028	3·19	1·15	3·1	5·2
IV.....	·50	1·08	·53	2·09			1·05				·05	·026	·029	3·2	1·1	3·3	5·3
V.....	·52	1·14	·49	1·97			1·08				·042	·027	·031	3·6	·92	4·1	7·4
VI.....	·54	·98	·49	2·00			1·18				·051	·032	·027	3·03	1·21	3·9	6·9

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

HYDROGEN PEROXIDE.*

BY CHAS. T. TYRER.

I have endeavoured in the following paper to give some idea of the rate of decomposition and the protective value of various agents for solutions of hydrogen peroxide:—

(1) Hydrogen peroxide, 10 vol., containing 0·5 per cent. of free sulphuric acid was taken, bottled in pint stoppered bottles, Winchester quarts stoppered, champagnes corked, soda-water bottles corked, half-gallon stone bottles screw stoppered, and placed in diffused light and at ordinary temperature and atmospheric conditions. The volume of each was taken every month for six months; after that, as it seemed probable that the loss was accelerated by taking out the 1 C.c. from each, necessary for examination, they were allowed to remain until ten months had elapsed. The following are the results:—

Time.	Pints.	Wr. Quarts.	Champagnes.	Soda Water Bottles.	½-Gallon Stone, Screw Stoppered.
1 month	9·8	9·0	10·0	9·6	10·0
2 months	9·0	8·4	9·2	8·9	9·6
3 ,,	8·7	8·1	8·7	8·5	8·8
4 ,,	7·9	7·8	8·5	8·2	8·6
5 ,,	7·3	7·3	8·1	7·6	8·0
6 ,,	6·5	7·0	7·6	7·1	7·9
10 ,,	3·5	4·8	5·0	4·9	5·3

(2) Hydrogen peroxide solutions of 12, 15, 20 and 30 vols. were taken and bottled in champagne qts. leaving spaces of 2 inches between the cork and the top of the solution. They were protected with glycerin, sulphuric acid, hydrochloric acid, boroglyceride, alcohol, acid phosphoric, and under identical conditions with No. 1 experiment.

The following table gives the results:—

Protected with	Initial Volume. 12	15	20	30	
1% Glycerin	8·9	11·7	15·3	17·0	Loss in 6 months.
1% Sulphuric acid	8·1	11·5	15·0	cork blown out	
1% Hydrochloric acid	7·6	Burst	13·2	14·3	
1% Boroglyceride	8·8	11·6	15·0	16·4	
1% Alcohol	8·6	11·6	15·2	16·0	
1% Acid Phosphoric, 1,500	9·2	12·2	16·8	17·3	

As hydrochloric acid appeared to be the worst protective agent, experiments were made with this alone—the 10 vol. solution was protected with 1 per cent. of hydrochloric acid bottled (*a*) champagne qts. corked and wired; (*b*) Winchester qts. stoppered. The volumes were taken every month for six months, with the following results:—

	Champagne.	W. Qts.
1 month	9·1	8·8
2 months	8·6	8·2
3 ,,	7·8	7·2
4 ,,	7·1	6·3
5 ,,	6·7	6·0
6 ,,	6·3	5·8

1 W. qt. of 12 vols. acid phosphoric protection, exposed to full sunlight during the hot weather at an average temperature of 73 for three weeks, lost 4·3 vols.

1 W. qt. of 20 vol. burst in thirteen days, exposed to full sunlight.

1 W. qt. of 90 vol. lost 27 vols. during three winter months, in diffused light.

In order to ascertain the effect of different coloured quarts, three W. qts., amber, blue, and green, of 12 vol., were taken. After six winter months, in diffused light, the amber qt. gave 7·4 vols., the blue qt. 6·9 vols., and the green qt. 6·6 vols.

Regarding carriage, the above experiments were not subjected to shaking or vibration.

Ten vol. hydrogen peroxide solution, phosphoric acid protection, in champagnes and W. qts. were packed in straw in a hamper and subjected to daily journeys from Stratford to the City for thirty days in June weather. At the end of this time the volumes had decreased to:—

Champagnes.	W. Qts.
(a) 7·3 Cork pressed well into wire.	(a) Burst after 13th journey.
(b) 7·0 ditto	(b) 6·9

12 vol. hydrogen peroxide solution, phosphoric acid protection, from London to Liverpool and back, nine days in all, out of two dozen W. qts. two burst, and the volume averaged 11·1.

Twenty volume, sulphuric acid protection, steamer London to Newcastle and back, three weeks in all, 6 × ½ gallon stone bottles, screw stoppered, one burst; remainder averaged 17·3 vols.

London to New Zealand, 20 vol. solution, three dozen champagnes, corked and wired, alcohol protection, none broken, several corks forced well into wire, one cork broke the wire and came out, the average vol., 13·4.

Regarding breakage. In ten years, during which many thousands of gallons have been despatched, there is no record of champagne qts. or soda-water bottles breaking; next in order come beer bottles with patent screw stopper, which rarely break. Stone bottles with patent screw stoppers frequently break; when they do break the fracture shows that it is owing to some defect in making the bottle. Corbyn qts., about 1 per cent. break, and W. qts. about 2 per cent. break. Carboys, about 1 per cent. when subjected to railway journeys.

As regards pressure from the gas evolved, many people order champagne bottles and other containers to be half full only. This is a mistake, there is less pressure developed if the space between the cork and the liquor is about two inches (incidentally I may say that this coincides with results of some experiments made with regard to ether in drums, much more pressure was generated when the drum was three parts full, than when only a space of one inch was left, the drum being placed in hot water). Dr. Squibb, of Brooklyn, N.Y., in 1894 made experiments as to the rate and extent of pressure of gas evolved from hydrogen peroxide in a bottle at ordinary temperature, but he did not carry them out to the point of bursting. From his figures he calculated that a 10·5 vol. solution which after a time had lost 5·7 vols., gave a pressure of 96 lbs. to the square inch. On repeating these experiments on W. qts. fitted with a pressure gauge and surrounded with gauze in a stove at a temperature of 125° F., the following were the results:

Hydrogen peroxide 20 vol., phosphoric acid protection, after six hours the pressure indicated 35 lbs. to the square inch; after fourteen hours, 42 lbs. to the square inch, and burst between four and five hours later.

Peroxide 20 vols., after twelve hours' pressure indicated 43 lbs. to the square inch, and burst between two and three hours later.

Peroxide 12 vols., after eight hours gave pressure of 35 lbs. to the square inch, and burst between nine and ten hours later.

Peroxide 12 vols., burst after six hours.

Several other experiments were attempted, but owing to the inequality in strength of the bottles no concordant results were obtained. A soda-water bottle corked and well wired, and hung upside down in the laboratory during the winter months, had exerted such pressure on the cork that the wire had cut halfway through it, and the liquor was entirely forced out in sixty-two days. It is preferable to cork bottles than to stopper them, as the pressure is released by escape of gas through the pores of the corks. Bottles should never be laid on their side when corked, as the action on the cork hastens decomposition. Care should be taken in the selection of bottles for storing hydrogen peroxide, any angular inequality hastens decomposition, as do the small rough patches of iron oxide frequently found on stone bottles.

It may not be generally known that by careful evaporation hydrogen peroxide can be highly concentrated to 50 to 100 or more vols.;

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for greater vols. it must be concentrated *in vacuo*, but if during evaporation the slightest speck of dust or dirt comes in contact with the solution, the evolution of gas is rapid and in some cases almost explosive. The clear oily residue left in the retort on evaporation *in vacuo* of pure hydrogen peroxide (presumably absolute hydrogen peroxide) if rubbed with a glass rod will probably explode violently, indeed loss of life from this cause occurred a year or two ago abroad.

Hydrogen peroxide can also be concentrated by freezing, the ice crystals containing very little hydrogen peroxide.

During the past two years the use of hydrogen peroxide solution as an oxidising agent in analysis has greatly increased, and for this purpose practically pure solution is required for oxidising SO_2 to SO_3 and peroxidising thiosulphides sulphide and sulphites and in the analysis of gas liquors. This solution however, is too unstable for ordinary pharmaceutical use. It should contain none of the ordinary protective agents and should show only the faintest traces of chlorides, fluorides, sulphates, and phosphates.

The best method of keeping in a laboratory is to store in a receiver having a tap at the base, the solution being protected by a layer of petroleum carefully poured on the surface. The extended use of hydrogen peroxide in dentistry, and in medicine for diseased surfaces, throat complaints, ear diseases, and its recent application in cholera has well warranted its inclusion in the B.P. It has also been used in India for snake bites with excellent results, and in the gold mining districts it is kept in a 2 per cent. solution for subcutaneous injcetion in cyanide poisoning. One test, however, should be included in the Pharmacopœia, a test for fluoric acid which is not infrequently found in commercial samples. In bleaching, various acids and combinations of acids are used for various purposes. The solutions for bleaching hair, silk, ivory, bones, etc., all have their different modes of manufacture, therefore in ordering hydrogen peroxide "Medicinal" or "B.P." should be specified.

Of all the modes of protection, acid phosphoric seems to be the best as well as medicinally least harmful.

It may be of interest to compare a paper of Dr. Squibb in 'Ephemeris,' 1894, with this paper, which will show the differences of decomposition of hydrogen peroxide under different climatic conditions.

In conclusion I have to acknowledge the valuable assistance of Mr. A. Wertheimer in preparing these notes.

LIQUOR BISMUTHI ET AMMONII CITRATIS.*

BY FRANK R. DUDDERIDGE,
Pharmaceutical Chemist.

In a previous note on this preparation, read before the Newcastle-upon-Tyne and District Chemists' Association on March 8th last, drew attention to the impossibility of obtaining a satisfactory preparation if the B.P. directions are strictly followed, owing to the precipitated bismuth citrate (?) not being completely soluble in the liquor ammoniæ; also to the fact that the quantity of potassium carbonate ordered is inadequate to neutralise the free nitric acid, 236 grains being required for one pint of liquor and only 175 grains directed to be used, with the result that the nitric acid renders the washings acid, and retains a certain amount of bismuth in solution, thus rendering the preparation deficient in strength. Mr. T. E. Wilson, my assistant at that time, obtained a soluble precipitate by omitting to dilute the nitric acid solution to opalescence as directed in the B.P. and adding to it the potassium carbonate and citrate dissolved in a little water.

This process has been followed since with varying results, sometimes the whole of the precipitate being readily soluble, at other times more or less remaining undissolved, but always much more passed into solution by this method than by following the official process. As I consider this state of things unsatisfactory, and tending to lead the retail pharmacist to depend for his supply upon the wholesaler, instead of preparing it himself—a result also of many other of the changes in the 1898 B.P. which will help to increase the number of inefficiently taught apprentices — I have endeavoured to devise a process which will be at once satisfactory and uniform, without departing to any great extent from the official directions, and I think I have succeeded. First of all, the fact that Mr. Wilson's method always gave a much more readily soluble precipitate than the B.P. process, led me to suspect that the quantity of water present when the two solutions are mixed is a most important item; in fact, I doubt if when to the acid solution of bismuth—diluted to slight opalescence as ordered—the solution of potassium carbonate and citrate in a "little"—no directions for any definite quantity being given—in a "little" water is added, whether the resulting precipitate is not to a great extent not citrate but an oxysalt, in all probability oxynitrate of bismuth, hence its insolubility. Therefore the method I adopt with satisfactory results differs from the B.P. only in these respects:—(1) The solution of bismuth oxynitrate in equal volumes of nitric acid and distilled water is *not* diluted to opalescence, it is not diluted at all; (2) the order of mixing is reversed, the potassium salts not being added to the bismuth, but the bismuth poured carefully into the solution of the potassium salts, which is kept well stirred all the time; (3) I dissolve the potassium salts in a definite quantity of water, two fluid ounces for an imperial pint of product, or 100 C.c. for a litre. This forms a thick magma, to which I add another two ounces or 100 C.c. of water, heat to the boiling point, throw on to a filter and wash with hot water until free from nitrate contamination, when it is easily soluble in liq. ammoniæ. I also find that if the quantity of potassium carbonate be increased by one third, *i.e.*, 240 grains or 27 grammes being used in place of 175 grains or 20 grammes, the washings are practically neutral, and very little if any loss of bismuth results. With these slight modifications the B.P. process may be easily and speedily performed in any pharmacy. Another point worth attention is that the B.P. does not use heat in effecting the solution of the bismuth oxynitrate, and my experience is that the heat produced in mixing equal volumes of nitric acid and water is quite sufficient to effect solution if a little agitation be used. Too great heat appears to retard instead of aiding solution. Mr. W. G. Stratton, in his paper, read before the Glasgow Conference, drew attention to the fact that many commercial samples of liq. bismuth contained an excess of ammonium citrate, causing considerable difference in the appearance of mixtures containing it in combination with an alkaline bicarbonate, those dispensed with a strictly B.P. liquor depositing, whilst those which were dispensed from a liquor containing such excess remaining clear. Whilst deprecating an unwarranted departure from the official process I would venture to remind those who take in hand the revision of the Pharmacopœia that both Schacht's preparation and the liquor of the 1867 Pharmacopœia contained such excess, and to suggest that in the next issue a reversion be made to these lines, which may easily be done after dissolving the precipitated citrate in the liq. ammoniæ by adding either 8 fl. oz. or 400 C.c. of liquor ammonii citratis and diluting to one pint or one litre of finished product as the case may be. Such a preparation would contain the double salt:—Bi $C_6H_5O_7$, $(NH_4)_3$ $C_6H_5O_7$, the formula of that contained in the present liquor, according to Attfield, being $(NH_3)_3$ Bi $C_6H_5O_7$. The fungoid growth which so frequently develops, may be prevented by the presence of alcohol, which Mr. Stratton found to be present in several of the samples he examined.

* Read before the British Pharmaceutical Conference, at Plymouth, July, 1899.

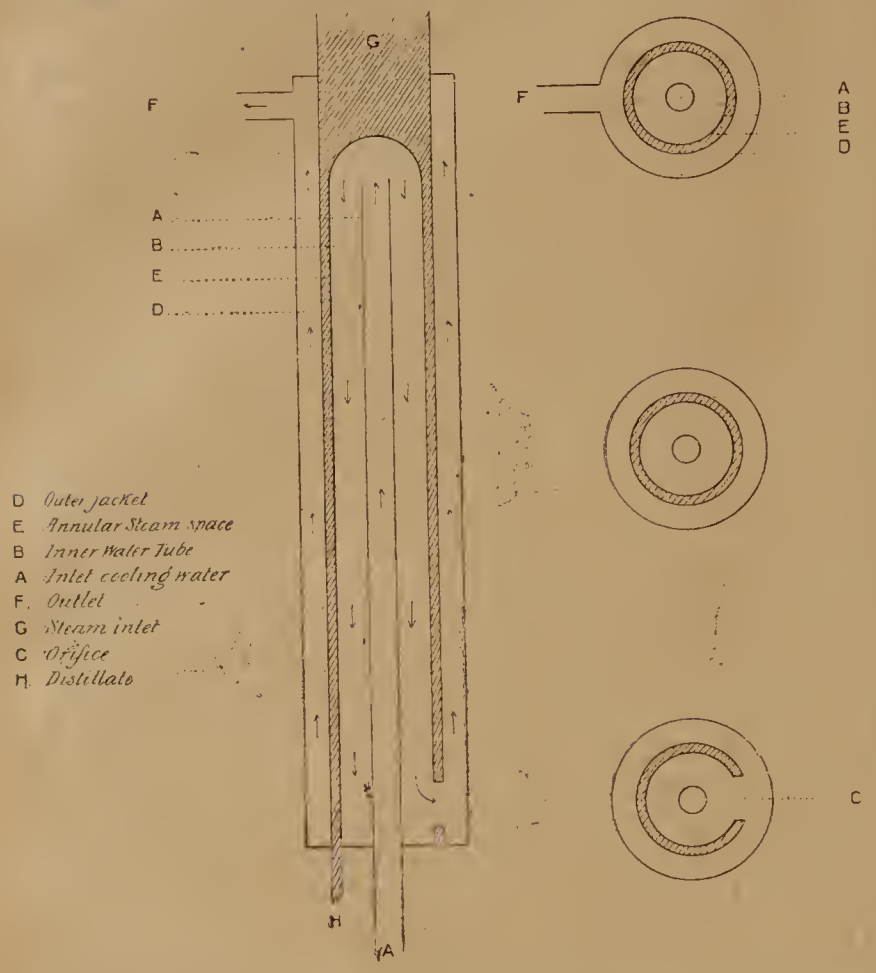
* The above experiments were carried out in the laboratories of Messrs. Thomas Tyrer and Company, Limited, Stirling Chemical Works, Strotford, London, E.

A NEW CONDENSER.*

BY E. W. LUCAS.

This condenser practically consists of an *annular* steam space, the inner and outer sides of which are contiguous to cooling surfaces, This distinguishes it from forms of condenser where the steam space is *columnar or cylindrical* and contiguous to only one cooling surface.

Reference to Diagram I. shows that the cooling water first ascends



a comparatively narrow tube A, and projects against the underside of the dome. The concave end returns the water down a second and wider tube, B, through an orifice in the steam space, C, to the outer tube or jacket, D, which it completely traverses before escaping at the outlet, F.

If the course indicated by the arrows is followed, it will be evident that the cooling water exerts double duty. In the first place, owing to the manner of its projection against the underside of the dome, it brings all the successive units of cold water into direct contact with the successive units of steam that are delivered against the opposite side, the steam and cooling water only being separated by thin metal of high conductivity. In the second place, the water in its downward course cools the innerside, and, in its upward course, the outerside of the annular steam space.

The steam enters at G, and at once impinges on the cold dome, where it loses most of its heat and practically condenses. The condensate is then pushed down the annular space by more steam from above, until it finally escapes at H.

Too much importance cannot be attached to the part played by the dome, as it brings the steam and cooling water into the most intimate contact. Besides, owing to the convex shape, the condensed water is brushed aside as soon as formed, leaving the metal surface clean and in a good condition for transmitting heat. In other forms of condenser, a film of condensate remains spread over the cooling surface, which, owing to its comparatively poor conductivity, materially impairs the efficiency.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899

The following tests on the distillation of water were made with a copper condenser having a condensing area of 100 sq. inches. Its extreme length was 15 inches, and diameter 2 inches.

	1	2	3
Cooling water, gallons per hour	220	220	220
,, ,, temperature at inlet	58° F.	58° F.	58° F.
,, ,, ,, ,, outlet	98° F.	101° F.	104° F.
Condensate, gallons per hour	7·30	9·00	10·20
,, temperature	130° F.	170° F.	197° F.
Steam pressure in lbs. per sq. inch	15 lbs.	20 lbs.	25 lbs.
Duration of experiment	1 hour	1 hour	1 hour

Comparative Experiments between the Patent Condenser (100 sq. inches) and a Worm Condenser of Equal Area.

	Patent Condenser.	Worm Condenser.
Cooling water, gallons per hour	90	90
,, ,, temperature at inlet	52° F.	52° F.
,, ,, ,, ,, outlet	130° F.	98° F.
Condensate, gallons per hour	7·50	3·5
,, temperature	176° F.	164° F.
Steam pressure in lbs. per sq. inch	12 lbs.	12 lbs.
Duration of experiment	1 hour	1 hour

This comparison was made under precisely similar conditions as regards steam supply and inlet and outlet of cooling water.

After the test had proceeded for an hour the cooling water was increased to 250 gallons per hour, the steam pressure at the same time being gradually raised. At 25 lbs. to the sq. inch the patent condenser supplied over 10½ gallons per hour of distilled water. The worm condenser, on the other hand, could not condense more than 4 gallons per hour, and when the pressure was increased to 15 lbs. per sq. inch, steam blew through uncondensed, although the temperatures of both distillate and cooling water were still a long way below 212° F.

That this double form of condenser possesses great efficiency is exemplified by the following simple experiment:—

Steam was generated in a 2 gallon boiler over a powerful gas stove, and sent into both the worm and patent condensers through ½-inch pipes at atmosperic pressure. Cooling water was supplied to each condenser under equal conditions. When the steam was turned on both condensers condensed at an equal rate, but after a few minutes the worm condenser fell behind, although an equal amount of steam was offered to it. After half an hour or so the worm practically ceased distilling, because the patent condenser drew away the steam as quickly as it was generated.

This result is caused by the capillary bore of the annular steam space ($\frac{1}{16}$ inch). The steam as it entered was immediately condensed on the dome, and trickling down drove the air before it, a perfect ring of water being formed. This cut off all communication with the outer air, a partial vacuum being produced in the upper part of the condenser, which, by reducing the pressure, increased the rate of distillation.

In the worm condenser no such partial vacuum can be formed, as air circulates through the whole length of the coil, while if the bore is narrowed so that the condensed water will drive all the air before it, the rate of condensation is sensibly diminished.

In all the tests this condenser has been tried against the worm type of condenser. There are, it is true, other types, but they differ in form only from the worm, as in each, the steam is allowed to enter as a solid cylinder or column. Consequently, if the pressure is increased the steam is only partially condensed, the inner core issuing as live steam. This is not because the supply of cooling water is deficient, but because the full duty is not exacted, only the periphery of the cylinder of steam being condensed, the central core not being reached.

In the double condenser the steam is met by, practically, a solid cylinder of cold water directly it enters the condenser; this con-

denses its core at the outset, while the periphery is condensed in the narrow annular space. The condensing capacity of this pattern is then only measured by the amount of cold water it is possible to force through the inlet and outlet pipes.

Briefly it may be said that this condenser possesses at least double the efficiency of any other form of condenser; its construction is simple and admits the use of a brush for cleansing purposes.

Several forms of double condenser have been recently placed before the public, but as the author had the pattern described in use two years ago he believes he may claim priority. Another point worthy of note is the fact that the cooling water is used under pressure.

EXAMINATION OF THE TERPENELESS OILS OF LEMON AND ORANGE IN THE MARKET.*

BY T. H. WILLIAMS IDRIS, J.P., F.C.S.

In response to the request of the honorary secretaries, and to a suggestion in the circular on "Subjects for Papers," I have pleasure in offering a few notes on the examination of the terpeneless oils of lemon and orange in the market.

As a large user of lemon preparations I have had these substances under observation in the laboratory of my firm for the last few years, but the present notes refer only to recent examinations of products now on the market.

These oils appear under several names, and are stated to have a flavouring equivalent of some thirty times that of good oil of lemon. The coppers of ordinary lemon oil as imported often have attached to them a certificate of analysis guaranteeing the contents to contain 7 per cent. of citral, but too much reliance should not be put on the many statements concerning essential oil of lemon made by interested persons, especially as to percentage of citral, which may possibly apply to a mixture of lemon terpene and lemon grass citral. Such a mixture, though containing no genuine lemon oil, would be certified as pure if the rotation, gravity, and amount absorbed by sodium bisulphite solution were the only tests to which the oil was subjected, but the terpeneless oil produced from such a sample would, of course, be easily recognised as lemon grass citral.

Variations are naturally to be expected in the quality of the most carefully prepared terpeneless oils, not only on account of the fact that skill and care are necessary for their successful manufacture, but also on account of the variable nature of the original oils from which they are produced.

Such variations naturally make it the more difficult to fix any definite standard for the manufactured products, but it must be admitted that a "terpeneless" oil implies:—(*a*) That the product is free from terpenes; (*b*) that it is manufactured solely from the oil bearing its name.

How far commercial samples (which vary in price from, say 60s. to 120s. per lb.) correspond with these requirements will be seen.

For the purpose of comparison, I have used samples manufactured from the purest oil of lemons obtainable in my own laboratory. Many of these were examined and the results of two typical samples are here given:—

(1)

Specific gravity at 15·5°	0·8966
Optical rotation 100 Mm. tube	−8° 53′
Absorbed by solution of $NaHSO_3$	62 per cent.
Not absorbed „ „	38 per cent.

Practically none distilled over under 220° at ordinary pressure, and the oil was soluble in all proportions in 90 per cent. alcohol and in 20 to 30 volumes of 70 per cent. alcohol.

(2)

Specific gravity at 15·5°	0·8963
Optical rotation 100 Mm. tube	−7°
Absorbed by solution of $NaHSO_3$	61 per cent.
Not absorbed „ „	39 per cent.
Solubility and distillation same as No. 1.	

No terepenes could be identified in either, and only very small quantities could possibly have been present.

Thirteen commercial samples of terpeneless lemon oil were obtained through ordinary business sources, and the following results were obtained from them:—

No.	Sp. gravity at 15·5°	Rotation 100 Mm. Tube.	Absorbed by Na HSO3	Not absorbed.	Solubility in 70 per cent. alcohol.	Solubility in 90 per cent. alcohol.
			Per cent.	Per cent.		
1	·8956	− 7°12′	67	33	1 in 9	In all proportions.
2	·8963	− 7°21′	42	58	1 in 20	„ 1 in 4
3	·8712	+41°21′	8·	92	Very insoluble.	„ „
4	·8966	−11° 5′	6	94	„ „	In all proportions.
5	·8943	− 1°41′	76	24	1 in 3	1 in 3
6	·8836	+10°58′	30	70	Very insoluble.	In all proportions.
7	·9036	− 6°20′	51	49	1 in 2	Very insoluble.
8	·8698	+42° 6′	15	85	Very insoluble.	„ „
9	·8707	+38°21′	14	86	„ „	Soluble in all proportions.
10	·8966	+ 2° 8′	70	30	1 in 40	„ „ „
11	·8925	− 7°15′	61	39	1 in 15	„ „ „
12	·8956	0°	66	34	1 in 6	„ „ „
13	·8955	0°	67	33	1 in 7	„ „ „

These results show such great differences that it is almost incredible that the products should have the same name.

Dealing with the samples *seriatim*, the following remarks may be made:—

Samples Nos. 1, 2, and 11 are, in my opinion, all genuine samples of terpeneless lemon oil. Their odour was fine and purely lemon and no traces of terpenes could be detected either by distillation or by examination of the residue not absorbed by sodium bisulphite. These three samples were all made by the same firm and obtained through different channels.

Samples Nos. 3, 6, 8 and 9 were merely ordinary oil of lemon to which a little citral had been added, or from which a portion of the terpenes had been removed. The low specific gravity, high rotation, and insolubility indictate this, and in addition in each case considerable quantities of terpenes of the specific gravity ·855 to ·865 and optical rotation of over +50° were separated.

No. 7 was sold as a synthetic oil, which, of course, is an absurd name for this product. It had a marked verbena odour.

No. 4. contained very little citral and had a very poor lemon odour. I am unable to understand its composition.

Nos. 5, 12, and 13 had distinct verbena odours, and a lemon grass citral had clearly entered into their composition.

No. 10 had a fine lemon odour and I have been able to ascertain beyond doubt that it is a genuine product; but a little of the terpene has been left in the oil, which should have been concentrated a little further.

The great difference in the value of these products is apparent, and users of terpeneless oils should be careful in their purchases, as so-called "terpeneless" and "concentrated" lemon oils are offered at absurd prices.

I have also examined several samples of commercial terpeneless orange oil. These have the following characteristics:—

No.	Specific Gravity.	Rotation.
1.	0·890	+17°
2.	0·894	+12°8′
3.	0·878	+33°4′
4.	0·884	+24°40′

I have not compared these samples with any of my own make, bu the lowest specific gravity and high optical rotation of the last two samples indicate the presence of a considerable quantity of terpene.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899

TEREBENE, B.P. *

BY LEWIS OUGH, F.C.S., F.L.S.
Pharmaceutical Chemist.

In attempting to answer the query in the Blue List, "To what extent do commercial specimens of terebene correspond with the characters and tests of the 1898 Pharmacopœia?" I must apologise for taking up a subject that has previously been investigated by such able workers as Lascelles Scott and J. Hodgkin, and reported upon at the Pharmaceutical Conference at Birmingham, but as this article is now included in the Pharmacopœia it may be that an examination of a series of commercial specimens will not be devoid of interest, especially as several English makers assert that it is practically impossible to obtain an article that will agree in all particulars with the official requirements.

As is well known, terebene is produced by repeatedly treating turpentine with sulphuric acid, until after washing and neutralising with lime or soda and distilling with water an optically inactive liquid is obtained.

One may note in passing that the requirements of the British Pharmacopœia and those of the United States are not quite identical, as will be noticed by the following:—

British Pharmacopœia.	United States Pharmacœpia.
1. A mixture of dipentene and other hydrocarbons.	1. A mixture consisting chiefly of pinene, and containing a small proportion of terpinene and dipentene.
2. Colourless.	2. Colourless or slightly yellowish.
3. Specific gravity 0·862 to 866.	3. Specific gravity 0·862.
4. Boils between 312° F. and 356° F., not more than 15 per cent. distilling below 329° F.	4. Distils between 312° F. and 320° F.
5. Does not rotate the plane of polarised light.	5. Should not have more than a very slight action on polarised light.

A more recent investigation by Power and Kleber in a research undertaken for the U.S.P. Committee states that the specific gravity of terebene is ·855, and the boiling point 338° F. to 365° F. (170° C. to 185° C.) That it "resembles oil of turpentine in its chemical properties" is not correct. Upon the basis of their investigations the following amended text was drawn up by Power and this will doubtless be adopted in the forthcoming edition.

Terebene, an optical inactive liquid, obtained by the action of concentrated sulphuric acid on oil of turpentine and subsequent rectification with steam. It consists chiefly of the hydrocarbons ipentene and terpinene with some cymol and camphene.

Terebene should be kept in well stoppered bottles, in a cool place protected from light.

A colourless thin liquid having an agreeable thyme-like odour and an aromatic taste.

Specific gravity 0·855 at 59° F. (15° C.)

On exposure to light and air terebene gradually becomes resinified and acquires a yellowish colour and an acid reaction.

Terebene should possess its characteristic odour, should not redden moistened blue litmus paper (absence of acids) and should be completely inactive toward polarised light (absence of unaltered oil of turpentine).

If about 10 C.c. of terebene be evaporated in a capsule on a water-bath, not more than a very slight residue should be left (absence of more than traces of resinous matters).

Source of Samples.—With the exception of two, which were of German origin, all the specimens examined were obtained from English manufacturers of the highest reputation, and in some instances the makers have kindly furnished me with a few remarks concerning the article.

The makers of No. 1 say: "We regret that we have no terebene that will answer all the requirements of the Pharmacopœia, neither do we think such an article is procurable on the market. The sample sent approaches as near as possible to the characters and tests of the B.P., 1898."

Sample No. 3 was about five months old when tested, and "was made by the action of 5 per cent., *by weight*, of sulphuric acid on the turpentine."

The manufacturers of No. 4 remark: "We do not polymerise terebene to the extent of its being optically inactive. The demand for the B.P. article with us is comparatively small, and we do not make it."

With regard to Nos. 5 and 6 I am informed: "This article varies so much that it is almost impossible to say that any one sample is typical of our manufacture. Both samples were made in exactly the same way from American turpentine, one of which (No. 5) is nearly B.P., the other (No. 6) being different in several particulars. The variation appears to be caused by some unexplained effect of age on the turpentine from which the terebene is made, and we are still endeavouring to find a key to the problem."

Sample No. 7 was labelled "B.P., 1898," and No. 8 "optically inactive."

The last sample of the series (No. 12) "was obtained by acting on the turpentine with 5 per cent of sulphuric acid *by volume*," and had only been made two days when examined.

TABLE I.

Sample.	Specific Gravity.	Origin.	Colour.	Action on Litmus.
No. 1..	0·868	English	Slightly yellow ..	Neutral
,, 2..	0·866	,,	Distinctly yellow	,,
,, 3..	0·876	,,	Colourless	,,
,, 4..	0·864	,,	Distinctly yellow	,,
,, 5..	0·858	,,	Slightly yellow ..	,,
,, 6..	0·869	,,	Slightly coloured	Slightly acid
,, 7..	0·865	German	Distinctly yellow	Neutral
,, 8..	0·866	,,	Slightly coloured	Slightly alkaline
,, 9..	0·862	English	,, ,,	Neutral
,, 10..	0·863	,,	,, ,,	,,
,, 11..	0·864	,,	,, ,,	,,
,, 12..	0·861	,,	Colourless	Slightly alkaline

The specific gravities were taken at 60° F. by means of the balance, and it will be noticed that samples 2, 4, 7, 8, 9, 10, and 11 are in this particular within the limits of the official requirements.

TABLE II.

Sample.	Boiling Between.	Amount Distilling Below 329° F.	Percentage of Residue.	Watts' Colour Test.
No. 1.....	320° and 360° F.	12 per cent.	1·3	7 minutes
,, 2.....	300° and 340° F.	62·5 ,,	1·6	9 ,,
,, 3.....	314° and 344° F.	25 ,,	1·9	50 ,,
,, 4.....	318° and 348° F.	62 ,,	2·3	4 ,,
,, 5.....	329° and 356° F.	one	1·9	14 ,,
,, 6.....	316° and 364° F.	45 er cent.	1·0	6 ,,
,, 7.....	326° and 346° F.	4 ,,	1·3	4 ,,
,, 8.....	321° and 344° F.	20 ,,	1·3	8 ,,
,, 9.....	325° and 361° F.	15 ,,	1·2	6 ,,
,, 10.....	300° and 340° F.	62 ,,	0·5	5 ,,
,, 11.....	326° and 362° F.	9 ,,	0·8	8 ,,
,, 12.....	315° and 353° F.	75 ,,	0·3	3 hours

From the above figures it will be seen that only five samples (Nos. 1, 5, 7, 9, 11) can be looked upon as fulfilling the tests with regard to the boiling limits and the amounts distilling below 329° F. With regard to the residues, Nos. 7 and 10 are of a dark brown colour, the remainder being of a light amber tint.

Colour test.—Watts (1892) gives the following test for the freshness of this article:—"Fifteen minims of terebene are introduced into a stoppered bottle containing a cooled mixture of 2½ grs. of iodide of potassium, with 8 grs. of compound powder of tragacanth and one ounce of boiling water. Old terebene will colour the liquid blue within an hour, whilst the fresh article will cause no change within twenty-four hours."

This test has been applied to the series of samples, and the results are given in the above table, but a distinctly blue colour was obtained in three hours with the sample (No. 12) which was only

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899

two days old, and the specimen that had been made five months (No. 3) yielded the same result within fifty minutes. The remainder ranged from four to fourteen minutes, so I think it will be readily granted that this test cannot with any degree of certainty be relied upon.

Table III.

Sample.	Solubility in Alcohol 90%.	Solubility in Pure Æther ·720	Solubility in Methylated Æther ·717.	Optical Rotation.
No. 1	1 in 5·5	1 in 10	1 in 2·5	1·0″–
„ 2	1 „ 5	1 „ 10	1 „ 2·5	4·30″+
„ 3	1 „ 5	1 „ 10	1 „ 2·5	5·45″+
„ 4	1 „ 5·5	1 „ 10·5	1 „ 1·5	1·30″+
„ 5	1 „ 5	1 „ 10	1 „ 1·5	Inactive
„ 6	1 „ 4·75	1 „ 11	1 „ 1·6	1·0″–
„ 7	1 „ 5	1 „ 10	1 „ 2·	0·45″+
„ 8	1 „ 4·75	1 „ 11	1 „ 1·4	Inactive
„ 9	1 „ 4·9	1 „ 16·6	1 „ 5	Inactive
„ 10	1 „ 5	1 „ 13	1 „ 2·3	4·0″+
„ 11	1 „ 5	1 „ 20	1 „ 1·6	0·25″+
„ 12	1 „ 6	1 „ 16·6	1 „ 2·5	3·30″+

Solubility.—According to Squire's 'Companion' terebene is stated to be soluble 1 in 6½ of alcohol (90 per cent.) and 1 in 3¾ of æther.

Optical rotation.—Tested in the ordinary way by the polarimeter with a column of the liquid, one decimetre in length, the above varied results were obtained, three samples only (No. 5, 8, 9) being optically inactive, the others ranging from 1·0″— to 5·45″+

Sample No. 6 is peculiar in this respect, for as previously stated the makers of this specimen informed me it was made from American turpentine, therefore I am quite at a loss to understand why it should have a levogyrate action on polarised light.

From the results obtained from these experiments it appears that commercial terebene is most varied in its composition, only one sample of the series (No. 9) being in strict accordance with the Pharmacopœial requirements.

OIL OF CARDAMOMS.*

BY E. J. PARRY, B.SC., F.I.C.

The chemistry of oil of cardamoms is in a very hazy condition owing to the fact that those who have reported on the subject rarely state what they mean by "cardamoms." The most recent figures for the oil are those given by Schimmel in the *Report* for April, 1897, where it is stated that oil of cardamoms (Ceylon), has a sp. gr. 0·895 to 0·910, and an optical rotation of + 12° to + 13°. Oil of Malabar cardamoms is described in the *Report* for October, 1897, as being much higher in price, and therefore unable to compete with the commercial oil. The seeds are described as being difficult to obtain, and the oil as having a sp. gr. 0·943, and an optical rotation of + 34° 52′. Haensel in his 1896 report, in commenting upon a cardamom dultivated in the Cameroon country, contrasts the physical properties of the oil from it with that of Malabar cardamoms thus:—

	Malabar.		Cameroon.
Sp. gr. at 15° C.	0·9338	.....	0·9071
Op. rot. in 100mm	+26·0	.....	—23·5
Refract. no. at 25° C.	54·1	.....	62·5
Index ref. at 25° C.	1·4612	.....	1·4675
Iodine no.	123·7	.....	152·1

"One volume of Malabar cardamom oil," he adds, "is not quite soluble in 45 volumes of 60 per cent. alcohol, and one volume of Cameroon cardamom oil is not quite clearly soluble in 250 volumes of 60 per cent. alcohol."

These expressions of opinion serve to show that distillers take the oil of Malabar cardamoms as their standard, but it is not unchari-

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899

table to suppose that the more abundant and, on the whole, cheaper Mysore variety is used for distillation purposes. Anyway, my experience with the commercial oil did not fit in with either of these records, and I wished to satisfy myself as to the relative differences, if any, between oil distilled from Malabar cardamoms and that from Mysores. I, of course, refer to these varieties as cultivated in Ceylon, which almost exclusively come to Europe, the only direct imports from India being a portion of Malabar and a fair amount of Mangalore cardamoms, which are used, I am informed, as a spice for special purposes.

Ceylon-Malabar cardamoms and Ceylon-Mysore cardamoms come into the market as the whole fruit, but large quantities of the seed freed from the pericarps are also imported and sold. Whether the latter are bought by distillers or not is a question which did not come within the present inquiry, which had solely for its object determination of the properties of the two oils, and identity was best ensured by purchasing the entire fruit. These were obtained from London drug-brokers who were able to positively guarantee the same. The seeds were distilled for me by Messrs. Evans, Sons and Co., of Liverpool, whose courtesy I have to acknowledge.

The Ceylon-Malabar seeds yielded 1·3 per cent. of oil, and the Ceylon-Mysores 2·6 per cent. Both were bright yellow liquids, whose odours were scarcely distinguishable. The sp. grs. and optical rotations were as follows:—

——	Sp. Gr. at 15·5°	Optical Rotation at 16° (100mm. Tube)
Oil of Malabar cardamoms	0·9418	+40° 41′
Oil of Mysore cardamoms	0·9418	+46° 39′

These figures are in fair agreement with those given for Malabar oil, but in no way resemble those quoted by Schimmel for Ceylon oil, which I do not at all understand.

The oils were soluble with a slight opacity in 40 to 45 volumes of 60 per cent. alcohol, agreeing with Haensel's oil, which, however has a much lower rotation.

I find little difference between the two oils. On distillation at ordinary pressure the oil, which is very rich in esters, in both cases decomposes partially, and a considerable quantity of free acid distils over. According to Weber (*Annalen*, 238, 89), formic and acetic acids are found in the distillate. Acetic acid is undoubtedly the chief acid constituent of the esters, but I am unable to confirm the presence of formic acid. If it is present, it is only in faint traces. On distillation under reduced pressure the earlier fractions (the boiling-point rises gradually until 50 per cent. has distilled over) contain cineol, but only to the extent of 5 to 10 per cent. of the oil. This figure is the result of an approximate estimation by means of phosphoric acid. The carlier fractions also contained one or more terpenes, amongst which I identified limonene. Weber states that terpinine is also present, but I was unable to identify this hydrocarbon, nor could Schimmel find it in Malabar oil; and as it easily forms a well-defined nitrite when present, it cannot exist in an appreciable quantity. A small quantity of terpineol is present in both oils, and is easily identified by its phenyl-urethane. Schimmel states that it is an optically active modification, but I had not enough oil to examine this. The terpineol comes over with the fraction obtained at 160°-170° C. at 18mm. The nature of the alcoholic constituent of the greater part of the esters requires further elucidation.

From the economic point of view it will be seen that Ceylon-Mysore cardamoms are preferable to the Ceylon-Malabars for distillation purposes, as they give the larger yield.

ALMOND AND OTHER KERNEL OILS.*

BY JOHN C. UMNEY AND RALPH S. SWINTON.

The new British Pharmacopœia in its characters and tests for expressed almond oil gives the following test as indicating the absence of peach kernel and other fixed oils:—"If two cubic centimetres of the oil be well shaken with one cubic centimetre of fuming nitric acid and one cubic centimetre of water, a whitish, not brownish-red, mixture should be formed, which, after standing for six hours at about 50° F. (10° C.), should separate into a solid white mass and a nearly colourless liquid."

This is practically the same test as given in the United States Pharmacopœia for the presence of peach and apricot kernel and other fixed oils. The United States Pharmacopœia also includes another test for the oil, which is practically that of the German Pharmacopœia, and is based on the researches of C. W. Peters (*Archiv der Pharm.*, 26, 1888, 857), depending upon the fluidity at 15° C. and solubility in alcohol of the separated fatty acids.

As this test is valueless for the purpose of distinguishing the presence of peach and apricot oils in almond oil, and as the recognition of such admixture is the purport of this note, we do not refer to it except to note that in our hands the test does not give very satisfactory or definite results, and that the detection of cotton seed (one of the most likely adulterants) may be carried out with far greater certainty by the application of Halphen's reaction. This reaction is obtained by heating in a boiling sodium chloride solution equal parts of the oil, amyl alcohol and carbon disulphide, the latter containing 1 per cent. of sulphur. In the presence of less than 5 per cent. of cotton seed oil an orange to red colour is developed.

The question has arisen lately as to whether the British Pharmacopœia test alone is a satisfactory distinguishing one or not. It should be stated first of all that the oil sold by some as a second grade of almond oil under the name of "Oleum Amygdalæ Persic," or oleum amygdalæ exot., is derived, according to their relative market value, from either apricot or peach kernels.

At the present time the former are considerably cheaper, and the oil met with in commerce under the names we have mentioned is almost without exception that of apricot kernel.

The characters of oils of apricot and peach kernels were examined by Maben (*Pharmaceutical Journal* [3], **16**, 797), who, amongst other things, reported upon the difference in behaviour of the oils to the nitric acid test as compared with true almond oil.

In a subsequent letter in the *Pharmaceutical Journal* (same volume, page 976) he refers to the fact that the specimens which he examined were very inferior to those pressed in this country, and he refers to the difference in reactions shown on cursory comparison of pure oils from those upon which he had previously reported.

A few experiments have been made, therefore, to ascertain whether the pure oils of apricot and peach kernels are identical, or, rather, behave similarly, when the Pharmacopœial test is applied. The oils have been obtained by expression and by extraction with ether from both varieties of kernels. In specific gravity they are practically indistinguishable, and there is no apparent difference in the point at which they become viscid on cooling. They show, however, certain marked differences on the application of the Pharmacopæial nitric acid test referred to.

In the case of peach kernel oil the colour produced is almost white, with the slightest trace of darkening, but no brown colour, separating on standing from four to six hours to a very pale yellow solid mass and nearly colourless liquid. The apricot kernel oil, however, darkens considerably and separates into a brownish solid mass, in almost the same time, and a yellowish brown liquid.

The application of the test to oil pressed from almonds only shows the very palest yellow coloration and separation of the solid mass practically indistinguishable from that afforded by the oil of peach kernels.

It would appear, therefore, that the wording of the British Pharmacopæia test as it stands is not strictly accurate, although the non-compliance with it indicates admixture with apricot kernel oil at any rate.

THE COMPOSITION OF COMMERCIAL ARAROBA.*

BY EDWIN DOWZARD, F.C.S.

In the 1885 B.P., araroba is synonymous with chrysarobin, this is, of course, erroneous, as araroba is a mixture of chrysarobin, fragments of wood, etc.; this error has been corrected in the 1898 B.P. The official description is now as follows:—

Araroba.—A substance found in cavities in the trunk of *Andira araroba*, Aguiar, freed as much as possible from fragments of wood. dried and powdered.

Test.—It should yield to hot chloroform not less than 50 per cent. of chrysarobin. This is yet another of the many pharmacopœial inconsistencies which have been pointed out; in some cases the B.P. tests are so stringent that it is almost impossible to obtain articles which will satisfy them, in other cases, such as the present, the B.P. tests will admit an adulterated article.

The worst sample of araroba which I have yet examined contained about 8 per cent. of sand and 20 per cent. of twigs, when dried and powdered it yielded 51.8 per cent. of chrysarobin, and yet this is practically 2 per cent. above the B.P. limit; therefore, in this case, a sample which had been adulterated to the extent of about 28 per cent. was well within the B.P. requirements.

Araroba, containing from 65 to 75 per cent. of chrysarobin is easily obtainable, and it would be advisable to make the former figure the minimum limit.

As imported, araroba contains a large proportion of water (usually from 14 to 30 per cent.). I have been informed that water is added, not as an adulteration, but for hygienic reasons, the powder being of a very irritating nature; but when the amount rises to 25 or 30 per cent. it must be considered an adulteration, 15 per cent. of water is quite sufficient to prevent dust from rising.

The following table gives the results obtained in the examination of nine samples of commercial araroba:—

	No.		No		No. 3		No. 4		No. 5		No. 6		No. 7		No. 8		No. 9	
	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample	Sample as recd.	Dried sample
Chrysarobin	54·90	78·50	51·37	75·61	62·39	76·65	64·40	82.67	65·99	85·14	62·00	75·51	43·79	59·02	44·34	51·80	49·97	62·70
Water	30·06	—	32·06	—	18·60	—	22·10	—	22·50	—	17·90	—	25·80	—	14·40	—	20·30	—
Woody fibre, etc.	14·13	20·20	14·02	20·64	18·51	22·74	13·20	16.95	11·11	14·35	19·71	24·01	26·90	36·25	32·96	38·50	23·27	29·20
Ash	0·91	1·30	2·55	3·75	0·50	0·61	0·30	0.38	0·40	0·51	0·39	0·48	3·51	4·73	†8·30	9·70	†6·46	8·10
	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

† Consists principally of coarse sand.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

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It is almost impossible to powder this substance, because of the large proportion of water present. The following is a short description of the method I am in the habit of using :—

The sample is spread out, and a fair average taken (weight about 25 Gm.), the weight is determined before and after drying at 100° C. (the percentage of water being calculated from the loss). The dry sample is ground in a small drug mill, and the chrysarobin and ash determined in the resulting powder, the woody fibre, etc., is found by difference. The percentage of water being known it is an easy matter to calculate the composition of the original sample.

Pure dry araroba contains from 70 to 85 per cent. chrysarobin, and 0.3 to 3 per cent. of ash.

SYRUP OF BALSAM OF TOLU.*

BY E. H. FARR, F.C.S., AND R. WRIGHT, F.C.S.,
Pharmaceutical Chemists.

For some time past it has been our intention to take up the question of the best method of making this syrup, as we have had considerable doubt as to whether the process now official is the best available.

That there is something defective in the pharmacopœial method would seem to be indicated by two facts, which everyone who has made this preparation must have noticed, viz., the amount of volatile matter driven off in the process of boiling the balsam with water, and the subsequent copious separation of crystals which takes place.

The aromatic and acid principles represent the characteristic properties of the balsam, and hence the object should be to introduce into the syrup as large a proportion of these substances as may be possible, having regard to the elegance of the product.

The first point of our enquiry was to ascertain, as far as possible, the precise relation which the official syrup bears to the balsam, and in this direction we had no published work available for reference. After looking up the literature bearing on the chemistry of balsam of tolu, we concluded that it would be necessary to work partly on scientific and partly on empirical lines, the prime object of our work being the production of an improved syrup.

In this connection it was considered that the amount of volatile flavouring matter could be sufficiently estimated by the taste of the product, there being no means of making a scientific quantitative determination of the traces present in the syrup. With reference to the acid constituents too, it was thought that the precise proportion, if any, of benzoic acid which might accompany the cinnamic acid had no particular practical bearing on the result, though no doubt of interest, from a strictly scientific standpoint.

Two samples of balsam were procured, one old, brittle and easily pulverisable, the other new and of the consistence of a firm extract, and it was on these that the experiments detailed in this note were conducted.

In the first place the samples were subjected to the official carbon bisulphide test, the amount of free acid removed by that solvent being determined, in addition to the saponification equivalent.

The results obtained were as follows :—

	Hard Balsam.	Soft Balsam.
Total Residue Soluble in CS_2 per 100 Gm. of Balsam	20·5	32·8
Saponification equivalent	19·536	20·12
Free Acid	9·62	11·24

The benzyl cinnamate (cinnamein) was determined by dissolving 10 grammes of the balsam in 30 cubic centimetres of 10 per cent. aqueous solution of potash, and shaking the resulting solution with ether. The ethereal solution was washed with further portions of weak alkali until nearly colourless, when it remained as a jelly-like mass. On adding carbon bisulphide and shaking separation ensued, and the clear liquid was decanted from the insoluble residue and evaporated until all the ether and carbon bisulphide were expelled. The residue was then weighed, in each case, and saponified with alcoholic potash in known slight excess, the solution being afterwards titrated back with decinormal acid (1 C.c. normal KOH = 0·238 cinnamein) the results obtained being :—

	Total weight of residue from 100 Gm.	Cinnamein, by saponification, from 100 Gm.
Hard Resin	4·35	4·28
Soft Resin	8·55	8·04

For volatile constituents 500 Gm. of soft resin were distilled with water. The first portions of the distillate contained a very fragrant volatile oil lighter than water, consisting chiefly, if not entirely, of tolene. After separation of this body the water was returned to the retort, and distillation continued.

In the middle fraction of the distillate a further portion of the fragrant principle was seen, together with a denser product, drops of which collected at the bottom of the receiver, and, finally, the whole of the last volatile products were denser than water, but did not separate very freely, it was, therefore, considered advisable to extract these two portions with ether, and distil off the latter, leaving the volatile oil. This having been done, the products of distillation proved to consist of :—

(*a*) A very fragrant volatile body lighter than water, 1·4 per cent.

(*b*) A slightly fragrant mixture of *a*, with a substance heavier than water, and congealing in cold weather, 0·7 per cent.

The contents of the retort were next boiled with sodium carbonate and water, the resulting solution filtered and treated with excess of sulphuric acid, the quantity used being sufficient to combine with the whole of the sodium originally taken. The solution was evaporated to a pasty consistence, treated with 90 per cent. alcohol, and then filtered. The cinnamic acid was recovered from the alcohol by evaporation, twice recrystallised from boiling alcohol, after which it was crystallised from water. The final product amounted to 40 Gm., being 8 per cent. of the balsam operated upon. It melted at 131° C. (M. P. of cinnamic acid 133° C.), and ·265 Gm. required 17·8 C.c. N/10 soda to neutralise (= ·2634 Gm. cinnamic acid) these results indicating that the amount of benzoic acid present, if any, must be extremely small.

The constituents soluble in water, under different conditions of temperature, were next considered, the solutions being obtained by boiling with water, as in making the B. P. syrup ; but the filtration being conducted under different conditions such as might occur in actual practice.

No. 1	filtered at	25° C.	contained	·337 Gm.	cinnamic acid in	100 C.c.
No. 2	,,	20° C.	,,	·260 Gm.	,, ,,	,,
No. 3	after standing all night at	5° C.	,,	·148 Gm.	,, ,,	,,

These experiments indicate that the official syrup of tolu is liable to vary considerably, according to the time of the year when it happens to be made, and, further, the desirability of filtering the liquid as soon as it reaches a given temperature, and immediately converting it into syrup.

A number of syrups were next made from the two samples of balsam by each of the following processes, and the resulting products titrated. The flavour was judged by diluting with water and tasting the mixture.

The syrups were prepared as follows:—

1. By the U.S.P. process.

Dissolve 10 of balsam in 50 of alcohol by the aid of heat, and pour on a mixture of precipitated calcium phosphate 50, with sugar

* Read before the British Pharmaceutical Conference, at Plymouth, July, 1899.

120. Triturate well, then set aside until the alcohol has evaporated. Next add 500 of water, by degrees, triturating well, filter bright; to the filtrate, heated to 140° F. (60° C.) add the remainder of the sugar, dissolve by agitation. Cool, strain, and make up with water to 1,000 fluid parts.

2. By the B.P. process.

3. 1¼ of balsam dissolved in 1¼ of spirit was poured into simple syrup 34, well shaken, and, after a time, filtered. This form is given in Squires' 'Companion,' and is similar to the Edinburgh Pharmacopœia syrup, which was made by shaking 1 oz. of tincture of tolu with 2 lbs. of warm syrup.

4. 5 of balsam dissolved in 5 of alcohol was poured on 125 of sugar and well titurated in a mortar with water 240 until the sugar was all dissolved. The solution was next filtered bright, and 300 of sugar dissolved in it by the aid of gentle heat. When cold the product was strained and made up to 500 with water.

5. 5 of balsam dissolved in 5 of alcohol was poured into 240 of water heated to about 60° C., and the bottle containing the mixture well shaken, then set aside until cold, when the solution was filtered through powdered talc and converted into syrup, 500.

6. Take 4 of balsam and dissolve in 12 of alcohol 90 per cent., then add to 26 of water, previously heated to 70° C., and placed in a bottle; shake vigorously, then set aside for twenty-four hours; filter bright. Mix the filtrate with 7 times its volume of simple syrup.

Of the foregoing, the U.S.P. process is somewhat complicated and seems to defeat its special object, for the product has scarcely more flavour, and is considerably less acid than the B.P. syrup.

The B.P. form affords an elegant preparation, containing a good proportion of acid constituents, but, as might be expected, deficient in flavour. In this process the use of about one-fourth part of the balsam used might produce as good a preparation.

No. 3. This yields a syrup superior to any of the others in flavour, but the filtration is very tedious and the finished product by no means bright.

No. 4. This syrup is fairly aromatic but, like the U.S.P. products, somewhat deficient in acid bodies. Cold water even in presence of sugar is evidently not a good solvent of the acid.

5. The amount of spirit used is insufficient to produce the desired effect.

No. 6. The flavour of the preparation made by this process is excellent and it contains a high proportion of acid constituents. We consider that it might with advantage replace the form now official. If desired the solution may be kept, and diluted with syrup as required, but, being a saturated solution it is liable to deposit crystals in cold weather. These, however, dissolve on placing the bottle in a warm place.

TABLE COMPARING THE DIFFERENT SYRUPS.

Process followed.	Hard Balsam.				Soft Balsam.			
	Parts of balsam used in making 1,000 fluid parts of syrup.	Parts of cinnamic acid present in the same.	Parts of cinnamic acid in the resulting syrup.	Flavour of syrup in order of merit.	Parts of balsam used in making 1,000 fluid parts of syrup.	Parts of cinnamic acid in the same.	Parts of cinnamic acid in the resulting syrup.	Flavour.
1—U.S.P.	10	0.962	0.29 Summer	Fifth	10	1.12	0.32 Summer	Fifth
2—B.P.	34.72	3.33	1.00 Winter 0.60	Last	34.72	3.9	1.12 Winter 0.66	Last
No. 3	34.72	3.33	1.12	Best	34.72	3.9	1.09	Best
No. 4	10	0.962	0.47	Third	10	1.12	0.47	Third
No. 5	10	0.962	0.44	Fourth	10	1.12	0.43	Fourth
No. 6	12.6	1.20	1.12	Second nearly as good as No. 3	12.5	1.41	1.09	Second nearly as good as No. 3

THE STRENGTH OF CAPSULES OF BLAUD'S PILL OF COMMERCE.*

BY C. E. STUART, B.SC.

The enormous amount of labour and brains that have been bestowed upon the details of the formula for Blaud's pill of carbonate of iron, culminating in the production of an official formula, have practically exhausted the field of the chemistry and pharmacy of the subject. Capsules of Blaud's pill, however, that is, capsules containing the equivalent of one or more Blaud's pills, being of more recent introduction, have still a sphere of interest attaching to them, and are still—as my figures given below will show—somewhat of a problem to the pharmacist.

It is a comparatively easy matter to make a large capsule containing three grains of ferrous carbonate, which is the strength most in demand; but to make a small capsule of the same strength requires much care in the preparation of a concentrated soft mass with which to fill the capsule shell.

I have had occasion at intervals during the past year to examine a number of samples of Blaud's pill capsules of various makes, as a rule freshly prepared, and the results obtained seem to me of sufficient interest to justify me in laying them before the Conference as a contribution to the thirty-fifth subject specified in the Blue List.

Mr. Merson's note in *Pharmaceutical Journal*, Nov. 24, 1888 gave the percentage of ferrous carbonate in various capsule masses. From the point of view of prescriber and patient, however, the actual amount of the salt in each capsule is more important, seeing that no definite size or weight of capsule is authorised.

I have, therefore, in the following table given the amount of ferrous carbonate found in an average of from three to eight capsules, and in some cases the average weights of the contents of the capsules, so that percentage of carbonate in the mass may be calculated if desired.

In each case the iron salt was found to be rendered semi-fluid by admixture with an oily body—liquid paraffin in some cases, probably so in all.

The contents of the capsules fall according to their method of manufacture in the three classes A, B, C. Each number represents a separate make or batch of capsules.

A.—*Capsules containing Saccharated Ferrous Carbonate.*

No.	Average Ferrous Carbonate in each in grains.	Average weight of contents in grains.	Remarks.
1.	0·07	—	Total Iron calculated as $FeCO_3$ ·46 grains.
2.	0·92	4·01	—

B.—*Capsules containing Ferrous Carbonate badly washed, and excess of alkaline carbonate.*

3.	0·46	—	—
4.	0·89	—	—
5.	2·59	—	—
6.	0·50	8·0	Strong effervesence with acid.
6a.	0·45	8·0	as 6, after six weeks.
7.	0·70	4·77	—

C.—*Capsules containing well-washed Ferrous Carbonate.*

8.	3·36	6·2	—
9.	3·83	6·6	—

It will be seen that Nos. 8 and 9 show that the problem of a small and active Blaud's pill capsule is not an insoluble one. The remaining numbers reveal the fact that the required standard is not always attained. In No. 1 it is evident that the maker had a very curious notion of what the theoretical iron contents of a

* Read before the British Pharmaceutical Conference, at Plymouth, July, 1899

Blaud's pill capsule should be, for the total iron calculated as ferrous carbonate in each capsule is only 0·46 grn., and the actual amount of ferrous salt is practically *nil*.

No. 2 was labelled simply Blaud's pill capsules; all the others were stated to contain the equivalent of three Blaud's pills.

The method of determination was to weigh the capsules, cut them open under ether, squeeze out the contents, and remove and weigh the rapidly dried shells, giving contents by difference.

A little dilute sulphuric acid (or phosphoric acid with those containing sugar) was then poured into the dish, and the oily mass rapidly disintegrated and dissolved. Standard bichromate solution was run in without removing the ether and the estimation conducted in the usual way.

FURTHER NOTE UPON FERRUM REDACTUM, B.P., 1898.*

BY E. SAVILLE PECK, B.A.

During the discussion which followed the reading of my paper upon Ferrum Redactum at the last Conference, the question arose as to whether I had compared my results of the determination of Ferrum Redactum with the methods of the British and United States Pharmacopœia with the "iodine method." In this paper I have endeavoured to answer this inquiry.

This "iodine method," devised by E. Schmidt, is given in the 'Year-Book of Pharmacy' for 1898, and consists in the separation of the metallic iron from the oxides by means of iodine and the subsequent estimation of the excess of the iodine by titration. "0·4 gramme of the finely powdered sample is treated in a 100 C.c. flask with 10 C.c. of water and then slowly with 2 to 2·5 grammes of powdered pure (and dry) iodine, the latter being added gradually from a weighed tube. When the action is completed any iodine adhering to the neck of the flask is washed down with water, 1 gramme of potassium iodine is added, and after the iodine is all dissolved the liquid is diluted with water to exactly 100 C.c. It is then shaken and allowed to settle, and the excess of iodine is now titrated in 50 C.c. of the clear liquid by means of decinormal solution of sodium hyposulphite. After deducting the total excess of iodine from the entire quantity originally taken, the difference represents the amount of iodine used up in the formation of ferrous iodide, from which the percentage of metallic iron in the sample is readily calculated.

In working the above method the Ferrum Redactum was powdered and passed through a 60 sieve. The iodine was resublimed and powdered, and weighed by difference from a stoppered tube.

The decinormal solution of sodium thiosulphate was standardised by decinormal iodine which had been previously standardised by arsenious anhydride. Notwithstanding all these precautions it seemed impossible to obtain concordant results, as the following. Table A will show:—

TABLE A.

	Ferrum Redactum taken.	Iodine taken.	Iodine Used.	Fe Found.	Percent. of Iron.
P. 1	0·2775	0·685	0·4143	0·1152	41·51
„ 2	0·3690	0·9745	0·7303	0·1613	43·60
„ 3	0·3080	0·9250	0·5353	0·1181	38·34

These results appeared not only unsatisfactory because of their want of uniformity, but also from the low percentage yielded from a sample which I had reason to believe was a good one.

It then occurred to me to use much less water, in fact, in the following examples, in Table B, as little as 0·5 to 1 C.c. was used. It was then found that the action of the iodine upon the iron was "*immediate and complete*," but not sufficiently violent to cause any appreciable loss of iodine from volatilisation—a stoppered 100 C.c. flask being used in each case.

The following Table B shows that concordant results can be obtained much higher in percentage than those in Table A, although the same sample (P) was used in both cases.

TABLE B.

	Ferrum Redactum taken.	Iodine taken.	Iodine Used.	Fe Found.	Percent. Fe.
P. 4	0·2825	1·281	1·049	0·2316	82·01
„ 5	0·3425	1·429	1·260	0·2782	81·24
„ 6	0·270	1·313	1·003	0·2216	82·09
Q. 1	0·4965	1·089	0·8777	0·1938	39·03
„ 2	0·3845	1·212	0·7084	0·1564	40·67
„ 3	1·25	2·787	2·320	0·5122	40·98

The two samples P and Q were then estimated by the copper sulphate method (B.P., 1898), with the modifications suggested in my last paper.

The results are given in Table C.

TABLE C.

Determination by Copper Sulphate Method.

Sample.	Ferrum Redactum taken.	Fe Found.	Percentage Fe.
P. 7	0·5095	0·4250	83·42
„ 8	0·3635	0·3050	83·91
„ 9	0·302	0·2552	84·52
Q. 4	0·3705	0·1990	53·73
„ 5	0·3485	0·1832	52·58
„ 6	0·250	0·1322	52·88

These two samples were again determined by means of the mercuric chloride (U.S.A., 1898) method, with results as given in Table D:—

TABLE D.

Determination by means of Mercuric Chloride, U.S.A., 1898.

	Ferrum Redactum taken.	Fe Found.	Percentage of Fe.
P. 10	0·7530	0·61143	81·19
„ 11	1·0008	0·81702	81·63
„ 12	0·6386	0·52065	81·52
Q. 7	0·718	0·2760	38·45
„ 8	0·643	0·2483	38·62
„ 9	0·677	0·2633	38·9

TABLE E.

Comparison of Copper Sulphate (B.P. 1898), Mercuric Chloride (U.S.A. 1898), and Iodine Methods for Determination of Ferrum Redactum.

Sample.	Percentage of Iron. Copper Sulphate Method.	Percentage of Iron Mercuric Chloride. Method.	Percentage of Iron. Iodine Method.
P. 7	83·42	81·19	82·01
„ 8	83·91	81·63	81·24
„ 9	84·52	81·52	82·09
Q. 4	53·73	38·45	39·03
„ 5	52·58	38·62	40·67
„ 6	52·88	38·90	40·98

From the above comparison (Table E) it will be seen that the mercuric chloride and iodine methods give almost similar results in both samples, although the two samples differ widely in per-

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centage of pure iron. From this fact we may fairly infer that one corroborates the other.

It will also be noticed, as I pointed out last year, that the copper sulphate method invariably gives a higher reading than the mercuric chloride method, the average difference varying in different samples. It also appears that the lower the percentage of pure iron in the sample the greater the difference in the results of the two methods.

Again, although it seems comparatively easy by adopting various precautions, and conducting each determination under like conditions, to obtain concordant results by the copper sulphate methods, it does not necessarily follow that those results give the accurate percentage of the sample.

From these data it appears obvious that the copper sulphate method is not satisfactory, and that either one of the other two methods is to be preferred. From practical experience I am fully convinced that the "mercuric chloride" method is the most satisfactory.

I have to thank Mr. R. Foster Moore, of Christ's College, for his kind assistance.

THE ASSAY OF BELLADONNA PLASTERS, B.P., 1898.*

BY H. J. HENDERSON,

Pharmaceutical Chemist.

The assay of belladonna plasters presents some considerable difficulty, owing to their complex composition. In this paper I shall concern myself only with those plasters which have been prepared strictly in accordance with the formula of the British Pharmacopœia. I hope to be able at some future time to publish a satisfactory method of assay which shall be applicable to those plasters which have a rubber base, but my work on these is at present incomplete. A process of assay to be of practical utility to a busy pharmacist must not be a complicated one, yet it must yield results which are not merely approximations to the truth. For this reason I have been at considerable pains to prove the purity of the alkaloidal residues. One great point in favour of the process I have devised is the absence of that tendency to form intractable emulsions when shaken with chloroform in alkaline solution. In the case of the liquid extract of nux vomica, the formation of these emulsions mars the beauty of what would otherwise be a very elegant and rapid process. The separation of the extract of belladonna from the other constituents of the plaster is the chief difficulty to be overcome, for this once done, the shaking out of the alkaloid with an immiscible solvent, on the lines laid down in the B. P. for the assaying of the liquid extract, is all that is necessary for the completion of the assay. To attain this object, many trial experiments were made with various solvents, such as ether, carbon bisulphide, chloroform, petroleum ether, etc., and it was found that ether was most suitable for the purpose. Ether does not dissolve the plaster entirely, which was not to be expected, but it causes it to disintegrate in a finely divided condition, forming a dirty-looking emulsion, which when agitated with a mixture of glacial acetic acid and water in certain proportions, separates sharply into two clear layers, the lower acid solution containing the belladonna extract and acetate of lead, whilst the supernatant ether contains the decomposition products of the other constituents of the plaster.

Two shakings only are necessary, as it was found upon experiment that no alkaloid was present in the acid liquor from a third shaking. The details of the process are as follow:—Weigh 5 Gms. of the plaster, and introduce it into a stoppered glass separator, with 25 C.c. of ether, allow the plaster to disintegrate. When the contents of the separator present the appearance of an emulsion, add 5 C.c. of a mixture of glacial acetic acid and water (3 parts of the former to 2 parts of the latter), shake for thirty seconds, and set aside until the acid liquor has completely separated. Draw off the lower layer into a small beaker, and again agitate the ether solution with 5 C.c. of the dilute acetic acid of the B.P. and draw off as before. To the united acid liquors in the beaker add dilute sulphuric acid in slight excess, stir well, and allow the sulphate of lead to subside. Filter the solution through a small filter into a separator, transferring the whole of the sulphate of lead on to the filter by means of a glass rod tipped with rubber, allow to drain. Remove the funnel from the separator, and wash the lead precipitate with distilled water until a drop of the filtrate gives no precipitate with Mayer's reagent. Concentrate the washings to a small bulk and add them to the contents of the separator.

It will be found to be advantageous to use a filter pump in washing the lead precipitate, but it is not essential. The separator now contains the extract of belladonna, freed from the other constituents of the plaster. Add excess of solution of ammonia and 10 C.c. of chloroform, shake well for thirty seconds, and draw off the chloroform into another separator. Repeat this treatment with two more successive portions of chloroform of 5 C.c. each. Mix the chloroformic solutions of the alkaloids, and shake out the alkaloids with three successive portions of dilute hydrochloric acid, using 5 C.c. for each shaking. To the mixed acid solutions, in a separator, add excess of solution of ammonia and 10 C.c. of chloroform, shake well, and draw off the chloroform into a weighed dish, repeat the shaking with two successive portions of chloroform, using 5 C.c. for each, draw off as before, and allow the chloroformic solutions to evaporate spontaneously. Dry the residue in the air oven at a temperature not exceeding 93° C. until the weight is constant, and weigh. The residues obtained were beautifully white and crystalline. Applying the process to a plaster, prepared by myself, from a liquid extract of belladonna which I assayed for the purpose. The plaster therefore contained exactly 0·5 per cent. of alkaloid. To prove the purity of the alkaloidal residues, advantage was taken of a process devised by Professor Dunstan and Mr. Francis Ransom (*Ph. J.* [3], **14**, 623). In this process the residues are dissolved in dilute hydrochloric acid, strong solution of iodine is added, and the green periodides, which are precipitated, collected on a small filter, rapidly washed with solution of iodine, and decomposed with solution of thiosulphate of sodium, ammonia is added to the filtrate, and the alkaloids shaken out with chloroform in the usual manner. After drying, the weight of the residue should not appreciably differ from the original weight of the residue operated upon, within the limits of experimental error. Other residues were checked by dissolving them in N/10 solution of hydrochloric acid, afterwards titrating back with N/100 solution of soda, using cochineal as indicator. The weight of plaster taken in each case was 5 Gms., the theoretical quantity of alkaloid obtainable being 0·0250 Gm.

Weight of Residue Obtained.	Weight of Pure Alkaloid Indicated by Dunstan and Ransom's Periodide Method.
α 0·0235	0·0225
β 0·0230	0·0221
γ 0·0233	0·0225

Weight of Residue Obtained.	Weight of Pure Alkaloid Indicated by Volumetric Method.
δ 0·0240	0·0243
ϵ 0·0230	0·0229
ζ 0·0230	0·0231

It will be noticed that in two of the volumetric determinations a plus error appears, yet the figures appear to justify the conclusion that the residues are practically pure. The experiments necessary for this paper were carried out in the laboratory of Messrs. W. Ransom and Son, of Hitchin.

*Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

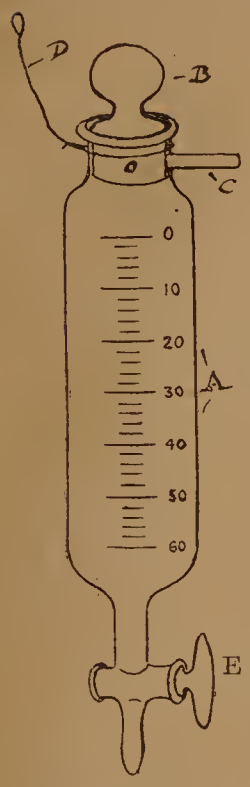
A WEIGHT BURETTE.*

BY E. SAVILLE PECK.

A weight burette, as its name implies, is simply a burette which can be weighed before and after titration, giving the weight of solution used instead of its volume.

An illustration of one of these is given. They were made from the directions of Mr. C. T. Heycock, M.A., F.R.S., to whom they occurred upon reading the work of Stas upon the 'Laws of Chemical Proportions.' They have been used in the Sidney College Laboratory, Cambridge, when determinations of great accuracy have been required.

By referring to the diagram it will be seen that they consist of—



A, an ordinary glass cylinder of about 70 C.c. capacity, very roughly divided into c.c.'s These divisions are not absolutely necessary, but they will be found useful in the case of a second titration of the same solution.

B, a hollow stopper with a small perforation opposite C, which is a glass tube used to admit the air when drawing out the solution without taking out the stopper.

E, an ordinary glass stop-cock.

D, a wire loop for hanging the burette upon the hook above the balance pan.

A standard weight solution is make by taking a flask, carefully drying and weighing it, the standard substance being introduced into this from a stoppered weighing tube, water added to approximate volume desired and solution effected.

The whole is then weighed. The weight of dry flask being known the weight of the solution is found.

The strength of this sulution is then x grammes of standard substance in x grammes of the solution, which, therefore, becomes the standard solution.

This standard solution is placed in one of these burettes and another filled with the solution to be estimated.

Both are carefully weighed, a certain quantity from one, say 10-15 Gm., is run into a suitable vessel, in which the titration can be made and again weighed. The titration is then carried out and the weight of second burette found. It is seen that a definite weight of the solution of unknown strength requires a definite weight of standard solution which in its turn contains a definite weight of standard substance.

From these data the strength of the unknown solution is obtained. It is essential when weighing both the empty flask and burettes that each is approximately counterpoised by a similar vessel upon the opposite scale-pan, so that the same amount of air is displaced on both sides, and thus corrections for variations of temperature and pressure are avoided.

As in ordinary volumetric work different substances will require slightly different manipulation; for instance, it will frequently be found convenient to weigh sufficient only of the standard substance for each titration.

The advantages of this method of using weight burettes are:—

(1) Changes of temperature during the experiment, and differences of temperature of the two solutions exert no influence upon the result.

(2) The errors arising from inaccurate calibration of the ordinary burette are entirely eliminated.

(3) The question as to whether all pipettes are made to contain or deliver a certain volume, and, if the latter, whether the last drop should be blown out is entirely avoided.

(4) Supposing the weight of these burettes is carried to the third decimal place it is equivalent to having a burette accurately graduated to one thousandth parts of a cubic centimetre.

(5) The difficulty of reading correctly and uniformly the ordinary burettes owing to the unevenness of the meniscus, or from the fact of some of the solution adhering to the sides of the burette—particularly noticeable in dark solutions, such as potassium permanganate or from other causes, is obviously overcome.

In conclusion, let me say, from practical experience, that although undoubtedly this method takes longer, and would be considered by some extremely tedious, yet the accuracy and uniformity of the results obtained fully justify the extra expenditure of time and trouble when such accuracy is required.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

A NOTE ON COMMERCIAL CARBON DISULPHIDE.*

BY W. ELBORNE, M.A.

A quantity of the best commercial carbon disulphide (about 200 C.c.), clear and bright, contained in a clear glass bottle, fitted with a "cork" capped with parchment-paper (just as received), was left unopened and undisturbed for six months in a situation exposed to strong diffused daylight. During the period it developed a surprising copious flocculent brown deposit; upon filtering off and drying the same at a low temperature, it was left as a buff-coloured powder, insoluble in water, alcohol, ether, and chloroform respectively; soluble in warm aqueous caustic soda, yielding a yellow coloured liquid, not reprecipitated by acetic acid, but copiously on addition of solution of nitrate of silver to the latter acid liquid. Fresh portions (1) charred readily on being touched with sulphuric acid; (2) on being cautiously heated on platinum foil, immediately disengaged most inflammable vapours, igniting with a luminous sooty flame, leaving a residue of carbon which readily burnt off; (3) added to a hot fused mixture of pure caustic soda and potassium nitrate, underwent vivid ignition; the cooled mass dissolved in water, copiously evolving carbonic acid gas on addition of excess of hydrochloric acid, but not precipitated on further addition of barium chloride, indicating the absence of sulphates and consequently of sulphur in the original substance. The sample of carbon disulphide in question evidently therefore contained impurities which had been decomposed or at least rendered insoluble by exposure to light (in part possibly attributable to extractive from the "cork"), or had itself undergone some decomposition.

In a recent extended research on carbon disulphide (*Journ. Chem. Soc.*, 439, p. 604) Dixon and Russell purified their material as follows: "The best commercial carbon disulphide was allowed to stand some hours with bromine in the cold, the bromine was then removed by potash, and the carbon disulphide shaken for an hour with alkaline permanganate. After washing well with water it was dried over calcium chloride and distilled, the first portion only being collected. Care was always taken to avoid unnecessary exposure to light. The substance thus obtained boiled very constantly at 46·8° C., under 772 Mm. pressure." They also showed that the pure substance underwent decomposition by exposure to light, yielding upon evaporation a brown uninviting-looking, gummy substance, not further examined. For chemical purposes carbon disulphide should consequently be stored in glass-stoppered bottles and be kept as far as possible from the action of light.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899

THE BONE CAVES OF SOUTH DEVON.*

BY R. HANSFORD WORTH.

Invited to read a short note on some local geological subject to your Conference, I selected the bone caves of South Devon as possibly the most suitable. It is impossible to do justice to the matter in the time available, but at least no other geological subject would admit of any briefer treatment, nor would be likely to prove of equal interest to those of your members who are neither geologists nor petrologists.

Wherever in Devonshire the middle Devonian limestone occurs, bone caves or fissures may be expected to exist. The list of localities includes Stonehouse, Plymouth Hoe, Cattedown, Oreston, Yealmpton, Torquay, Brixham, Buckfastleigh, Ogwell, and Chudleigh.

The most popularly celebrated cave is the Kent's Hole, at Torquay, long known as a cavern to which access was easily obtainable. It has formed from early ages a den, a human residence, an object of curiosity, the subject of wild antiquarian speculations, and last in the recent series, but greatest, the object of a classical investigation by a committee of the British Association, of which the late William Pengelly, F.R.S., was the dominant spirit.

For at least three centuries past the scientifically minded or merely curious have frequented this cave. In 1824 the first quasi-scientific exploration was undertaken by Northmore, who visited the cavern "with the double object of discovering organic remains and of ascertaining the existence of a Temple of Mithias." In the first object he was successful; the second is of the nature that brings its own fulfilment. With ingenuous frankness he remarks: "And happy am I to say that I was successful in both objects; in the former pursuit indeed I have been followed by hundreds, in the latter by none." Which, be it observed, is matter for congratulation, since this ardent explorer found to his own satisfaction, "the baptismal lake of pellucid water," "the creeping path of stone purification," and, if he was not quite mistaken (for he spoke doubtfully) "the mystic gate of obstacle"; the "even month"; and possibly one more "arcane memorial," which sufficiently satisfied my mind upon the Temple of the extensively-worshipped and thousand-named deity Belin. All this was in 1824, and it is calculated that had Northmore found equally enthusiastic followers the whole of the mythologies of the world would now be lodged in that cave.

Fortunately the "discovery of organic remains" was the object that appealed more strongly to his successors, and MacEnery, Goodwin Austin, and Pengelly obtained results from their investigations which have made the place classic ground.

The earlier investigators neglected, or else deliberately suppressed, the occurrence of human remains side by side with those of the beast fauna, and to this, coupled with the same policy pursued at Preston, it is due that Windmill Hill Cavern, Brixham, holds the proud position of having first afforded recognised evidence of the great antiquity of man.

The deposits in Kent's Cave consisted of three distinct mechanical accumulation: The black mould, or uppermost, a layer of dark mud from three to twelve inches thick; the cave earth, a light, red clay with angular fragments of limestone separated from the black mould by a layer of granular stalagmite from an inch to over five feet in thickness; the Breccia, consisting of fragments of dark red grit "imbedded in a sandy paste of the same colour"; this was separated from the cave earth by a layer of crystalline stalagmite in some places close on twelve feet in thickness.

All the deposits contained the remains of animals. To quote Mr. Pengelly—

"In the black mould, or more modern deposit, the remains were those of species still existing, and almost all of them now occupying the district. They were man, dog, fox, badger, brown bear, *Bos lengifrous*, roe deer, sheep, goat, pig, hare, rabbit, water-rat, and seal. In the granular stalagmite, black band and cave earth, and especially the last, extinct as well as recent animals presented themselves, the cave-hyæna being the most prominent, but followed very closely by the horse and rhinoceros. Remains of the so-called Irish elk, wild bull, bison, red deer, mammoth, badger, the cave grizzly and brown bears, are by no means rare; those of the cave-lion, wolf, fox, and reindeer were less numerous; and those of beaver, glutton, and *machairodus latidens* were very scarce. In the crystalline stalagmite and the Breccia remains of animals were less uniformly distributed. So far as is at present known, they were exclusively those of bear. There were no bones of hyæna, and no bones fractured after his well-known fashion. Remembering his cavern-haunting habits, it may in all probability be safely concluded that the era of the crystalline stalagmite, and the Breccia it covered, was prior to the advent of the hyæna in this country."

In the bottom of the deepest excavation and thence up through the ascending series of deposits were found flint flakes and implements. It may not be without interest to remark that the cavern exhibits to us more and more ancient men; it shows that they were ruder and ruder as we proceed into antiquity. The men of the black mould had a great variety of bone instruments; they used spindle-wheels, and made pottery, and smelted and compounded metals. The older men of the cave earth made a few bone tools; they used needles, and probably stitched skins together; but they had neither spindle-wheels, nor pottery, nor metals; their most powerful weapons were made of flint and chert, many of them symmetrically formed and carefully chipped; but it seems never to have occurred to them to increase their efficiency by polishing them. The still more ancient men of the Breccia have left behind them not even a single bone tool; their flint implements are rude and massive, show but little attempt at regularity of outline, and are but rudely chipped.

It will be noted that at Kent's cavern the feature of constant accessibility and occupation is dominant. Let me not be understood to suggest that there have been no breaches in the continuity.

The early history of man is carried back by the contents of this cave to a period antecedent to the British hyæna.

It was Colonel Hamilton Smith, however, who first recognised man as a member of the cave fauna. On his pointing out the upper portion of a humerus of man among a collection of bones from Oreston, its should-have-been fortunate possessor immediately threw it away. For long from that early date in the cave hunting around Plymouth no further human remains came under the observation of persons sufficiently honest to publish their existence to the world. At least sixteen distinct series of finds were made between 1816 and 1887 in caves, in fissures, and among fluviatile deposits, at Oreston, Deadman's Bay, the Hoe, Stonehouse, and Mount Wise.

In 1887, however, a cave was disturbed in the course of quarrying operations at Cattedown, which proved to be of extreme value as a geological find. The cave was comparatively small, as far as explored, consisting of two chambers each about 20 ft. in length, the one some 8 ft., the other 5 ft. in width. Excavations were carried down to the rock floor of one chamber, but had to be stopped in the other on reaching a point below the tide level in Cattewater adjacent.

The deposits formed a descending series of stalagmite floor; stalagmitic Breccia, "concrete floor," and cave earth, all members of the series, were not everywhere present.

The stalagmitic Breccia yielded to no gentler persuasion than blasting, and it was purely heartrending to have to resort to this violent expedient, regarding the possible havoc played on fragile remains. The Breccia contained remains essentially representing the complete skeletons of the animals concerned: man, deer, hyæna, wolf. The cave earth below the Breccia contained no practically

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

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THE CONFERENCE AT PLYMOUTH.

THE annual meeting of pharmacists, which has been held this year in the capital of the West Country, commenced most auspiciously and, up to the time of writing, the proceedings have been conducted in a manner which calls for the highest praise. The weather has been excellent, the hospitality offered to the visitors has been magnificent, and all the arrangements have worked with the smoothness of clockwork, thanks to the untiring energy of Mr. C. J. PARK, President of the Local Committee, and Mr. J. DAVY TURNEY, the Hon. Local Secretary, aided by the other members of the Committee. The reception by the PRESIDENT of the Conference and Mrs. PAYNE was held at the Assembly Rooms, Plymouth, on Monday evening, and a most enjoyable programme had been prepared for the occasion. Some three hundred were present, and great animation prevailed during an evening without a single dull moment. On the following morning the members of the Conference were formally welcomed by the Mayors of Plymouth and Devonport, the Chairman of the Stonehouse District Council, and Mr. MAY, who represented the Plymouth Medical Society, and Mr. PAYNE subsequently delivered his presidential address.

The subject of the address was the history of pharmacy in Ireland, and Mr. PAYNE showed how progress has proceeded in the sister isle on similar though not identical lines with Great Britain. He concluded by referring to the bonds of friendship which are growing between the pharmacists of Ireland and Great Britain. The fact that the members of the Conference assembled last year at Belfast is, he thinks, significant, and he is hopeful of a closer union and a stronger harmony being brought about during the new century between the pharmacists of Great Britain and those of Ireland, so tending to the advancement of pharmacy and all concerning it. Naturally, the address was received with great enthusiasm, and the speeches which followed were happily conceived and to the point. The reading and discussion of the numerous papers communicated to the Conference was subsequently proceeded with and continued, after the usual luncheon interval, until four o'clock.

Most of the members and their friends then made their way to the Millbay Docks, where the Great Western Railway Company's tender "Sir Richard Grenville" was waiting to convey them to Looe. The weather was perfect, the sea calm, and altogether this trip along the Cornish coast and up one of the prettiest Cornish rivers was most enjoyable. The Conference photograph was taken in the Guildhall Square on Wednesday morning, and short excursions were arranged for the benefit of the lady visitors during the sessions of Conference. The whole party again assembled in the Western Law Courts during the afternoon, to take part in the concluding business. Chief amongst this was the selection of London as the place of meeting for 1900, and the election of Mr. E. M. HOLMES, Curator of the Pharmaceutical Society's Museums, as President for the year 1899-1900. Business over, there was a brief interval before the smoking and drawing-room concerts, dancing, etc., on Wednesday evening. The whole of Thursday was devoted to the excursion to Mount Edgcumbe and up the river Tamar, and the chief attraction for Friday was the garden party given by the Mayor of Plymouth at his country residence on Dartmoor. A more pleasant week it would be difficult to conceive of, and the prevailing feeling at the close of the meeting must be one of regret that the time spent in the beautiful West Country—amongst such generous and hospitable friends—has been so brief.

PAPERS READ AT THE CONFERENCE.

THE papers read or taken as read at the thirty-sixth annual meeting of the British Pharmaceutical Conference numbered about thirty, and they are printed in full in the current issue of the Journal. The substance of them is briefly given here.

FARR AND WRIGHT ON IPECACUANHA.

E. H. FARR and R. WRIGHT deal with the assay of the official liquid extract, wine and vinegar of ipecacuanha. They consider that the process for the determination of the alkaloids in the liquid extract possesses every fault possible to such a process, without a single compensating advantage. WILSON's process is much more satisfactory, but not an ideal one, and the authors have experimented with the view of devising a process which shall combine economy, simplicity, and accuracy, with rapidity of working. In the suggested process the extract is mixed with diluted sulphuric acid and evaporated, the alkaloids are shaken out with chloroform and ammonia, and subsequently extracted from the chloroformic solutions with sulphuric acid. They are recovered from the acid solution by repeated treatment with ammonia and chloroform, and finally titrated. A more rapid process is also described for employment in laboratories where economy of time is of especial importance. The wine and vinegar of ipecacuanha may be assayed in a similar manner to the extract.

NAYLOR AND BRYANT ON IPECACUANHA ASSAY.

W. A. H. NAYLOR and J. J. BRYANT have attempted to devise a better process than the official one for the assay of liquid extract of ipecacuanha, and describe four:—A lime process, a kieselguhr process, a process which is practically identical with that suggested by FARR and

WRIGHT, and one which they regard as superior to the latter. It is objected to the third process that though yielding accurate results, it consumes much time owing to the great difficulty with which the separations are effected, even when the separator is immersed in hot water. In the process to which preference is given, the liquid extract is freed from alcohol, treated with very dilute sulphuric acid, shaken with chloroform, then made alkaline with ammonia, and shaken out with chloroform. The residue left on evaporating the chloroform is weighed and titrated with decinormal hydrochloric acid. The assay is performed with rapidity, and the results of this process appear to give strictly comparable results with the same sample of liquid extract. The distinctive feature claimed for it is the removal of the resinous substances by a rapid and simple method without loss of alkaloid, thereby making possible the quick separation of the chloroformic solutions. The process is also adapted for the assay of ipecacuanha wine.

BIRD ON IPECACUANHA.

F. C. J. BIRD is of opinion that the B.P. liquid extract of ipecacuanha is a great improvement on the dried acetic extract, as it possesses the advantages of standard strength, good keeping properties, and the fine aroma of the root is retained. Precipitation occurs, however, on diluting the extract with weak alcoholic or aqueous liquids, and the author suggests that, by adding an equal bulk of water to the extract, and allowing the mixture to stand in a cool place for twenty-four hours, a perfectly miscible liquid may be obtained after filtering and adding a little acetic acid, then distilling off the alcohol, evaporating the residue and adding the bright liquid to the distillate. The finished product gives a bright mixture with detannated wine, yields from 2·0 to 2·5 per cent. of alkaloid by the B.P. assay process, and compares favourably as regards aroma with the official liquid extract. Mr. Bird also contributed "Laboratory Notes" on Liq. ferri perchl., and on detannated wine.

UMNEY AND SWINTON ON JOHORE IPECACUANHA.

J. C. UMNEY and R. S. SWINTON have examined Johore ipecacuanha, the root of *Psychotria emetica*, and state that it differs but little in character from the same root imported from Brazil. The proportion of total alkaloids present was found to be 1·7 per cent., and the mean of three experiments showed the percentage proportions to be emetine 72·94, cephaeline 22·94, other alkaloidal matter 4·12, the figures corresponding closely with those recorded for the Brazilian root. It is suggested that there appears to be no reason why the root should not be used for making standard preparations of ipecacuanha.

HENDERSON ON THE ASSAY OF BELLADONNA PLASTERS.

H. J. HENDERSON gives the details of a process for assaying belladonna plasters prepared in accordance with the B.P. formula. The plaster is allowed to disintegrate with ether and the mixture is then shaken with acetic acid. Sulphuric acid is next added to the separated acid liquor, the lead sulphate allowed to subside, and the belladonna extract separated from the other constituents of the plaster. The alkaloids are then shaken out with ammonia and chloroform, next taken up with hydrochloric acid, and finally obtained in crystalline form and weighed. Applying the process to a plaster prepared by himself from liquid extract of belladonna, the author found the plaster contained exactly 0·5 per cent. of alkaloid.

FARR AND WRIGHT ON SYRUP OF TOLU.

E. H. FARR and R. WRIGHT point out that the loss of volatile matter in the process of boiling tolu balsam with water, and the subsequent copious separation of crystals, appear to indicate that the official method for preparing syrup of tolu is somewhat defective. As the result of experiments they find that the official syrup is liable to vary considerably, according to the time of year when it is made, and further that the solution obtained on boiling the tolu with water should be filtered as soon as it reaches a given temperature, and immediately converted into syrup. Several samples of the syrup have been prepared by different processes, and the authors suggest the replacement of the official process by one in which the tolu is first dissolved in 90 per cent. alcohol, the solution added to water previously heated to 70° C.; the mixture is shaken well and set aside for twenty-four hours, then filtered bright, and mixed with seven times its volume of simple syrup. The solution may be kept and diluted as required, any crystals which deposit in cold weather dissolving when the bottle is removed to a warm place.

PECK ON FERRUM REDACTUM.

E. SAVILLE PECK has compared his results of the determination of ferrum redactum by the methods of the British and United States Pharmacopœias with that of the "iodine method." He finds that the mercuric chloride and iodine methods give almost similar results with samples differing widely in percentage of pure iron, and, from that fact, he thinks it may be inferred that one corroborates the other. Attention is also again directed to the fact that the copper sulphate method invariably gives a higher reading than the mercuric chloride method, the average difference varying in different samples, whilst the lower the percentage of pure iron in the sample the greater is the difference in the results of the two methods. The copper sulphate method is, therefore, held to be less satisfactory in use than the other two methods.

FARR AND WRIGHT ON JABORANDI.

E. H. FARR and R. WRIGHT having experienced great difficulty in preparing standard preparations of jaborandi from commercial samples of the leaves, have conducted an investigation into the strength of the tincture and liquid extract as found in pharmacy, the process employed for the determination of the alkaloids being the one devised by the authors in connection with their former work on tincture of jaborandi. As a result, they find that the galenical preparations of jaborandi found in retail pharmacies at the present time are very deficient in strength, only containing about one-fifth the proportion of active constituents which, judging from the official doses, they are supposed to contain. The explanation suggested is that the best jaborandi leaves are being withdrawn from the drug markets, and so prevented from coming into the hands of pharmacists.

DRUCE ON THE DEVONIAN FLORA.

G. C. Druce, following up what has now become almost an established custom, gives a slight sketch of the botany of the district visited by the members of the Conference. Contrasting the district with others in which the Conference has recently met, he states that the county of Devon possesses more than a hundred species which are not native in Ireland, nearly a hundred and forty which are not native in Scotland, and nearly a hundred and eighty which do not occur in Oxfordshire.

HOLMES ON DELPHINIUM STAPHISAGRIA.

E. M. Holmes directs attention to the fact that the true *Delphinium staphisagria* is practically unknown in botanic gardens in this country, and that the plant which passes under that name is in reality another species —viz., *Delphinium pictum*, Willd. The two species are distinguished as follows:—*D. staphisagria* has very hairy stems, glandular hairs being mixed with the long spreading soft hairs, flowers that when well developed have an ultramarine blue tint, and a calyx with a very short or almost obsolete spur, and carpels containing only four or five large seeds. *D. pictum*, Willd., has shorter soft hairs, but no glandular hairs on the stems, and the flowers are of a pale lilac colour, the spur is as long as the calyx segments, and there are in each carpel ten or twelve seeds, which are only half the size of those of *Delphinium staphisagria*, Linn. The author accounts for the absence of the true plant in botanic gardens partly by the fact that it is only half-hardy in Britain, requiring the protection of a greenhouse in winter, whilst *D. pictum* is hardy, and partly by the reason of illustrations of the plant in several works on medicinal plants being incorrect. Even the illustration in Bentley and Trimen's 'Medicinal Plants,' quoted in the British Pharmacopœia, is unreliable, the drawing having evidently been made from a fresh specimen of *D. pictum* supplemented by details of stem and leaf from dried museum specimens of the true *D. staphisagria*, and being therefore a composite and worthless illustration. Mr. Holmes exhibited dried specimens and coloured drawings of the two plants. His experience in growing the plants showed that it is almost impossible to grow the true plant from the stavesacre seeds of commerce, which will not germinate, or only very rarely indeed, and that the plant requires shade and warmth and a damp atmosphere, whilst *D. pictum* grows well in sunlight and in the open air, and in the south of England, at all events, is quite hardy. He recommends that in the next Pharmacopœia the figure given by Nees von Esenbeck, 'Pl. Med.,' tab. 394, should be referred to, unless a better one be published before the appearance of the next edition.

OUGH ON TEREBENE.

Lewis Ough has attempted to ascertain to what extent commercial specimens of terebene correspond with the B.P. requirements for that article and, as a result, he finds that it is most varied in its composition, only one sample out of twelve being in strict accordance with those requirements. The solubility of the samples in 90 per cent. alcohol varied from 4·75 to 6 per cent., the solubility in pure ether (s.g. 0·720) from 1 in 10 to 1 in 20, and the solubility in methylated ether (0·717) from 1 in 1·4 to 1 in 2·5. The optical rotation also varied greatly in the different samples.

PARKER ON GLUCOSE DETERMINATION.

R. H. Parker compares the picric and Fehling methods for the determination of glucose in diabetic urine, and shows that the advantages of the latter when dealing with high percentages may be realised in an equal degree by adding a known quantity of glucose before determination. He finds that the production of opacity in Fehling's solution by alkalised urine is characteristic of glucose. "Interfering substances" do not produce that opacity, and rarely occur in greater quantity than a picric indication of 0·35 per cent. of glucose. When the picric indication falls below 0·4 per cent. the actual amount of glucose present may be approximately ascertained by noting the point at which opacity appears. Finally, samples of urine giving the non-subsiding yellow cuprous oxide may be rapidly assayed with Fehling's solution, if previously mixed with an equal volume of 6 to 8 per cent. glucose solution.

TYRER ON HYDROGEN PEROXIDE.

C. T. Tyrer has endeavoured to give some idea of the rate of decomposition and the protective value of various agents in solutions of hydrogen peroxide. The results are given in his paper of experiments in which glycerin, sulphuric acid, hydrochloric acid, boroglyceride, alcohol, and phosphoric acid respectively were used as the protective agents. Hydrochloric acid appears to be the worst protective agent and phosphoric acid the best, glycerin coming second. Champagne quarts and soda water bottles are found to be less liable to break in transit than other containers of hydrogen peroxide solution; beer bottles with patent screw stoppers come next in order, as they rarely break. Stone bottles with screw stoppers, corbyn quarts and carboys are all, more or less, liable to break. It is recommended that the containers should always be filled to within about two inches of the corks. Concentration of hydrogen peroxide to 100 volumes or more can be effected by careful evaporation; for higher volumes the operation must be effected *in vacuo*. Freezing may also be resorted to as a means of concentration. For storing the peroxide in a laboratory, the author advises the use of a receiver with a tap at the base, the solution being protected by a layer of petroleum carefully poured on the surface.

MOOR AND CRIBB ON DRUG STANDARDS.

C. G. Moor and C. H. Cribb suggest the voluntary adoption of standards of purity for foods and drugs. There are, as they point out, no legalised standards except in the case of spirits, though, in the case of a few articles of food, such as milk, etc., the limits adopted by the Inland Revenue authorities are known and adopted by most analysts. Assuming the need for other standards, therefore, the authors have taken upon themselves the task of collecting trustworthy figures respecting the composition of some three hundred articles which have been, or might be, purchased under the Sale of Food and Drugs Acts. They are of opinion that, in the case of many of the articles included in their list, some mutual agreement

might be come to by pharmacists, analysts, and other interested persons, and that such an agreement might well result in the adoption of a provisional standard which would be of general convenience. The drugs, etc., selected as typical for the purpose of this paper are tincture of aconite, dill fruit, tincture of arnica, cantharides and tincture, caraways, cayenne, cloves, ginger, tincture of hyoscyamus, mace, malt extract, pimento, tincture of rhubarb, and saffron. All are dealt with in accordance with a definite scheme which appears worthy of serious consideration by everyone concerned.

PECK ON A WEIGHT BURETTE.

E. SAVILLE PECK describes a burette which can be weighed before and after titration, thus giving the weight of the solution used instead of its volume. By its use the errors arising from inaccurate calibration of the ordinary burette are entirely eliminated, and changes and differences of temperature exert no influence upon the results. The method suggested takes longer than the ordinary volumetric process, but the accuracy and uniformity of the results obtained are held to justify fully the extra expenditure of time and trouble when great accuracy is required.

TYRER AND LEVY ON MELTING POINTS.

T. TYRER and A. LEVY record the results of a series of determinations of melting points, five methods being employed for each substance —phenacetin, sulphonal, acetanilide, and phenazone. The methods were that official in the British Pharmacopœia, GRAEBE'S, LANDOLT'S, PICCARD'S, and LOEWE'S. Somewhat high results were obtained with the B.P. method, but GRAEBE and LANDOLT'S methods were found to agree fairly well.

JOWETT ON PILOCARPINE.

Dr. H. A. D. JOWETT deals with the assay of preparations containing pilocarpine and the characters of salts of that base. Having extracted the mixture of amorphous bases from jaborandi or its preparations, he dissolves them in a small quantity of a saturated alcoholic solution of pilocarpine nitrate, adds some strong alcoholic solution of nitric acid, and then sets the mixture aside to crystallise. The crystals which form are filtered off, drained by the filter pump, washed with more saturated alcoholic solution of pilocarpine nitrate, dried and weighed. The percentage of bases in the total alkaloid yielding crystalline nitrate can then be calculated. In most cases the total alkaloid may be assumed to be pilocarpine, but if a very accurate determination be required, the melting point and specific rotation of the nitrates should be determined. With regard to the characters of the pilocarpine salts, the author thinks that the nitrate should consist of permanent white crystals, soluble in 6 or 7 parts of water and 146 parts of 95 per cent. alcohol, fairly soluble in boiling alcohol but almost insoluble in ether or chloroform. When heated in a capillary tube the salt should melt at 176° to 178°, and its specific rotatory power in aqueous solution should be +81° to +83°. No residue should be left on ignition, and there should be no precipitate on adding ammonia, water, or sodium or potassium hydroxide to a concentrated aqueous solution. The hydrochloride should form deliquescent crystals, soluble in less than their own weight of water and in 10 parts of absolute alcohol, but almost insoluble in ether or chloroform. The dried salt should melt at 200° to 204°, and its specific rotatory power should be +90° to +92°. No residue should be yielded on ignition, and a concentrated aqueous solution should give no precipitate with ammonia water, and only a few oily drops, which quickly redissolve, on the addition of sodium or potassium hydroxide.

DOWZARD ON ARAROBA.

E. DOWZARD finds that very poor samples of araroba may yield more chrysarobin than the British Pharmacopœia stipulates for, and, as araroba containing from 65 to 75 per cent. of chrysarobin is easily obtainable, he suggests that it would be advisable to make the former figure the minimum limit. He is also of opinion that the amount of water present in araroba should not be allowed to exceed 15 per cent. Pure dry araroba is stated to contain from 70 to 85 per cent. of chrysarobin, and from 0·3 to 3 per cent. of ash.

UMNEY AND SWINTON ON ALMOND OIL.

J. C. UMNEY and R. S. SWINTON are of opinion that the B.P. test for almond oil is not defined with sufficient accuracy, but that inability to comply with its requirements indicates admixture with apricot kernel oil. Certain marked differences are also shown when the test is applied to apricot and peach kernel oils.

IDRIS ON TERPENELESS OILS.

T. H. W. IDRIS has examined the terpeneless oils of lemon and orange on tho market, and records the results, which show great difference in the value of the respective products. Users of terpenless oils are warned to exercise caution in purchasing so-called "terpeneless" and "concentrated" lemon oils offered at absurd prices.

DUDDERIDGE ON LIQ. BISMUTHI.

F. R. DUDDERIDGE has adopted a method for the assay of liquor bismuthi et ammonii citratis, which differs slightly from the official method; the solution of bismuth oxynitrate in equal volumes of nitric acid and distilled water is not diluted at all, the order of mixing is reversed, and the potassium salts are dissolved in a definite quantity of water, the quantity of carbonate being increased by one third. It is claimed that, with those slight modifications the process may be easily and quickly carried out in any pharmacy. The author suggests that the official formula for liquor bismuthi should be modified so that the preparation may contain an excess of ammonium citrate, and indicates how the alteration may be simply effected.

ELBORNE ON CARBON DISULPHIDE.

W. ELBORNE has found commercial carbon disulphide develops a copious flocculent brown deposit when left unopened and undisturbed in a bottle secured with a cork and exposed to strong diffused sunlight for six months. The disulphide apparently contained impurities —possibly extracted from the cork—which became decomposed or rendered insoluble by exposure to light, or it must itself have undergone decomposition. For chemical purposes it is recommended that the disulphide should be stored in glass-stoppered bottles and not exposed to the action of light.

STUART ON BLAUD'S PILL.

C. E. Stuart has had occasion to examine a number of capsules containing Blaud's pill, and in each case he found the iron salt was rendered semi-fluid by admixture with liquid paraffin or some other oily body. The iron contents of the capsules varied considerably, but, judging from some of the samples examined, the author is of opinion that the problem of a small and active Blaud's pill capsule is not an insoluble one.

PARRY ON CARDAMOM OIL.

E. J. Parry points out that the chemistry of oil of cardamoms is in a very "hazy" condition, owing to the fact that those who have reported on the subject rarely state what they mean by "cardamoms." For experimental purposes the author has had Malabar and Mysore cardamoms specially distilled, and has examined the resulting oils. The Malabar cardamoms yielded 1·3 per cent. of oil and the Mysore variety 2·6 per cent. They were both light yellow in colour, scarcely distinguishable in odour, and having a specific gravity of 0·948; but whilst the optical rotation of the Malabar oil was +40° 41′, that of the Mysore oil was +46° 39′. The oils were soluble with a slight opacity in 40 to 45 volumes of 60 per cent. alcohol, and but little difference was apparent between them. Seeing, however, that the Mysore cardamoms yield twice as much oil as the Malabar variety, the former are preferable for distillation purposes.

DYER ON SODIUM BICARBONATE.

C. S. Dyer deals with the liberation of carbon dioxide from sodium bicarbonate when heated, and doubts the accuracy of Cowie's statement that the salt decomposes at a temperature between 50° and 60° C. In his opinion, the detection of traces of carbon dioxide by a delicate test on exposing a bicarbonate to a temperature of about 55° C. is not sufficient evidence that the salt decomposes at that temperature to any practical extent, and he asserts that dry sodium bicarbonate scarcely decomposes at all below 60°, only slowly below 100°, but rapidly above 120°.

DAVIS ON LOZENGES.

F. Davis gives the results of a series of analyses of B.P. lozenges, showing the quantity of active ingredient found in each lozenge, six samples having been taken. The figures closely accord with the official requirements, except in the case of sodium bicarbonate and sulphur lozenges.

HOOPER ON RUBBER SUBSTITUTES.

D. Hooper describes three elastic gums which have been suggested as rubber substitutes. The first is obtained from the stem of *Ficus bengalensis*, and dissolves without previously swelling in ether, chloroform, and carbon disulphide. It contains a large proportion of resins. The second is the product of *Calotropis gigantea* and *C. procera*, and contains but little caoutchouc. The third substance is the coagulum of the milky juice of *Excœcaria azallocha*, Linn. It possesses irritating properties, and that fact, conjoined with the presence in the substance of alcohol-soluble resins, contra-indicates its fitness to serve as a rubber substitute. None of the three substances, in fact, appears suitable for that purpose.

ANNOTATIONS.

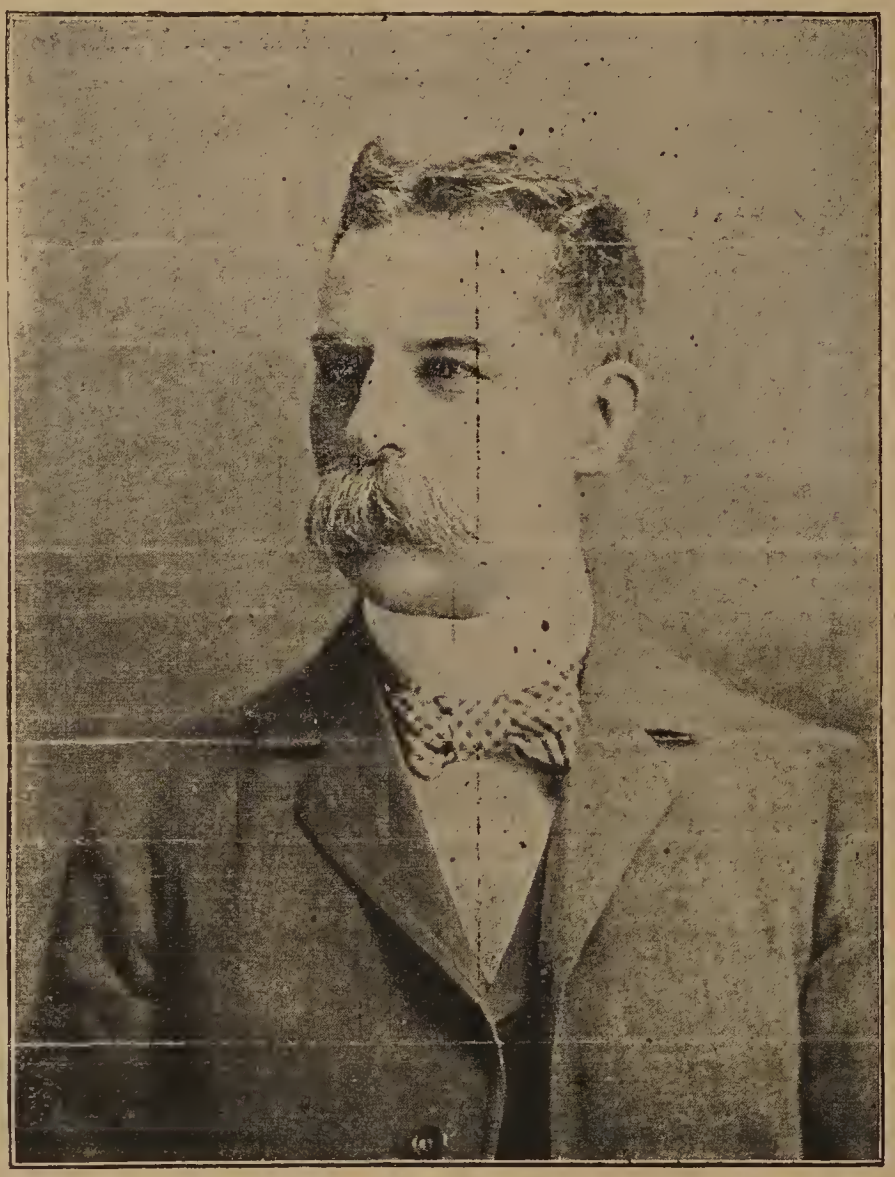
Mr. J. Chilcott Chas. Payne, J.P., the President of the British Pharmaceutical Conference at the Plymouth meeting, is a native of Wellington, Somerset. He was the eldest son of William Payne, a member of the Society of Friends, a first cousin of whom, named Alfred Payne, was at one time with Messrs. Balkwill and Co., chemists, Plymouth. After being educated at a private school at Weston-super-Mare and at the Independent College, Taunton, Mr. J. C. C. Payne served a four years' apprenticeship with Mr. T. H. Flooks, of Sherborne, Dorset, and he subsequently acted as assistant to Mr. Cumine, of Southport, and Mr. Acfield, of Surbiton Hill. In 1867, he was engaged as manager of the Belfast Apothecaries' Hall, conducted by Messrs. Wheeler and Whitaker, and he has since been domiciled in Belfast, where he owns one of the leading pharmacies. When the Irish Pharmacy Act passed in 1875, Mr. Payne was amongst the first to present himself for examination, the date of his registration as a pharmaceutical chemist being April 6, 1876, and he was the first examined licentiate of the Pharmaceutical Society of Ireland to serve on the Council of that body. When he resigned his seat in 1888, after having devoted twelve years to the Society's administrative work, the regret of his fellow-councillors was embodied in a formal resolution, wherein reference was made to the valuable services he had rendered. Mr. Payne's name first occurs in the list of members of the British Pharmaceutical Conference published in the 'Year-Book of Pharmacy' for 1877, and he was elected a vice-president of the body at Glasgow in 1897. It is due to the action taken by him at Cardiff in 1891, and again at Edinburgh in 1892, that the decision was arrived at to break the rule in accordance with which the members of the Conference had always met at the same time and place as the British Association, of which body, by the way, Mr. Payne has been a member since 1877. He was placed upon the Commission of the Peace for the City of Belfast in 1892, and was chairman of the Ulster Committee formed for the purpose of arranging for the entertainment of those attending the Conference at Belfast last year.

Mr. Robert J. Downes, President of the Pharmaceutical Society of Ireland, has, we understand, experienced a miraculous escape from a fearfully sudden death. It appears that Mr. Downes was proceeding by the electric tram to Lower Sackville Street, on business, and on arriving at Carlisle Bridge, where he wished to alight, he walked with that object to the exit portion of the car. The conductor at the moment was engaged collecting fares, and taking advantage of a momentary slowing up of the vehicle, Mr. Downes essayed to alight without waiting for the car to stop. Through some mischance, however, he missed his footing and fell heavily to the ground, the rear part of the tram passing over his head and shoulders. The tram was at once stopped, and Mr. Downes, who narrowly escaped decapitation by the sharp edge of the "fender," was helped to his feet, when it was found that although dazed and suffering from shock he was apparently uninjured. He proceeded unaided to a medical hall in Westmoreland Street, a few yards distant, where restoratives were administered. Beyond a feeling of intense soreness in the left arm, due it was thought to the sudden fall, nothing more serious than a bruise or slight abrasion was apprehended, but on examining the arm the same day, the doctor who was called in pronounced the limb broken close to the shoulder, and subsequent examination showed that the break was of a very serious nature. We are pleased to know that Mr. Downes is progressing favourably. Owing to the accident referred to Mr. Downes has been prevented from attending the Conference at Plymouth this week.

British Pharmaceutical Conference

THE thirty-sixth Annual Meeting of the British Pharmaceutical Conference opened under very favourable circumstances on Tuesday, July 25, in the New Law Courts, Plymouth, under the presidency of Mr. J. C. C. Payne, J.P., L.P.S.I., Belfast. There was a very large attendance, both of members and ladies. Letters and telegrams expressing regret at their absence had been received from Mr. Martindale, President of the Pharmaceutical Society of Great Britain, Mr. Downes, the President of the Pharmaceutical Society of Ireland (owing to an accident), Messrs. Walter Hills, C. Umney, J. C. Umney, John Moss, Newsholme, Wright (Buxton) and Louis Siebold.

The names of the delegates from various bodies and local associations were also read by the Hon. Sec., Mr. Naylor (see end of Report).



J. C. C. PAYNE, J.P., M.P.S.I.

Report of the Executive Committee.

Mr. F. RANSOM, Hon. Gen. Secretary, next read the following report of the Executive Committee:—

"In presenting the 36th annual report your Committee recognises that the Conference continues to fulfil the objects for which it was established, and believes that there is no diminution in the interest taken in its work. The question of membership which has been repeatedly referred to in these reports continues however to be a source of some anxiety.

"During the past year 74 new candidates have been elected, while 16 members have resigned, 10 have been removed by death, and 23 names have been erased owing to the subscriptions being 4 years in arrears, thus showing a net increase of 25. The number now on the list is 1,302, but of these the subscriptions of 360 are in arrears.

"In order to obtain new members and prevent the annual loss caused by resignations and arrears of subscription, a sub-committee was appointed in December last to devise some method by which this object could be attained. This sub-committee carefully considered various suggestions, and finally reported that it considered the best plan to adopt would be the appointment direct representatives in various districts throughout the country who, by their personal influence and interest in the Conference, might be able to obtain nominees for membership by putting before them the advantages to be obtained from such association. It was felt that it would be necessary to apply some distinctive title to the members so appointed, and the name suggested for such honorary appointment was 'Local Corresponding Secretary.' The report of the sub-committee was adopted by your Executive, and as a result 37 appointments have been made of gentlemen who were willing to undertake the duties in important centres. There remains other populous districts throughout the kingdom which are at present unrepresented, and it is hoped that offers to serve in this capacity will be made by members who are resident in such districts.

"Since the last general meeting the following gentlemen have been elected as Honorary Members of the Conference:—Dr. Charles Rice, of New York, M. A. Petit, of Paris, and Professor A. Tschirch, of Berne.

"The Committee regrets that owing to his departure from India, Mr. J. G. Prebble has found it necessary to resign his position as Honorary Colonial Secretary for Bengal. The vacancy thus occasioned has not yet been filled.

"The Blue List has as usual been revised by a Sub-committee appointed for the purpose, and various additions and alterations have been made.

"No applications for grants in aid of research work have been received during the year.

"Mr. Louis Siebold, F.I.C., F.C.S., has been reappointed Editor of the 'Year-Book,' and the MS. of Parts I. to III. of the forthcoming volume is already in the press.

"By the death of Mr. J. Bosisto, C.M.G., of Melbourne, the Conference has lost a distinguished member, who showed his appreciation of the work done by the association, and assisted in furthering its interest by contributing valuable papers to its annual meetings. As an authority on Australian drugs and the products of the Eucalypti in particular, he had held for many years a foremost position."

In the absence of the Treasurer, Mr. NAYLOR presented the financial statement (which will be found on page 112*a*), drawing particular attention to the reduction in receipts from advertisements in the 'Year-Book' and also in the annual subscriptions, which he hoped would show better next year.

Welcome by the Mayor of Plymouth.

At this juncture the Right Worshipful the MAYOR OF PLYMOUTH (Alderman J. Pethick) entered the hall, and being placed in the chair for the time, said he had great pleasure in welcoming the Conference to Plymouth, which had been rightly described as the Metropolis of the West. He hoped when the members returned to their homes they would all say that they had enjoyed their visit, and would recommend their friends to visit Plymouth and the district.

The MAYOR OF DEVONPORT, W. Hornbrook, Esq., who suggested that before long the borough of Plymouth would be glad to avail itself of the shelter and protection which the borough that he represented would be able to afford it, also added a few words of welcome to the Conference. He alluded briefly to the many natural beauties to be found in the locality, and to the great privileges possessed by pharmacists in eliciting and making known the laws of nature, and in applying them for the benefit of suffering humanity. He hoped all visitors would long retain pleasing memories of their sojourn in the three towns.

The CHAIRMAN OF THE DISTRICT COUNCIL OF STONEHOUSE (Mr. J. E. Bone) also welcomed the members of the Conference. They

were no doubt well acquainted with anatomy, and that being so he would say that he looked upon Plymouth as a great body, and Devonport as the head piece, but he looked upon Stonehouse as the neck which held the two together, and on behalf of Stonehouse he welcomed the members of the Conference to the district.

Dr. May, Vice-President of the Plymouth Medical Society, in the unavoidable absence through ill-health of the President, Dr. Bulfield, added a few words of welcome on behalf of his own profession, which he thought had benefited very greatly by the establishment of the Pharmaceutical Society of Great Britain in 1841 by Jacob Bell and his colleagues. It was much better that drugs and medicines should be dispensed by scientifically educated and qualified men than in the haphazard fashion which once prevailed. It was to be desired also that members of his own profession should abstain from dispensing their own medicines, and leave it in the hands of those better trained for the purpose. Indeed, the old proverb *ne sutor ultra crepidam* might be applied to them all.

Mr. S. R. Atkins then rose to propose that the heartiest thanks of the members be returned to the Mayors of Plymouth and Devonport and the Chairman of the District Council of Stonehouse for their welcome. He could thoroughly support all that had been said with regard to the natural charms of Plymouth and the district; the only thing remaining to make the meeting a success was to have fine weather, and that seemed assured to them. Their thanks were also due to the Mayor of Plymouth for the use of the New Law Courts for their meetings, and other public buildings which had been placed at their disposal.

The Mayor of Plymouth briefly returned thanks, and said that he would do his best to make their visit a pleasant one.

Mr. Branson then moved the adoption of the report and financial statement, which was seconded by Mr. Longton, both of whom referred to the desirability of an effort being made to increase the number of subscribers.

The President having enforced this appeal, put the resolution which was carried unanimously.

The report of the Unofficial Formulary Committee was then read by Mr. Naylor, as follows, and was unanimously adopted.

Report of Formulary Committee.

During the year the members of the Formulary Committee as the result of intercommunication by correspondence have suggested a provisional list of important preparations to take the place of those that must necessarily be omitted from the next issue of the Unofficial Formulary owing to their absorption by the present British Pharmacopœia. It has also suggested certain modifications of formulæ that remain unappropriated.

Your Committee has concluded that it would be unwise to do more until the drugs and preparations to be included in the proposed Indian and Colonial Addendum to the British Pharmacopœia have been agreed upon.

Wm. Martindale,
July 17, 1899. Chairman.

The President then proceeded to deliver

THE PRESIDENTIAL ADDRESS.

Mr. Mayor, Ladies, and Gentlemen,—Twenty-two years have passed since I first had the privilege of attending a meeting of the British Pharmaceutical Conference. By a strange coincidence it was at this historic seaport town of Plymouth. I distinctly remember the active general secretary, Professor Attfield, who appeared to know everybody, calling me by name to address the meeting. The object of my visit was to convey an invitation from the Council of the Pharmaceutical Society of Ireland to the members then assembled to hold the following year's meeting for the first time on Irish soil, in the City of Dublin. No doubt your executive committee had misgivings as to the wisdom of accepting the invitation, for reasons which will be apparent to you at a later period of my address. Nevertheless, the invitation was accepted, the members unanimously agreeing to venture across the Irish Channel. The hospitality of Plymouth pharmacists was again offered for a second time at its meeting last year, which was held in the commercial capital of Ireland—Belfast. On the former occasion we adjourned to an Irish meeting-place, to-day's meeting is an adjournment from one. For the benefit of those who are present for the first time, I may be pardoned if I inform them that the Conference has not met in Ireland during the intervening years, and Irish members hope the meetings in their country will be more frequent in the future than they have been in the past. Before passing from what may be described as the introductory portion of my address, let me call your attention to the presence this day of one member of our Conference who in its early days worked unceasingly for its success, and to whom we owe much of its present position among the scientific bodies of this country. I refer to Professor Attfield, who I am delighted to find is still ready to combat all statements not in accordance with chemical laws. For the first time in its history the Conference has elected an Irish pharmacist as its President. The greatest difficulty that presented itself to me was to find a subject your long list of distinguished Presidents had not already brought before you. It occurred to me that a short account of the history of pharmacy in Ireland would be not only fitting to celebrate an occasion which marks an epoch in the lives of the societies represented, but also acceptable to you who have honoured me by placing me in the position I now occupy. Many of the facts which I shall relate will no doubt be familiar to you; but if they interest you half as much as they have interested me, being the story of an evolution of order from disorder, and law from the absence of it, in the land of my adoption, I shall be quite satisfied. We are so accustomed to the phrase that it almost seems bathos to say that it has been a century of progress. Probably in no field of labour employing the highest powers of the intellect have such strides been made as in the scientific, and I think I am justified in saying that the healing art has made as great progress, and with equal benefit to the human race as any branch of science.

Specialisation in Medicine.

A necessary consequence of the resulting accumulation of knowledge has been specialisation in medicine and the allied professions, and this is not to be wondered at. In the dark days when there was so little to know, apothecary, physician, barber, and surgeon might find it a matter of difficulty to keep from encroaching on one another's domains. Now the barber is perhaps the only one who can begin the study of his occupation in life with the hope of ever attaining a perfect knowledge of it; and things have come to such a pass that we have one of the greatest thinkers and scientists of the day, Professor Huxley, declaring:—"I would abolish materia medica from the medical curriculum. I cannot understand the arguments for obliging a medical man to know all about drugs and where they come from. Why not make him know all about cutlery because he uses knives?" As far as is known from public records the first legal recognition of apothecaries in Ireland was contained in a Charter granted in 1446 to a guild numbering among its members apothecaries and surgeons besides others. This guild, which seems to have been somewhat heterogeneous, was broken up in James II.'s reign, and one limited in its membership to barbers, periwig-makers, surgeons, and apothecaries was established. Ultimately, in the reign of George II., the union between the last two was dissolved, and the Apothecaries' Hall received a separate Charter. These apothecaries, although they kept open shop and compounded and retailed drugs and medicines, are not to be confounded with the class bearing the same name in England, as they had considerable medical knowledge, and in later days, at least, had to pass an examination in medical subjects, and they were in the practice of giving advice to those who could not afford the expense of a physician. In 1695 we read of an attempt on the part of the Dublin College of Physicians to obtain an Act of Parliament granting its members the sole right to practise medicine in Ireland. This, however, proved

abortive owing to the opposition of the apothecaries and surgeons, the former continuing their own business as well as the compounding of the physicians' prescriptions, in which work they were the only persons legally qualified up to the passing of the Pharmacy Act of 1875.

The Dublin Pharmacopœia.

The guide book on pharmacy used in the earlier part of the present century was the famous Dublin Pharmacopœia. This was published by the King's and Queen's College of Physicians under powers granted them by an Act passed by the Irish Parliament in the first year of George III.'s reign. By it it was declared lawful for the President and Fellows of the college to publish a code containing "a catalogue of such drugs and medicines as they should judge necessary for the prescriptions of the physicians and surgeons, together with forms and rules for compounding the same chemically and galenieally." And the Act directed that any person who should manufacture or compound drugs by any other rule should be penalised. The first editions of the work appeared in 1794 and 1805. Their circulation was confined to members of the college. However, in 1807, Dr. Percival, professor of chemistry in the college, acting under a committee, wrote a new edition open to the public. Though a man somewhat advanced in years, he set about revising his work, assisted by Mr. Donovan, the inventor of the *liquor arsenii et hydrargyri iodidi*, which is often prescribed as *liquor Donovani*, and still adorns the British Pharmacopœia, but, unfortunately, he broke down and was forced to desist from his labours, the work being finished by Dr. Barker, his successor in the Chemical Chair. The new edition appeared in 1826. Shortly afterwards, on a proposal to issue another edition of the London Code, it was suggested that a Pharmacopœia common to Great Britain and Ireland should be published. This proposal did not come to anything, and we read the reasons in the London edition, published in 1836, that "it was requisite to consult with the Fellows of both colleges," and, as on account of the great distance, this was with difficulty accomplished—there were neither railways nor steam packets in those days—it became necessary to abandon the negotiations which had been commenced. When we add to this that all three colleges would have been called upon to make sacrifices, the consideration of which they could not at the time entertain, the difficulties became almost insurmountable. Consequently, in 1847 the Dublin College set about the preparation of a new edition of their work, which was published in 1850. It has the distinction of being the first edition written in English, those preceding it having the knowledge they contained hidden from the vulgar mind by the employment of Latin. Among other improvements it directed the use of a system of weights and measures comprising the troy grain and the avoirdupois ounce and pound, with a new scruple and drachm. This change was considered necessary, as the old system was the cause of considerable confusion to the apothecary, who had to buy the drugs wholesale by one measure and sell them by another.

In the course of a discussion which took place at a meeting of the Pharmaceutical Society of Great Britain concerning the 1850 edition, the late Professor Redwood is reported to have expressed the opinion that the alteration was illegal, but the Act which gave the college power to publish the Pharmacopœia also gave them authority to direct "the measures, weights, and scales" by which the drugs named in it should be sold, and enacted that any persons using any other should be fined. In the nomenclature the term *confections* was applied to the old *confections*, *conserves*, and *electuaries*, and to remove the confusion existing in the case of the chloridic compounds the term *chlorinata* was borrowed from the London edition of 1836. The chemical names of the salts of mercury were abandoned, and names such as *calomel*, *corrosive sublimate*, and *red* and *green* iodides adopted. The Medical Act of 1858 brings the history of the Dublin Pharmacopœia to a close, as by it powers were vested in the General Medical Council to publish the British Pharmacopœia, and by another Act it was arranged that that book should supersede the publications of Edinburgh, Dublin, and London. The first edition of the new work was published, as you know, in 1864. With regard to poisons, under powers granted them in the Act of 1760, the Dublin College ordered that all prescriptions for external use should be made up in angular bottles, all for internal use in round, and that certain poisonous drugs named should be kept in angular, the remainder in round bottles, and that they should be delivered in the same. We do not hear of any further legislation in the matter until 1851, when an Act was passed putting certain restrictions on the sale of arsenic, with which you are familiar. This Act possesses a certain interest from the fact that it is one of the few Acts relating to our profession which have effect on the whole of the United Kingdom. I do not mean to suggest the usual injustice to Ireland, but there seems to be a large amount of time wasted making laws for England, and remaking them for the sister-country, and to one unversed in the ways of Westminster, the matter is difficult of comprehension.

Suggested Reciprocity with Ireland.

It would appear that after the passing of the English Pharmacy Act of 1868 our Saxon friends were anxious to include Irish pharmacists in their embrace, and Mr. Abraham gave notice at the August meeting in 1869 of the Pharmaceutical Society, that he would move at the October meeting "That steps be taken to assimilate the laws which regulated the practice of pharmacy in Ireland and Great Britain respectively."

The following letter from Mr. John Grattan, a well-known and high-respected apothecary of Belfast, appeared in the *Pharmaceutical Journal*, dated October, 1869:—

Sir,—I have just observed with great satisfaction Mr. Abraham's notice relating to pharmacy in Ireland, reported in the August number of the *Pharmaceutical Journal*, having long considered that the transfer to the Pharmaceutical Society of Great Brtiain of the misapplied powers entrusted to the Dublin Apothecaries' Hall in 1791 could be but a question of time; and I am strongly of opinion that no time could be more opportune than the present. Compulsory pharmaceutical education is now the law of England as it has been that of Ireland for upwards of seventy years, however much of late overlaid by a press of conditions, neither required for the efficient discharge of the duties of the apothecary, nor authorised by the Irish Apothecary's Act of Incorporation; and I can see no valid reason why the holder by *examination* of the Pharmaceutical Society's Major diploma should not be at liberty to practise pharmacy in Ireland, as well as in any other section of her Majesty's dominions. I must, however, strongly deprecate the extension to this country of the Modified examination devised to protect in England interests of an uneducated class of dispensing chemists, such as has no existence here. With this single reservation, I trust the proposed movement will receive the cordial co-operation of every person in Ireland at all desious of the advancement of pharmacy. A short Bill extending to Ireland the authority of the Pharmaceutical Society, and authorising the *immediate* introduction of its full curriculum, would not interfere with any existing rights; no individual at the present moment being legally entitled to keep open shop for dispensing medicine in Ireland without a licence from the Dublin Apothecaries' Hall—only to be obtained by an examination which, I must do the Hall the justice to say, has always been of a very efficient character, though of late years, constituting but a portion of the examination for its medical certificate. With regard to the Dublin Apothecaries' Hall, I conceive there can arise no difficulty whatever. Having long since looked down contemptuously upon its original constitution, and having succeeded in transforming itself into a school of medicine, it should rejoice exceedingly at being relieved from the burden of an irksome duty, derogatory to its present dignified position and exalted functions, the distasteful duty of educating the mere apothecary—a requirement no longer to be postponed. Wishing Mr. Abraham's proposed movement therefore the success to which sound policy and simple justice fully entitle it,

I remain, your obedient servant,
John Grattan.

At the October meeting of the Council I find Mr. Abraham brought forward his motion, and it was referred to a committee to report upon. The report did not result in the Pharmaceutical Society of Great Britain extending its influence to Ireland, as I shall presently show you.

The Sale of Poisons (Ireland) Act.

As a set-off to the English Pharmacy Act of 1868 a Bill regulating the sale of certain drugs in Ireland passed through the Houses of Parliament in 1870. The restrictions were somewhat similar to those put upon arsenic, with the exception of the clause directing that it should be coloured with indigo or soot. It also ordered that they should be labelled poison, and that the name of the vendor should be inscribed on the parcel containing them; of course these laws did not apply to the prescriptions of legally qualified medical practitioners. The Act also gave power to the King's and Queen's Colleges of Physicians to recommend such substances as they thought fit to Her Majesty's Privy Councils to be added to the Poisons Schedule Bill. Thus the sale of phosphorus, chloral hydrate, nux vomica and its preparations, ether (owing to its increased consumption among the poorer classes in the North as a stimulant), phenol, all oxalates, biniodide of mercury, and pre-

parations of strychnine have been brought under control. There was also a clause in the Bill extending the Adulteration of Food and Drink Act to drugs.

From what I have said it will be understood that all this time the only pharmacists recognised by law were those who held the qualification of the Apothecaries' Hall, and they were also permitted to prescribe; but the qualification was not so widespread as the fact seems to suggest, and in many of the small towns those requiring medicine were often compelled to make use of druggists, whose only qualification was an apprenticeship, more or less, served in the shop of an equally qualified, or, rather, unqualified, druggist, where he might learn a great deal if he were so inclined and if his master understood his business, or having served his time, and perhaps wasted it, go into the world to bring discredit on an honourable profession. In those days we fear that Samuel Garth's criticism on some English pharmacy could have been applied with some truth to the practice in Ireland:—

"Some fell by laudanum and some by steel,
And death in anguish lurked in every pill."

In some towns even these gentlemen did not exist, and in those days, when railways were scarce and carriers' carts the commonest means of conveying parcels, this was a matter of some concern to those residing in them. There is no doubt that the chemists and druggists had a grievance. Many of them were men of good education and in every way fitted for their work, but debarred from obtaining the apothecary's licence by the unnecessary breadth of the qualifying examinations, which included papers in medicine, surgery, midwifery, and anatomy.

Now I do not wish to suggest that the average chemist and druggist was unequal to the mental effort which those subjects would have demanded from him; but to one desirous of perfecting himself in pharmacy they were more or less waste of time and of what is usually associated with that valuable commodity, money. Consequently, those who wished to take up the profession of pharmacy were often forced to attain their object by other means, though that meant the constant risk of prosecution by the Apothecaries' Hall. Nor does the case of the unlicensed appear any weaker to us when we remember that occasionally an apothecary kept more than one shop in which there might or might not be a qualified assistant. Of course, one can sympathise with men who, having spent considerable time and labour in obtaining a qualification, saw the wicked unqualified flourishing like the green bay tree.

Formation of the Irish Pharmaceutical Society.

The feeling between the two classes became gradually more intense, and things came to such a pass that when, in 1874, the British Association was to meet in Belfast and the Pharmaceutical Conference, as was its wont, proposed to follow its example, a deputation from the apothecaries in Ireland, consisting of Dr. H. Whitaker, Mr. R. W. Pring, and Mr. Harrington, was received, who stated that it would be impossible for them to meet the unqualified men as brethren. As a consequence the meeting was held that year in London. I think it is only fair to these gentlemen to say that they were not merely desirous of making their degree a *sine quâ non* in the pharmaceutical profession, but had applied for leave to create a second grade of compounders who should not prescribe. On this, however, a third element was introduced into the quarrel in the shape of the Irish College of Physicians, who practically reiterated their demand of 1695 by opposing all tendency to give the Apothecaries' Hall powers to grant separate licences in prescribing and compounding. The college was successful in preventing them in their efforts, and the dispute resulted in what was undoubtedly the best result for all parties, in the formation of a new Society on lines somewhat similar to the existing English one by the Pharmacy Act of 1875.

This Act constituted a Society of Pharmacists to be called the Pharmaceutical Society of Ireland, and one of its first clauses nominated certain professional men as members, and directed that they should form the first Council. It had been originally intended that one-third of these should be drawn from the physicians and one-third from the apothecaries, and one-third from the chemists and druggists. But this arrangement was found to be unworkable, and the first Council consisted largely of licensed apothecaries. Every person registered under the Act as pharmaceutical chemists was to be considered qualified for election to the membership of the Society, and the Council had power to determine upon allowing certain persons to acquire the title chemist and druggist subject to such conditions as they should think proper in this connection. I may say that the first regulation passed by the Council was to the effect that for the present there should be but one qualification—that of pharmaceutical chemist. Queen's Counsel opinion having been taken on the matter, with the result that they were warned that to register chemists and druggists under the Act would be to licence them to compound medicines, an act which would have created an anomaly of having two classes of pharmacists in Ireland, one of which would have been compelled to pass an examination to obtain licences, while the other would not be compelled to do so.

This and all the regulations of the Council were to become law by the approval of the Lord-Lieutenant and the Privy Council.

The members of the new Society were to consist of:—

(1) Members of the Council as nominated.

(2) Persons examined.

(3) Licensed apothecaries on payment of fees, while chemists and druggists, had the Council decided to register them, would have had the right to be elected as associates.

The Irish Examinations.

The Bill caused some unnecessary alarm among English pharmacists. Some thought that the examinations would be made too easy, and that Englishmen having crossed the Channel to obtain the Irish qualification, would return to practise in their native land with the hope that the "I" at the end of the letters after their name would pass unnoticed. The title pharmaceutical chemist was thought to be in danger not only of injury but destruction, and when the Bill was before the House of Commons a deputation from the Pharmaceutical Society of Great Britain was received by the Chief Secretary for Ireland, which strenuously advised the exclusion of the reciprocity clause which it contained, with the result that the Government withdrew it. The feeling was perfectly natural, as the Bill could not of necessity force the Council to keep their examinations at a high standard, though it dictated the subjects upon which candidates were to be examined. The new Society soon demonstrated that it was to their interest that the standard should be high, for though for the first two years, as was only fair to those already in practice as chemists and druggists, the examinations were kept at a moderate level, they have been getting more difficult every year, and as test of the efficiency of the pharmaceutical chemists they are second to none. The candidate is now required to pass a preliminary examination, the subjects in which he is examined being Latin, English, mathematics, physics, botany, chemistry, and a modern language; afterwards he has to pass an examination in materia medica, botany, pharmaceutical and general chemistry, practical pharmacy, and reading, and translation of prescriptions. He must present certificates of having attended classes in botany and materia medica at a recognised school and one stating that he has worked for 100 hours at a bench in a chemical laboratory, and make a declaration before a magistrate that he has been for four years an apprentice or assistant with a qualified pharmaceutical chemist or four years with a registered druggist and two years with a pharmaceutical chemist. Having accomplished all this successfully, he is, after certain forms and the payment of certain fees, at liberty to style himself pharmaceutical chemist, and he may be elected a member of the Pharmaceutical Society of Ireland. The year following the passing of the Pharmacy Bill, Government brought in a Juries Act for Ireland. Under the list of "professions" we find pharmaceutical chemists exempt from service.

The Registration of Irish Chemists and Druggists.

Owing to the action of the Council in refusing to register a second grade for the reasons I have given, there still remained a body of men labouring under a grievance, and to remove this the Pharmacy Act Amendment Bill was introduced into the House of Commons in 1890, and eventually became law. It repealed all reference to chemists and druggists in the old Act and made arrangements for their present registration. All who were in business in 1875 were entitled to registration, but any who had come into business since that date, or who intended going into business, were required to pass an examination. Successful candidates were, on payment of certain fees, entitled to be elected associates of the Pharmaceutical Society, but were forbidden to style themselves as such, and they were not permitted to compound the prescriptions of medical men. The only question which remains to be considered is, has the new Society been a source of benefit to the public and to pharmacists in Ireland? I am of opinion that it has, not only in the large cities, where the facilities for purchasing medicines and having prescriptions compounded have been immensely increased, but in the smaller towns, very few of which are without a qualified pharmacist. Now, I do not mean to convey the impression that there were not clever men in the business before the entry to it was by examination, but, as is the way with examinations, while those aiming at a maximum of proficiency are not greatly affected, those aiming at a

minimum, or at none at all, are awakened to the fact that pharmacy is not the life work for which Nature intended them, and the average standard is considerably raised. To pharmacists the Act has been of undoubted value, inasmuch as it has opened the world to them, the Irish licence being now recognised in all the Colonies, in South Africa, and in some American States. Ireland's apothecaries and chemists have had many outstanding men in their ranks whose names will always be remembered in the history of pharmacy in their native land. Among others we may mention Higgins, on whose work Dalton based his atomic theory; Donovan, whose name we have mentioned, and whose papers are still read; Kane, who wrote on the elements of practical pharmacy as far back as 1831; Whitla, author of a materia medica, with a wide reputation, professor of the subject at Queen's College, Belfast; and Tichborne, a well-known professor of chemistry in Dublin, who has been a member of the Council since the inception of the Society.

I cannot close my address without reference to the bonds of fellowship which are growing between the pharmacists of Ireland and those of Great Britain. The fact that the last Conference met in Belfast is significant, and it is with no egotism that I appreciate my position in this chair, but rather as an honour done to my profession on the other side of the Channel. How far these bonds may continue to grow I cannot say; but though the time is not yet ripe for the accomplishment of it, I have a vision of a closer union and a stronger harmony tending to the advancement of pharmacy and all concerning it in all three countries during the new century now so fast approaching.

Mr. A. P. BALKWILL moved a vote of thanks to the President, for his address, which was especially satisfactory to him, as he was a lover of and believer in history. They were making history there that day, and he trusted it would be a history worthy of the past. He had always been of the opinion that Great Britain and Ireland should be drawn more close together, and was very glad when one Pharmacopœia was made operative in both countries; indeed, years ago, he was deeply interested in the idea which was then talked about of one universal Pharmacopœia for all countries. He could not discuss the address, but he might say he regretted one remark, that the author was unversed in the ways of Westminster, and he thought it much to be regretted that pharmacy as a profession was not represented at Westminster. It was fully entitled to be so represented, and if it were, there would perhaps be less sanction given to the notion that the pharmacist was, above all others, the man to be harassed. Pharmacy was indebted to Ireland in many respects, and it was a great pleasure to welcome a representative of Irish pharmacy amongst them as President. A great deal had been said about the advance of knowledge, and it was quite true that as they stood on the heads of their fathers and predecessors they could see farther, but he was rather sceptical as to there being greater athletes in science now than there were in days past. In the adjoining chamber there was a memorial window to a pharmacist of that town who flourished more than a century and a half ago, and he trusted it would be a stimulant to young men to remember that there had been fine men in the past whom they would do well to emulate. He rejoiced to know that Mr. Payne had always been an encourager of young men. For himself his lifework had been in connection with forlorn hopes, and if there was a forlorn hope in England it was the profession of pharmacy. It was a profession which gave to the public much more than it received from it, which was very satisfactory from one point of view. In old days the bag at the back of a professor's gown was intended to receive fees, so that he should not see them. He did not know where the pharmacist's bag was, but he certainly did not see fees to such an extent as made his work pecuniarily successful. It was necessary, therefore, that no young man should enter the profession without a genuine love for it, otherwise he would soon be disgusted with the dreary drudgery it involved. If, however, he loved science and the practice of beneficence, he would renew his youth continually, and would go on cheerfully until he reached a second childhood, as he had almost done; but he must say he enjoyed it as much as he did his first. He concluded by again thanking the President for his address.

Mr. J. DAVY TURNEY (Plymouth), in seconding the vote of thanks to the President, said the Conference held last year at Belfast had no doubt quickened their interest in, and their desire to know, more about Irish pharmacy. The President that day had given them a full history of the troubles and difficulties which had arisen from time to time with regard to the pharmacists of Ireland.

Prof. ATTFIELD, in putting the resolution to the meeting said he could not refrain from saying how particularly appropriate he thought it was for Mr. Payne to come there and give them the history of Irish pharmacy, considering that twenty-two years ago the President of that day, Prof. Redwood, first gave them the history of pharmacy in Great Britain. The closer pharmacists in different parts of the kingdom could be brought together the better would it be for pharmacy and pharmacists, for medical men and for the public generally.

The resolution was then put and carried unanimously.

The PRESIDENT briefly thanked the members for the kind way in which the resolution had been received. It had given him great satisfaction to have the opportunity of telling them something about Ireland. He quite agreed that the time had come when the various Pharmaceutical Societies should have at least one representative in Parliament.

Papers on Ipecacuanha.

The reading of papers was then proceeded with, the first four being taken together as each dealt with Ipecacuanha, viz., those by Messrs. Farr and Wright, Naylor and Bryant, F. C. J. Bird, and J. C. Umney and Swinton. They are printed at pp. 85-89, and gave rise to the following discussion.

PROFESSOR ATTFIELD, in opening the discussion on these papers, said he might say, recognising his official position, how delighted they all were to welcome any improvement on any of the processes in the Pharmacopœia. In saying that the processes recommended in the papers would no doubt be less wasteful than the ones in the Pharmacopœia, and that the total alkaloids would be purer than the corresponding process in the official assay, he thought he was going as far as the readers of the papers would wish him to go. He most strongly deprecated the language in which the criticisms on the Pharmacopœia were couched in the papers. There seemed to be an impression that at the back of the Pharmacopœia there were a body of workers who tested all processes, rejected the bad, accepted the good, and added further processes of their own; but he would remind them that to do this for the whole of the Pharmacopœia would take twenty years, and cost £20,000. He would say, in conclusion, that the Pharmacopœia was a casket of natural gems more or less polished by different workers, and more or less well set by other workers. It was not a stuffed sack on which to practice pugilism.

Mr. BIRD said when the process of the B.P. first appeared it occurred to him that there was grave doubt whether the alkaloidal residue consisted entirely of alkaloids, and he was pleased to find that its true nature had now been shown. In making some assays of ipecacuanha preparations recently, in trying to assay by Paul and Cownley's process with lime and amylic alcohol he only got from 1·2 to 1·7 per cent. of alkaloids, as against 2 or 2·1 per cent. yielded by the Pharmacopœia process. He then put it down to decomposition of the alkaloid by evaporation, but it was evidently due to the presence of impurities. Mr. Naylor had been rather severe on the tediousness of the official process, but with a little ingenuity, and the use of a Bunsen filter pump, it could be accomplished in a quarter of an hour. Mr. Wright had sent him his process for trial, and he only experienced one little difficulty in the determination of the end point of the reaction, when he found the alkaloidal residue on solution in alcohol was yellow, which to a certain extent obscured the colour of the cochineal. He got over that by using a solution of burnt sugar of a similar tint, placed in a beaker by the side for comparison. He would like to know if Mr. Farr had found any fairly constant factor by which the results might be multiplied so as to give the equivalent of the B.P. assay.

Mr. JONES said he took it the B.P. process would be taken as the standard, and unless some factor were found by which the result of the new and improved process could be compared with the quantity found by the official process they would not be of much use. Secondly, by Wilson's process a slightly higher result was obtained, and by Mr. Farr's a little more, about 2 per cent. as against 1·6 by the B.P. method; but he took it that manufacturers would not be able to reduce his liquid extract, because he used Farr's method. A question was raised as to the weight of the alkaloid, and the titration afterwards by an acid. They knew the titration method was theoretically better than taking the weight of the crude residue, but it had yet to be shown how far either represented the amount of alkaloid present. At the Aberdeen meeting he read a paper on Ipecacuanha, in which he showed that you could not take your mixed alkaloids and evaporate them without producing some change, and that the weight was affected by time. When a practically pure residue

was evaporated, heated, re-dissolved in acid, and treated with chloroform the chloroform became coloured, and in proportion to the time occupied in drying, was the greater or less change effected by the chloroform. It was admitted that trade samples were not what they should be, but was that really on account of want of care in the preparation, or did the alkaloid pass off with lapse of time. The official process was first to take out the alkaloids in connection with natural acids, with spirit ; after a certain time the marc was treated with lime, and the last portion of spirituous liquor you got out was distinctly alkaline, not, as he thought, from the lime being dissolved, but from the liberated alkaloid. In the finished extract you got the alkaloid plus the natural acid, and alkaloid in the free state. There might be sufficient acidity in the first spirituous portion to neutralise that free alkaloid, but he did not think that was so with some samples, and would suggest this as a line which might be worked upon.

Mr. Bird said when Umney and Braithwaite introduced their process they made samples which were kept for six months, and on assay showed no loss of alkaloid. It was known that lime was soluble in 90 per cent. alcohol.

Mr. Rutherford Hill said a case had been brought under his notice in which the wine had been prepared with the standardised extract and estimated when made ; but, after six months, on being re-assayed, there was a very considerable difference in the total alkaloids. The estimation was not done with such care as to warrant one in founding an opinion upon it, but it was a matter of some importance, because it affected the whole question of making ipecacuanha wine from a standardised extract. He should like to know if Mr. Naylor had any evidence that wine prepared in that way retained its percentage of alkaloid.

Mr. E. M. Holmes thought the B.P. had been somewhat unjustly criticised, because the information available at the time of its publication was utilised as far as possible, and the Committee could not be blamed for not having information which was not at their command. One question which arose was this: if a chemist were proceeded against for having dispensed ipecacuanha wine not containing the proper percentage, would he not be judged by the B.P. process, not by the more recent ones? With regard to the Johore ipecac. there seemed a doubt whether this was the genuine drug or not, but he could say positively that it was. It was a cultivated plant obtained, he believed, from Brazilian sources. There were two plants known in Brazil, one of which had long styles and short stamens, and the other long stamens and short styles; in fact, it was dimorphous, one being more robust and easily grown than the other, but which of the two it was he had not been able to ascertain. There, might, however, be some difference in the chemical yield, and that Carthagena yielded more cephaeline than Brazilian they knew. The Johore plant was more of the Brazilian kind, and he was told by Mr. Umney that it contained more of the third alkaloid than either of the other two. They knew that ipecacuanha had a great reputation in India for the cure of dysentery, but neither emetine nor cephaeline were known to have any specific action on that disease. The third alkaloid they knew practically nothing about, and it would be interesting to investigate it further, and see how far it was useful in dysentery.

Mr. Gadd (Exeter) hoped to have heard something telling him how to distinguish the nature of the different alkaloids and the percentage of emetine in them. He was glad that Mr. Jones and Mr. Holmes had raised the point as to whether they might use these alternative processes for assay. From a commercial point of view it was very important to know that if they assayed their liquid extracts by Messrs. Farr and Wright's process, and diluted them down because they were too strong, they would be completely out of court, because the public analyst assayed them by the Pharmacopœia process.

Dr. Symes said he took it that the authors of the first two papers had only expressed themselves in the way they had to justify them in their method of working. He thought it was unfortunate that Prof. Attfield should feel hurt at the language that had been used, because they would rather have heard him criticise the suggested processes. He took it that a public analyst examining a sample would say that it must be an ipecacuanha which would yield the amount of alkaloids shown by the Pharmacopœia process.

Prof. Attfield observed that it would be found that the Medical Council had more and more depended upon the intelligence and the knowledge of pharmacists as each successive Pharmacopœia had been produced, and with regard to the figures now given there were certain definitions of strength given which were fairly rigid, but there was considerable latitude given with regard to processes of manufacture and testing, whether gravimetric or volumetric. He hoped it would be realised by everyone that the Pharmacopœia, notwithstanding the practice of tribunals and the principle on which barristers made speeches, was not a legal standard under the sale of Food and Drugs Act, and if one had the courage to test a case in the Superior Courts he was not afraid to forecast that the Judges of the Superior Courts would agree with what he had stated.

Mr. Farr said he and his colleagues reported on liquid extracts obtained from different sources, and had not experienced any particular difficulty. He thought there was a slight loss in Mr. Naylor's process. With reference to the colour reaction he had been in the habit of adopting the process recommended by Mr. Bird.

Mr. Naylor said he was sorry to have been charged with any lack of courtesy in the language he had used. He had merely said that the B.P. process was tedious, complex, a waste of time, and wasteful of alkaloid, and should not object if at any future time the same thing were said of his own process. All that they had tried to do was to suggest something that might be of service in the future, and they hoped before the next Pharmacopœia was published the processes now recommended would be improved upon.

The Conference then adjourned for luncheon.

The next paper read was by Mr. Henderson on

The Assay of Belladonna Plaster.

It is printed on p. 110.

Mr. Bird said this paper emphasised the fact which had been already established that day that two operators working independently might arrive at the same result. Some years ago he made a number of analyses of belladonna plaster, and found great difficulty in extracting the amount of alkaloid which he knew it contained. He therefore devised a process (which was published in February last) very similar to the one now described. He dissolved the belladonna plaster in a mixture of chloroform and glacial acetic acid, then warmed it and agitated with water and dilute sulphuric acid. This deposited the lead and liberated the alkaloids, which were treated by a vacuum filter. The official process for determining the alkaloids in this plaster presented a good deal of difficulty, and it was very satisfactory to find that these two perfectly practical processes had been devised by pharmacists.

Mr. Jones said Mr. Bird's paper was published in full in the *Analyst*, and he had found it work very well. A filter pump was recommended, but it was not really necessary. The paper would probably appear in the Year-Book, which contained everything of importance to the profession, and he must say that if the Conference and the Year-Book went down it would be a national calamity.

Prof. Attfield, having emphasised Mr. Jones's remarks, said a good many analyses of this plaster had been recently made in Canada, and severe censures were passed on the weakness disclosed ; but he never could quite understand the methods adopted by the analysts concerned.

Mr. Gerrard pointed out that the amount of alkaloid contained in a plaster of the strength of 0·5 per cent. would be about 3½ grains in a large plaster, such as was often used, and he feared the absorption of such a quantity of atropine would produce very unpleasant results. In fact, he had known of complaints being made in some cases.

Laboratory Notes,

by F. C. J. Bird, were then read (See p. 133).

Mr. T. Tyrer observed that one of the difficulties which manufacturers and pharmacists had was to comply with the double requirements of the Pharmacopœia. From a manufacturer's point of view he could confirm what Mr. Bird had said. There were many standards of reference, and not the least convenient were those admirable tables going through pretty nearly every substance, notably, ferri chloride solution, and it was remarkable to see how the different authorities differed in the tables given. He thought, perhaps, the recent controversy had done good, because it was the contents of the active materials which the compilers of the Pharmacopœia had to take into account. A reference to the table by Franz in the *Chemiker-Kalender* of Dr. Biedermann would show that he gave a very complete table, ranging in specific gravity from 1·0146, equivalent to 2 per cent. of Fe_2Cl_6 to 1·5317, equivalent to 60 per cent. Fe_2Cl_6. The gravity of 1·4118 was equivalent to 44 per cent. Fe_2Cl_6, and 1·4367 for 46 per cent. of Fe_2Cl_6. The B.P. solution should contain 45·97 per cent. Therefore, taking this table as correct the B.P. solution should have a gravity of 1·4363. The B.P. also said 5 cubic centimetres should be 1·6 Gm. of Fe_2O_3. This worked out about 45·75 per cent. Fe_2Cl_6,

which by Franz' table gave a specific gravity of approximately 1·4336.

Professor ATTFIELD said he had been much interested in what had been said with respect to liquor ferri perchlor. fortis, but he had seen a letter in the *Pharmaceutical Journal* accusing Mr. Bird of being wrong in his arithmetic, and, therefore, he would wish to suspend his own judgment. With regard to the second note, powdered gelatine could now be had in any quantity of best quality. If the mill were kept cool gelatine could be ground up to any degree of fineness desired.

Mr. KNIGHT was of opinion that vin. ipecac. as now often used and sold was of no use at all as an emetic.

Mr. JONES hoped to live to see a Pharmacopœia published which had no vin. ipecac. in it all. He did not see that sherry was required at all in pharmacy.

Dr. MCWALTER said his experience was that the wine prepared according to the new process was utterly unreliable. They were told to use only the Brazilian ipecac. root, the consequence being that the process was so tedious that the ordinary pharmacist found it not worth his while to make it. It was absurd that intricate processes should be gone through for the purpose of standardising the liquid extract of definite strength when it was certain that the cephaeline was more potent than the emetine, and that the third alkaloid would possibly be found to be more potent than either.

Mr. BIRD, in reply, explained that his reason for bringing his note before the Conference was not to find fault with the Pharmacopœia. He thought Mr. Jones would find that the public would not be satisfied with a tincture of ipecac. The compilers of the Pharmacopœia were in the hands of the medical men, and had to supply what the medical men required.

The next was a

Note on Syrup of Balsam of Tolu,

by Messrs. E. H. Farr and R. Wright (see p. 107).

Prof. ATTFIELD said it was generally admitted that there was a waste of tolu in making syrup of tolu according to the B.P. It had not been found that the product was a syrup of very little taste, but according to the opinion of a number of pharmacists the product was a good article. Then came the question whether a good article could not be made by using less tolu. The use of tolu was not new. It had been many times suggested that a tincture should be used. He did not think it desirable to economise tolu and put spirit into a syrup.

Mr. JONES asked whether the syrup made from the concentrated liquor proposed would keep its colour. He had had during the last few months to examine a few samples of liquors to produce syrup, and without exception they all changed colour. In one case a very distinct yellow syrup resulted at the end of four weeks, and the syrup that kept best of all was made from a fictitious liquor, inasmuch as it was not made from balsam, but from benzoic acid.

Mr. BIRD asked if the syrups made by this process developed the well-known benzene order.

Professor ATTFIELD thought they had been told that cinnamic acid under certain circumstances decomposed into carbonic acid and acetylene.

Mr. BIRD suggested that the presence of spirit in this syrup would prevent that taking place.

Dr. SYMES thought the syrup Mr. Farr prepared would be different to that of the B.P. and would contain a larger percentage of resin. Some years ago he made a number of experiments on balsam of tolu, chiefly with a view to economy, and he found that where a smaller quantity of balsam was used than that given in the B.P., the syrup was not so good or aromatic. If filtered warm and then mixed with the sugar, the cooling would deposit the cinnamic acid, which was intended to be got rid of, and which, he understood, had a rather irritating effect. He thought the gain in balsam would be counterbalanced by the loss of spirit.

Mr. RUTHERFORD HILL drew attention to a paper by Mr. F. Stephenson, read some years ago before a meeting in Edinburgh, in which he suggested the preparation of this syrup by grinding up the balsam with sugar, and percolating with cold water. The product was more highly flavoured than that produced by the B.P. process, and judging by the taste it seemed quite as strong. He could confirm Dr. Symes's statement that syrup prepared with alcohol was distinctly acrid in taste, and it was objected to on that ground. The cold percolation process was very simple, and well within the reach of the ordinary pharmacist. With regard to the benzene odour, he thought it generally arose where concentrated liquor was added to a syrup which had been some time in stock. Possibly simple syrup underwent some change when mixed with tolu liquor, which did not occur to the same extent if the syrup and tolu were mixed at the beginning of the process.

Prof. ATTFIELD thought Mr. Stephenson had admitted that in his process it was not very easy to dissolve the sugar, and suggested using less sugar; and also that the product was not bright.

Mr. HILL said there was no difficulty in dissolving the sugar if the percolation were properly conducted.

Mr. KNIGHT said the present process was not satisfactory, and Mr. Squire suggested an improvement in his Addendum, though he did not where he got it. He found that when filtered warm there was a difficulty, cinnamic acid and the benzene odour were often developed when the whole process was not conducted on the water bath. There was no difficulty with the cold process in the winter time, when the balsam was hard enough to be broken up and well mixed with the sugar.

Mr. FARR, in reply, said the introduction of alcohol was not a serious matter, as it only amounted to less than 20 drops per fluid ounce. He had not noticed any development of the peculiar odour in syrup made by this process, but he had known it to develop in B.P. syrup. He had tried cold percolation, but the result was not altogether favourable. It was rather tedious, and the result did not contain as much acid in the syrup as he had expected. He did not advocate filtering when warm, but mentioned the temperature, namely, that which would occur in summer. He had never noticed any development of colour in the syrup, but he believed there were a great many samples of balsam in commerce, some of which were not altogether genuine, and possibly the colour might be due to that cause. With reference to the crystallisation he referred to the concentrated liquid, not to the syrup.

A paper was then read on

The Bone Caves of South Devon,

by Mr. Handsford Worth (see p. 112).

The PRESIDENT remembered having on the last occasion of the visit of the Conference to Plymouth visited the Bone Caves. There was one point which the reader of the paper had not mentioned, and that was that on one of the rocks was to be found the name of an Irishman inscribed, with the date 1647. So that Irishmen were there, even at that date, which was no doubt after the time of the lions and bears.

A Further Note on Ferrum Redactum, B.P.,

was next contributed by E. Saville Peck, B.A. (see p. 109).

Mr. T. TYRER said he had pursued an investigation on similar lines to Mr. Peck, and was scarcely a decimal point out in his results. He agreed with what Mr. Peck said about mercuric chloride.

Prof. ATTFIELD said he was never quite satisfied with the copper sulphate method. He thought that heat should be used throughout the process, though it was true that the Pharmacopœia did not say so in so many words. He was inclined to think from some experiments that he had witnessed that the mercuric chloride method was more easily accomplished, and was more accurate. One was glad to hear that, after all, the iodine method was not so bad as it was feared.

The PRESIDENT said this paper was a very useful one for a Conference of that kind, as it pointed out the best way of making their preparations.

Mr. PECK said he used heat throughout. He was particularly pleased when he found that the iodine method was not entirely unreliable, but he thought an error might have crept into the 'Year-Book of Pharmacy'; it might have been that 1 C.c. was mentioned instead of 10 C.c. With regard to the copper sulphate method, after exhausting the ferrum redactum with the iodine, he carefully washed the oxides remaining with water until there was no trace of iodine left. He then exhausted those oxides with the ordinary copper sulphate method, and he got an extra 2 per cent. He had treated ferrous carbon in the same way. He should like to see a standard volumetric solution of permanganate included in the Pharmacopœia.

The next paper was on

The Alkaloidal Strength of Commercial Samples of the Official Preparation of Jaborandi,

by Messrs. E. H. Farr and R. Wright (see p. 90).

Mr. WARDLEWORTH said there was a great diversity in the samples of jaborandi now arriving, and the genuine kind was not very plentiful, but still it could be obtained. Some years ago *Pilocarpus microphyllis*, the small leafed variety, began to arrive in this country, and he understood it yielded 3 per cent. of pilocarpine, whilst the official variety only yielded ·5 per cent. For some

time the *Pilocarpus microphyllis* went to the Continent for the purpose of being made into pilocarpine, but then for some reason that ceased, and its price fell to a few pence per lb., but now they were taking it again. It seemed to him the better plan would be to use the strong variety, the *microphyllis*, as the other was practically valueless as a source of pilocarpine; it had a green leaf, downy on the underside, and was generally associated with a great many stalks.

Mr. Naylor said he could confirm what was said as to the difficulty experienced in obtaining pure jaborandi. He had submitted leaves, which appeared on the London market, to Mr. Holmes, who assured him they were not genuine. Still, the genuine could be obtained, but he doubted if it could be in sufficient quantity for pharmaceutical purposes.

Prof. Attfield sympathised with all that had been said on this subject. The difficulty was that they did not really know where they were. Even the question whether pilocarpine was the active principle, and the only active principle, they could not answer positively; nor did they know how far they could trust to total alkaloids. Further chemical and pharmacological investigation was required before they could answer these questions. If pilocarpine were the active principle, no wonder makers of that substance were absorbing all the samples which were strongest, and that pharmacists had to use the other leaves for their preparations. But if it proved that pilocarpine were the sole active principle the question would arise, why use other preparations at all?

Dr. Symes thought the action of pilocarpine was now fairly well known, and it was generally supposed to possess the medicinal qualities of jaborandi. The effect desired was produced either by hypodermic injection or by a small dose of pilocarpine. Both varieties, the small and large leaf, were on the market, and at present there was no scarcity of either. He did not say that jaborandi might not contain other alkaloids which had a medicinal effect, but as far as was known, all the effects attributed to it could be procured with pilocarpine. He thought the inference was that some standardised preparations of pilocarpine should be introduced, and it would not then matter from what particular source they were obtained.

Mr. Jones said, according to his experience, pilocarpine was much more used than preparations of jaborandi.

After the rising of the Conference, the members proceeded by steamer to Looe, an ancient fishing village in Cornwall. The trip was in every respect a most enjoyable one, the weather being perfect.

SECOND DAY'S BUSINESS.

On the Conference resuming the sitting on Wednesday morning, July 26, the first paper read was:—

The Salient Features of the Flora of Devon,

by G. C. Druce, M.A., F.L.S. It is printed at p. 98.

Mr. E. M. Holmes said he regretted he was not a native of Devon, though he had spent several happy years in Plymouth. Mr. Druce had omitted to mention the name of another gentleman present who had recently done far more than himself for the botany of Devon—Mr. Oswald H. Reade. Recently at the Natural History Museum, South Kensington, he noticed a specimen of *Lobelia urens*, which had been found a few years ago near Kingsbridge by Rajah Low, of Sarawak, who sent it to the Museum; but it did not seem to have been recorded. Some years ago he met the Rev. W. S. Hore at Barnstaple, who told him that one day when walking near the Mewstone he found *Scrophularia scorodonia*, which had been supposed to be confined to Cornwall and the Scilly Islands, and was only placed doubtfully in the flora of Plymouth. He hoped to be able to rediscover it during his present visit. To show the enthusiasm of botanists of Plymouth he might mention that the Rev. W. S. Hore, on the occasion referred to, told him that although he had already walked ten miles, seeing in a pool near the Mewstone a very bright red seaweed, which he thought worth examining, he walked into the water up to his middle and obtained it. It proved to be *Griffithsea secundiflora*, a species up to that time unknown as British. He subsequently walked home, wet as he was, to Plymouth.

Mr. Oswald Reade acknowledged the compliment paid him by Mr. Holmes. He could not claim to be a Devonshire man, and, with regard to the flora, had only followed on the lines of investigating the plants mentioned in Briggs. There was one plant, *Eryngo campestre*, which appeared to be unable to extend itself in the country, though it had managed to withstand extermination. With regard to *Linaria supina*, that appeared to be extending itself remarkably. *Althœa officinale* he had found three years ago, but he believed that was now extinct. It would be very interesting if they could place on record the plants that were once common in the neighbourhood, but were now extinct. *Hyoscyamus* was mentioned by Briggs as being very common, but he was sure it would not now be found within ten miles of Plymouth.

Dr. Symes said Mr. Druce's papers on the flora of the various districts visited by the members had become one of the features of the Conference, which, he trusted, would be continued, because he was sure they would be universally enjoyed.

The President, in thanking Mr. Druce, said that gentleman had not referred to the shamrock, but he presumed that was because it would only grow on Irish soil.

The next paper was by Mr. E. M. Holmes on

Delphinium Staphisagria.

(see p. 93).

Professor Attfield said Mr. Holmes was the great pharmaceutical botanist, and they were much indebted to him for this paper on an important subject. One or two practical questions arose from it; one which affected him personally related to the Pharmacopœia, and he must acknowledge the kindness of Mr. Holmes in relieving him of some of the responsibility in this matter. He never set up for an authority on botanical questions; he was, as old Wotton said, merely a gatherer of other men's stuff; and when that stuff was such as Mr. Holmes gave them, he was weel content tobe merely an editor. The practical point was, which of these two plants yielded the seeds on which the reputation of stavesacre was founded? If it were the *D. staphisagria*, all they would have to do in the next Pharmacopœia would be to alter the reference from that to Bentley and Trimen's 'Medicinal Plants' to the one Mr. Holmes mentioned, Necs von Esenbeck. If it turned out that the seeds of *D. pictum* were those which were really operative, the botanical description would have to be altered.

Mr. Rutherford Hill said this paper had cleared up a point which had troubled him, as to the size of the seeds. He noticed that the seeds in the Edinburgh botanical garden were much smaller than those found in commerce. Probably the reputation of stavesacre seeds was founded on the commercial seeds, which would be those of *D. staphisagria*, not *D. pictum*. He had no doubt that the latter plant was the one in the Edinburgh gardens, and it was very hardy, and differed in that respect from some plants cultivated at Chelsea, which were annual, whilst the Edinburgh one was biennial. Evidently the difference of climate between Edinburgh and Chelsea modified the plant.

Dr. Symes said the difficulty alluded to by Prof. Attfield did not exist, as no medicinal value had ever been attached to *D. pictum*. It was, therefore, only a question of altering the reference to the plate in the Pharmacopœia.

Mr. Druce said he had an old collection of plants, which he had recently purchased, dating back some seventy or eighty years, in which the *D. staphisagria* was correctly figured. The mistake was probably of recent origin, and was due to some confusion in the seeds grown in various botanical gardens.

Mr. Holmes, in reply, said the only alteration required in the Pharmacopœia was the reference to the plate. He had some of the fresh seeds from both plants from the south of Europe, which he intended to distribute, and get them grown at the Oxford and other botanical gardens, so that next year they might have some really good specimens from which drawings might be made. His experience was that the plant at Chelsea was not annual but biennial, and the only way in which he could account for it having an apparently annual habit was that it might have been grown from seeds very early in the year, and possibly flowered the same year. The reason it was not more cultivated in gardens was that it would not grow in the open, only under glass. The *D. pictum* was easily grown in the open.

Notes on Terebene, B.P.,

were next read by Mr. Lewis Ough, F.L.S., F.C.S. (see p. 104).

Mr. T. Tyrer said the question of terebene had had their attention, and a number of experiments had been made, one of the chief results being that they had come to the conclusion that the large latitude allowed by the Pharmacopœia in the matter of boiling point was inconsistent with obtaining an optically negative product. It must be borne in mind that terebene rapidly changed from an optically negative article to one having rotation. As an instance, a sample optically negative six months ago was now +3.2. Experiments led them to think that the boiling point should be altered from 165 to 175°. Oil of turpentine rapidly oxidised, altering the sp. gr. and boiling point as well as the

optical rotation, and no two authorities were agreed on the constituents either of the turpentine oil (which, of course, varied from different sources), or from the products resulting from the action of sulphuric acid on oil of turpentine. All authorities agreed that the product was a mixture and variable. The B. P. gave a boiling point 160° to 180° C. Tilden gave 156° C., and Jager and Chase 173° to 180° C. for pure terebene, although Tilden stated that he had some experiments spoilt because the terebene he worked on was contaminated with cymene. Regarding the presence of cymene Richter represented the formula of turpentine oil as containing benzene ring of six carbon atoms, and as being cymene with two atoms of hydrogen added. Riehan in the *C. S. J.*, 1873, stated that the liquid resulting from the distillation of turpentine from oil of vitriol, and to which the name of terebene had been given, was a mixture of pure terebene and cymene. Bright, in the *C. S. J.*, 1873, considered that cymene was pre-contained as such in the original turpentine. Roscoe said terebene $C_{10}H_{16}$ was contained in Swedish and Russian oil of turpentine. Dipentene and its derivatives were optically inactive, boiling point 180° to 182°, sp. gr. ·853. On agitation with sulphuric acid it was partly converted into a resin, sulphurous acid was evolved, and cymene separated out on addition of water. Cymene was also formed by the action of sulphuric acid on oil of turpentine, this being first converted into dipentene. Cymene occurred in old oil of turpentine, and was formed in this in considerable quantity by treatment with oil of vitriol. Therefore, from the above remarks, it seemed probable that even taking a comparatively pure product terebene would be mixed with cymene. A reference to the works of Brand, Dumas, Berthelot, Thorpe, Richter, Watts, Tilden, Roscoe, Kingzett, and Armstrong would show what different views various authorities held on the varying constituents of turpentine oil and commercial terebene, so called. Regarding the reversion of dextroratory terebene to levorotatory, it might not be common know edge, but by the action of oil of vitriol during a definite time and at a certain temperature a dextrorotatory article could be made levorotatory terebene, or that by fractional distillations of terebene and of turpentine no products of a higher dextrorotatory power than the original turpentine or terebene could be obtained, and also levorotatory fractions. The fractions could be bulked, giving an original rotation. Armstrong, in the *Journal of the Society of Chemical Industry*, 1882, in a paper on different samples of turpentine, showed how greatly they varied, particularly when obtained from Russian turpentine +30° 20′ to 46° 45′, and American 24° 29′ to 32° 38′. He attributed the comparatively low rotatory power of the latter to the presence of a levorotatory substance. On several occasions, by submitting American turpentine to air oxidation and afterwards distilling off the unaltered hydrocarbon by steam, he obtained products of considerably higher rotatory power from the original oils, and thought American turpentine a mixture of isomeric hydrocarbons. They had come to the conclusion that the mere steam blowing of oil recommended by the Pharmacopœia and as generally practised was inefficient, but an inactive result could be obtained in a variety of ways with the latitude of temperature allowed by the B.P. He might venture to remark that the making of terebene on a small scale was a comparatively easy matter, but not by any means so on a technical scale. This all went to confirm the conclusions of Mr. Ough that there was great difficulty in obtaining the exact conditions of the B.P.

Dr. SYMES said this paper and Mr. Tyrer's remarks would be of great importance to the dispensing chemist, whose difficulty was that he might obtain two samples, obtained from different sources, which would not be sufficiently identical in odour to satisfy the patient and the medical man. He had had considerable trouble on that point. One sample would smell of turpentine, while another would have a sweet and agreeable odour. His experience was that age mellowed it somewhat, and a very good plan was never to run quite out of terebene, and always to add the new supply to some of the old stock.

Mr. NAYLOR could confirm Dr. Symes and Mr. Tyrer as to the difficulty of making terebene so as to be optically inactive on a large scale. As to the difference in the odour it was not infrequently complained of, and he could not imagine why the authorities of the Pharmacopœia introduced into that most valuable book a terebene which was optically inactive, and which was one of the nastiest preparations as compared with the one introduced by Dr. Morrell.

Professor ATTFIELD said the subject was an immensely interesting one. The importance of it just now was that there had been an impression during the last two or three years that terebene was not so useful as it was supposed to be, and was going out of fashion, but that statement had been met by one of their most eminent pharmacologists. Dr. Leach, who had publicly stated that terebene had fairly well maintained the importance that was given to it at and soon after its introduction. It was important that they should know what they were dealing with under the name "terebene." He was afraid that they never could quite know satisfactorily, because they must give the article a single name, and yet it must be a mixture of different things which they could not be certain should always be alike, and that was the reason why the statements in the Pharmacopœia respecting it were designedly indefinite. With regard to the optical qualities and all the other physical constants, it must be remembered that they could not have what vendors required, viz., a substance of this kind which should always have similar properties. They did not know where they were in the matter of terebene, and it was because that was the fact that such contributions as those of Mr. Ough and Mr. Tyrer were so valuable.

Mr. HOLMES said he gathered from the remarks which had been made that the question of flavour was an important one to chemists. He took it that the variation arose not merely from the process by which the turpentine was produced, but from the fact that it was obtained from fir trees in different countries. It seemed to him quite open a subject for discussion by the Conference as to which of the turpentines from the different fir trees yielded the most fragrant fluid. The same difficulty arose with the different cucalyptus oils.

The next paper was by Mr. R. H. Parker on

Glucose Determination,

which is printed at p. 97.

Mr. BIRD said the suggestion here made of adding glucose of a known strength was very useful. Every one must have experienced a difficulty in analysing samples of urine containing very little glucose owing to the length of time required. Polarimetry as a check on the use of Fehling's solution was useful, and he had found gave very accurate results. Of course, albumen in the urine would interfere with the rotation, but that could be removed by boiling.

Mr. GERRARD agreed with what had been said by Mr. Bird. He had had to analyse a number of samples of urine where the amount of sugar was very small, and in such cases it was extremely difficult to decide the exact percentage. Mr. Parker had referred to the normal colour constituents as interfering with the reaction in Pavey's or the cyanocupric test, but he had found little difficulty on that ground. It must be a very highly coloured urine which would observe the blue colour produced by the addition of the sulphate of copper, and it was not difficult to see when the blue colour had gone.

Mr. BRUCE said the method of adding a strong solution of glucose to bring down the copper more rapidly had been used for many years in the sugar trade, in estimating the glucose in samples of beetroot sugar. He believed Mr. Blacklock, of Glasgow, the sugar analyst, was the first to introduce it.

Professor ATTFIELD said there was no doubt that the method referred to was known in the sugar trade, but he had never heard of its being applied in pharmacy until Mr. Parker suggested it, and therein lay its value. The paper was also valuable because it facilitated a kind of analysis which was particularly within the province of chemists, from which they might expect some little remuneration, and need not fear much competition from public analysts.

Dr. SYMES said the point made in the paper with regard to the colour was not without justification. Although, as Mr. Gerrard said, an average sample of urine might not be highly coloured, but the larger number of samples of diabetic urine which he had examined were highly coloured.

After a few remarks from Dr. MCWALTER, which the President thought might tend to cause unpleasantness with the medical profession if published,

Mr. PARKER, in reply, said the use of the polarimeter was hardly applicable in cases where there was only a trace of sugar, which were just the cases he was dealing with. The difficulty with regard to the colour came in where the urine was highly coloured, and there were considerable quantities of creatinine, uric acid, xanthine, etc. When treated with the cyanocupric or Fehling's solution, these substances gave a yellowish colour with the alkali, and this rendered it exceedingly difficult to see exactly when the blue colour disappeared. If it were diluted the dilution gave rise to another difficulty—the greater the dilution the more difficult it was to find the dividing line.

The next paper was by Mr. Tyrer on

Hydrogen Peroxide.

It is printed at p. 100.

Professor Attfield said Mr. Tyrer had given a valuable series of results, which would form a guide to makers, dealers in, and users of hydrogen-peroxide. The principal point of interest to himself was the suggestion that there should be a test for this substance in the Pharmacopœia, as to which he was not in a position to state an opinion.

Mr. Tyrer said he had quite recently received a letter from Mr. Sutton, one of H.M. Inspectors of Factories, in which he pointed out the great value of hydrogen-peroxide in many analyses as an oxydiser; in fact, some determinations could only be effected accurately by its aid. It was necessary, however, that the hydrogen-peroxide should be perfectly pure and the exact quantity known.

The next paper was by Mr. C. G. Moor and Mr. C. H. Cribb on

Standards for Food and Drugs,

which is printed at p. 129.

The President said it was impossible to discuss this paper properly in the time at their disposal, and he thought they would be in a much better position to do so twelve months hence, after carefully reading it. He would only ask Professor Attfield to make a few general remarks upon it.

Professor Attfield quite agreed with what the President had said as to the impossibility of properly discussing this paper at present. Not only was there not time, but there were important questions of policy connected with the subject, to some of which he had referred on the previous day in connection with the establishment of standards, and their relation to the Sale of Food and Drugs Act. On some of these points they would be touching on rather tender ground, and his opinion was that the subject would be far better discussed in the Press than in that room, where the temperature, already fairly high, would probably rise rapidly.

Mr. Glyn-Jones asked if no discussion at all was to be allowed on this paper, which many had been looking forward to as the most interesting one on the list.

Dr. Symes said he did not understand the President to say there should be no discussion. It was obviously impossible to discuss it in detail, but the necessity for standards of purity seemed more evident than ever. They had heard yesterday that the British Pharmacopœia was not a standard by which the work of public analyists was to be tested, though, as they all knew, it was the authority under the Pharmacy Act. At present public analysts were endeavouring to get the Government to appoint a Committee of Reference, and owing to the diversity which often arose between public analysts and the Somerset House authorities there seemed a great want for some such tribunal. But the question of the accuracy of analyses was not the only one. The analyst had no authority under the Act to advise the magistrate whether a particular thing was good or bad, but had simply to examine it and report the result. The magistrate knew nothing about it, and had no authority to refer to. There were articles undoubtedly genuine, and others undoubtedly adulterated, but between the two there were a great many which it was difficult to classify. The difficulty arose with low standard articles which were not adulterated. For this reason it was desirable that there should be a duly constituted authority, not only to check the correctness of analyses, but to which reference might be made as to what might be passed as pure. There, he thought, was the great value of the paper.

The President said he had not yet answered Mr. Glyn-Jones's question; he might say that the Committee had considered the matter and decided there should not be a general discussion of this paper, because there would not be time for it.

Mr. Glyn-Jones said it was a pity that no notification of this had been given.

Mr. Atkins supported the President's statement. He much regretted there was not time to discuss this paper, for which they were much indebted to the author.

Mr. Samuel Maitland said he was one of the few present who attended the last Conference in Plymouth, and, being over seventy years of age, it was doubtful if he would be able to attend the next one, and he should like to ask if there would be no opportunity of discussing this most important question between that day and Friday next.

Mr. Moor, in acknowledging the thanks of the members, said the Society of Public Analysts had asked him for a paper so that it might be discussed when they held their next meeting in October. If any of the members would furnish him with figures he should be very glad to make use of them.

A Weight Burette

was then described by E. Saville Peck, B.A. (see p. 111).

Mr. Bird said Mr. Peck had brought forward a very useful instrument, which would be very applicable to the titration of small alkaloidal residues. In titrating belladonna for example, the inaccuracies in the calibration of the ordinary instrument affected the volumetric estimation considerably; it would make a difference of four milligrammes in a determination of 100 grammes of alkaloids. This would prevent one from getting those concordant results which it was the pleasure of the analyst to obtain.

The President thanked Mr. Peck for his paper, which, he said, would be very useful to small pharmacists as well as to large pharmacists.

Mr. Peck said he quite agreed with Mr. Bird that the instrument would be applicable in the case of alkaloidal residues.

A Comparison of Different Methods of Determining Melting Points of Certain B.P. Substances

was then made by Thos. Tyrer and A. Levy (see p. 131).

Professor Attfield said he understood from Mr. Tyrer that he was personally well satisfied with the treatment that the suggestions made by pharmacists in relation to the Pharmacopœia received. Mr. Tyrer had said that he had made a few comparatively unimportant suggestions which had not been attended to in the way he desired; which was to be explained by the fact that suggestions had been made which were inconsistent with each other, but with regard to suggestions generally, he could vouch Mr. Tyrer as one whose experience was that suggestions made by competent pharmacists were attended to. He could assure the members that such suggestions always had, and always would have, the best attention of the compilers. Mr. Tyrer had alluded to the figures showing the melting points in the official book, and said they seemed somewhat inconsistent with the directions for taking melting points given on page 436 of the Pharmacopœia. Those memoranda as to the method of taking melting points had been very carefully drawn up, and it might be assumed that they did represent the opinions of the referees as well as the gentlemen who had written the papers, but whilst those memoranda should be adhered to by all those who dealt with the question of melting points, in the future it must be distinctly understood that the method described in the appendix had not necessarily been the method by which the melting points given in the Pharmacopœia had been determined. The taking of melting points was one of the most difficult operations of physical chemistry, as everyone who had done anything in that work would agree with him. The best sources had been drawn upon in order that they might get the melting points most generally recognised, but it must not be for a moment supposed that those who had helped to compile the Pharmacopœia had in all cases verified those figures so published by competent authorities. However desirable it might be to do anything of that kind it would be quite out of the question, as it would take too much time and cost too much. As it was, the cost of the Pharmacopœia had been raised from something like 6s. or 7s. up to 10s. The Medical Council made no profit on the Pharmacopœia; the Government took good care of that. They could only estimate what it had cost, and then the Privy Council fixed the price accordingly. That being so, it would be seen that it was absolutely impracticable for any Pharmacopœia Committee in anything like three or four years to go into the question of verification. A good deal in that direction had been done in the production of the present Pharmacopœia, hence the increased cost, but it was quite impossible to adopt that as a general principle. Mr. Tyrer was quite right in insisting on the importance of methods in regard to melting points, and on the importance of the details of the construction of apparatus, and, if he might add to those two important factors, that of the individual manipulators—the personal equation, as it was called—then he was sure they would be prepared to find that no two good authorities would ever be in absolute agreement respecting melting points. He hoped Mr. Tyrer's tables would be published for reference in the future, as also his diagrams as to the treatment of suggestions; there was nothing to be hidden on the subject. Once for all, he would point out that every attention was paid to the researches of pharmacists; the only things that went into the waste paper basket were the envelopes and the wrappers.

Mr. Naylor asked why, in taking the melting points of chemical substances of a very expensive nature, in one case atmospheric moisture was taken into account and in others not? For instance,

the melting point of acetanilidum was given as 113.5 when dry, but in the case of some of the other substances named, such as sulphonal, and which had lately risen largely in price, there was no such condition imposed. He should have expected that the melting point of all substances would be taken when dry, with an indication that the moisture should not exceed a certain amount.

Professor Attfield said the good horse consistency must not be ridden too hard, and in nine cases out of ten an attempt at absolute consistency in one direction involved inconsistency in others. To adopt any particular method of dealing with articles before taking their melting points would involve a number of fresh inconsistencies. The anxiety of the compilers of the Pharmacopœia was to help medical men to cure their patients, and if it seemed that taking the melting point of an article in the commercial condition was best it was taken in that way; if it seemed best to dry the article, it was dried. The real consistency they wanted was that of common-sense.

Mr. Rutherford Hill said the question put by Mr. Naylor seemed to emphasise the point put by Professor Attfield that statements were put in the Pharmacopœia without being verified by the authorities responsible. It did not seem to him that that was a satisfactory way of compiling a national Pharmacopœia, and he doubted if the United States Pharmacopœia was prepared on that principle. It seemed rather to indicate that some readjustment was necessary in the method of producing the Pharmacopœia. The determination of these melting points was not by any means so elaborate and expensive a matter as Professor Attfield's remarks might lead them to imagine. The proudest and richest nation in the world ought to be able to produce a Pharmacopœia under the best possible conditions, and should not be content with a book which was admittedly a mere collection of extracts, produced by the use of scissors and paste.

Professor Attfield said the inference was utterly erroneous. The Pharmacopœia was not such a book as Mr. Hill described.

Mr. Jones said he had found on taking the melting point of some of these substances that they were not quite in accord with the figures given in the Pharmacopœia. He did not, however, complain to the makers, but inferred, as Mr. Squire had apparently done, that the difference arose from the presence or absence of moisture. In the last edition of Squire there was a recommendation to dry the acetanilidum.

Professor Attfield said the melting point of acetanilidum was given in the Pharmacopœia as 236.5° F., when dry.

Mr. Tyrer, in reply, said the main question which seemed to have arisen was a moral one affecting the compilers of the Pharmacopœia, and he could only congratulate the Committee on having such an able advocate in Professor Attfield. But there was an old proverb, *Qui s'excuse s'accuse*, and he was very sorry that the learned professor had thought it incumbent on him to be so much on the defensive. The great question was, were the interests of the public to be safeguarded; it was not a question of the wholesale or retail trade, or of the manufacturer, but only of the public. The name of the Privy Council had been introduced, which meant that Government money was concerned, directly or indirectly. It seemed to him that the great Pharmaceutical Society, with its enormous resources and its research laboratory, ought to begin to do something, with the aid of an endowment from the State and a contribution from the medical authorities, to settle some of these questions, which amateurs were trying to solve, mainly in their own interest. He concluded by saying that he should have much pleasure in having blocks prepared of the diagrams illustrating his paper and to contribute towards the expense.

Mr. Atkins said a great deal of good work had been done by members of the Pharmaceutical Society, and if the Research Laboratory had not yet done much in this way, he believed it would.

Mr. Tyrer said his point was that the State ought ti contribute to the elicitation of the facts which were demanded, in what was practically the handbook of the magistrate.

The President thanked Mr. Tyrer, not only for his very valuable paper, but also for his very generous offer in connection with its preparation and publication.

The Assay of Preparations Containing Pilocarpine and the Characters of Pilocarpine Nitrate and Hydrochloride.

was next dealt with by H. A. D. Jowett (see p. 91).

Mr. Ransom said this was a particularly valuable paper. It was important to determine what the standard should be, on which question he hoped Dr. Jowett would work and give his results at the next Conference.

Professor Attfield said the point to be ascertained was as to what salt should be used. At the time of the preparation of the B.P. the salt was not pure. If in the next two or three years a pure nitrate should be the commercial article, then the solubility might be stated to be very much that which Dr. Jowett had mentioned.

Mr. Gerrard said the substance known as pilocarpine nitrate was by no means a constant substance. He had twice seen the pilocarpine in a crystalline condition. There was undoubtedly a mass of crystals embedded in a viscous mass, and he had endeavoured, unsuccessfully, to reproduce those conditions. He was hopeful that they would some day be able to say that the pure base was a crystalline body. All the evidence went to show that the body known as nitrate of pilocarpine was still a mixture.

A paper was then read on

The Composition of Commercial Araroba.

by Edwin Dowzard (see p. 106).

Mr. Holmes said he thought he was the possessor of the first large commercial sample of araroba which came into this country. The drug as it had come into commerce in recent years was very inferior to what it was in earlier times. At first it contained up to 80 per cent. of chrysarobin, and then it went down as low as 23 per cent. He had obtained analyses from two wholesale houses and one retail house of samples of araroba, and the mean was that given in the Pharmacopœia. It had been shown that chloroform dissolved out more of the active ingredients of the drug than any other solvent. It had been stated that the proportion of araroba constituents which were left when the drug was exhausted by petroleum spirit still left the active principle of the drug, and that there was a residue which could be taken out by chloroform, and had still the same active properties as those which were taken out by the petroleum spirit.

Dr. Symes confirmed Mr. Holmes in stating that the araroba now imported into this country was not nearly of the same quality as it was originally. The question of moisture was a very serious one, it being stated that it was sometimes added to prevent the dust flying from it. By repeatedly heating and pouring off it could be very soon exhausted with very little loss. The powder so obtained was a soft velvety powder, which would mix readily to form an ointment.

Mr. Naylor thought that the question of the amount of ash should be taken into consideration. It was a fact that it was by no means an easy matter to get hold of samples of Goa powder which contained as small a quantity as three per cent. of ash.

Mr. Wardleworth thought the factor of the percentage of water was a very small matter indeed, for the simple reason that the man who bought the araroba ought never to think of taking it until he had ascertained exactly the percentage of water in the sample.

Almond and other Kernel Oils

formed the subject of the next paper by J. C. Umney and R. S. Swinton. (See p. 106).

Mr. Allen said he had been associated for thirty-six years in the production of the oils dealt with in the paper. He had been surprised to see it stated that the nitric acid test was considered to be valueless as demonstrating the presence of apricot or peach kernel oil in almond oil. Years ago a large amount of kernel oil was added to the almond oil in commerce. Now it was considered that nothing was easier than to demonstrate its presence; the only thing they regretted was that they could not say exactly the amount or the absolute character of that adulteration. The experience of manufacturers would tend to show that commercially there was no difference in the relative value of oil derived from peach kernels or apricot kernels. It was undoubtedly a fact that ninety-nine packets out of 100 that came into this country were not peach, but apricot kernels. Any druggist, with the aid of Beber's test, could easily satisfy himself as to the difference between kernel oils and almond oils, and if their scientific friends could show them a ready means by which they could always ascertain what was the exact adulteration of the kernel oil, and the amount of that adulterant, then a great gain would be secured for the trade at large.

Mr. Holmes said that on keeping a bottle of almond oil that he had bought for his own use, he found that the bottle became sticky outside, which was not a characteristic of true almond oil. He had been told that there were two kinds of kernels which came into commerce, one from Persia and the other from France, but he did not know whether there was any means of ascertaining the botanical sources of the kernels. He thought it would be advisable for all wholesale druggists, on behalf of their retail customers in this line, if they would state the origin of the products which they sold.

Mr. Wren said the whole question resolved itself into a matter of £ s. d.

Mr. Lescher said if oleum amygdili were asked for it was always the English oil that was supplied.

Mr. Allen said with regard to the source of supply, the question of their coming from Persia was almost a myth; as a matter of fact, a large proportion of the supply really came from Syria, and also from Barbary.

The next paper taken was that by Mr. Wm. Idris on

Examination of the Terpeneless Oils of Lemon and Orange in the Market.

which was read by Mr. Ransom. It is printed at p. 103.

Mr. Wren said he regretted the author's absence, as he desired to put a few rather pointed questions to him. At the International Conference at Brussels a few years ago he was awarded a premium for a paper on this subject, and Mr. Umney had also written upon it. They seemed to be drifting in a wrong direction with regard to the active principles of these oils, and paid too much attention to the isolation of one or two products, aldehydes, ketones, or alcohols. In this case especially it was a mistake to try to isolate one ingredient, because the oil changed so easily that the slightest chemical action or the application of heat destroyed all the character of what they understood by the odour of lemon. He based his remarks on work on the spot, both at Mycenae and Palermo, for three or four successive seasons. You might obtain terpeneless lemon oil by fractional distillation, and obtain only about 7 per cent. of the total volume of the oil, but it represented in no way whatever the true oil of lemon. He looked rather to that unknown body, neither lemonine nor citronel, as being the really odoriferous principle of lemon oil.

Mr. Holmes thought Mr. Umney had pointed out that geraniol was an important ingredient in essence of lemon. In most perfumes there were bodies which, though present in only very small quantities, considerably modified the remainder. Most people thought the chief element in essence of lemon was citral, but its odour was modified by other matters. At the Colonial Exhibition some years ago he found a sample of essence of lemon which had a peculiarly natural odour, if he might use the expression; it was exactly like scraping a piece of fresh lemon peel on sugar, and everyone knew that the odour of fresh lemon was very different to that of the essence. Those who made terpeneless oils separated a quantity of terpene, which often had an odour of lemon, and was largely used, he believed, as a perfume for soaps, but chemists must be on their guard to ascertain how much more than the normal proportion of terpene was present in any cheap essence of lemon. The whole thing was a matter of price; if they asked for an article at a price below the cost of production they could not expect to have it pure.

The next paper taken was that by Mr. Dudderidge, on

Liquor Bismuthi et Ammonii Citralis,

which is printed at p. 101.

Professor Attfield said he must protest against the compliment the author had paid him of giving a formula for this substance. He only suggested it, for he had never analysed it, and had yet to learn what was its true composition.

The next paper was a

Note on Commercial Carbon Disulphide,

by Mr. Elborne, which appears at p. 111.

Professor Attfield said Mr. Elborne had not added much to their knowledge. He had suggested that corking had something to do with the matter, but had not proved it. The action of light on pure carbon disulphide was well known, and they would all be glad if someone would ascertain its cause, and how it could be prevented.

Mr. Tyrer said the only answer he ever gave to numerous and troublesome inquiries on this subject was that it could not be helped.

The next paper was that by Mr. Stuart on

Blaud's Pills,

an abstract of which was read by Mr. Naylor. It appears in full at p. 108. There was no discussion on this paper, beyond the usual vote of thanks.

A paper by Mr. Parry, on

Oil of Cardamoms,

which appears at p. 105, was next read by Mr. Ransom. This also was passed without discussion.

The next paper was by Mr. C. S. Dyer on

Carbonic Anhydride,

which appears at p. 96. The summary at the end of it was all there was time for, and was read by Mr. Naylor.

The next paper was by Mr. F. Davis, on

B. P. Lozenges,

extracts of which were read by Mr. Naylor. The paper appears at p. 99.

Prof Attfield said the results shown in this paper reflected credit on all concerned. It was evident that formerly there was considerable ignorance amongst manufacturers as to the proper standards of strength, and the best excipients to use, but these differences seemed now to be removed.

Dr. McWalter said he should have asked Mr. Davis, had he been present, if he had tested for glucose, because he had found it in many B. P. lozenges which he had tested.

Prof. Attfield said there might be any adulteration in any lozenge, but so far as the author had gone, he negatived the inference Dr. McWalter had drawn.

The President said the next paper on the list, one by Mr. Hooper on Indiarubber Substitutes, was too important to abridge, especially considering the standing of the author, but it would be printed in full in the *Pharmaceutical Journal* (see p. 94). One other paper on a new condenser, by Mr. Lucas, would have to be omitted (see p. 102), as the author had not sent the necessary illustrations.

Presentation from the Bell and Hills Fund.

The President having explained the origin of this fund proceeded to hand over to Mr. Park, as President of the Local Association of the Three Towns, the books which they had chosen to receive as a memento of the visit of the Conference. He noticed that there were five volumes on botany, three on chemistry, and others on materia medica, pharmacy, and the use of the microscope.

Mr. Park, on behalf of the Local Association, acknowledged the gift, which he was sure would be much prized. Mr. Reade, one of the most distinguished field botanists in England, had aided the committee in the choice of books, and he had no doubt they would prove very useful.

Election of Formulary Committee.

Mr. Rutherford Hill, after alluding to the marvellous assiduity and matchless skill with which the British Pharmacopœia was produced, moved the election of Messrs. E. C. Abraham, F. C. J. Bird, T. Greenish, N. H. Martin, D. Martindale, J. Ransom, C. Symes, H. Wilson, R. Wright, and W. A. H. Naylor as members of the Formulary Committee for the ensuing year

Dr. McWalter seconded the resolution.

The resolution was passed unanimously.

Place of Meeting for 1900.

Mr. Harrington, on behalf of the Western Chemists' Association of London, invited the Conference to meet next year in London. He need not say anything about the attractions of London, but he might say that the invitation did not come from the Western Chemists' Association alone, but from the whole of London and the neighbourhood, and he had no doubt the meeting would be a happy and profitable one.

Mr. Warren seconded the invitation, which was supported by Mr. Cooper.

Mr. Naylor then read a letter from Mr. Martindale, President of the Pharmaceutical Society of Great Britain, offering the use of the Society's house for the meeting of the Conference.

Mr. Druce then moved that the invitation from London be accepted. He referred to the opportunities for botanising which might be found in London, which he hoped some at any rate would avail themselves of.

Mr. Beggs seconded the resolution, and hoped members would at once write or telegraph to London to secure accommodation.

The resolution was at once carried by acclamation.

Mr. Wells then, on behalf of the Pharmaceutical Society of Ireland, invited the Conference to meet in Dublin in 1901, where he could promise them a truly Irish welcome.

Mr. Beggs said he had much pleasure in supporting the invitation.

The President said it was not usual for the Conference to tie itself two years in advance; but he thought from what he knew of the feelings of those who had visited Dublin before and Belfast last year, that if this invitation were renewed next year it would receive very favourable consideration.

Election of Officers.

Mr. Naylor proposed the election of the following officers:—

President.—E. M. Holmes, F.L.S. (London).

Vice-Presidents.—R. J. Downes, Ph.C. (Dublin), Walter Hills, Ph.C., F.C.S., J. F. Harrington, Ph.C. (London), John Moss, F.I.C., F.C.S. (London).

Honorary Treasurer.—J. C. Umney, Ph.C., F.C.S. (London).

Honorary General Secretaries.—W. A. H. Naylor, F.I.C., F.C.S. (London), and F. Ransom, Ph.C., F.C.S. (Hitchin).

Honorary Local Secretaries.—W. Warren (London), and Herbert Cracknell (London).

Other Members of Executive.—Leo Atkinson, Ph.C. (London), G. C. Druce, M.A., F.L.S. (Oxford), F. C. J. Bird (London), Professor Greenish (London), J. W. Bowen (London), E. Saville Peck, B.A. (Cambridge), H. Collier, Ph.C., F.C.S. (London), J. Davy Turney (Plymouth), and Edmund White, B.Sc. (London).

Auditors.—J. Maitland (Stonehouse) and J. H. Mathews (London).

Mr. HOLMES said he felt sure that his name could not have been selected on account of any special fitness he possessed for the office of President, either as a public speaker, or as one especially conversant with ceremonial and social duties, since there were many other Plymouthians, as, for instance, Mr. Breeze, Mr. Park, and Mr. Turney, who were far more suitable for the office. He evidently owed the honour that had been conferred upon him partly to the kindly feeling of old Plymouth friends, who felt, perhaps, that as an old resident in Plymouth, and partly to the fact that many friends in all parts of the country wished thus to recognise his humble efforts to increase our knowledge of materia medica. Of one thing he felt sure, viz., that any deficiencies on his part would be fully compensated for by the hearty moral support that Plymouth friends would accord him by their presence at the meeting in London next year, and by the London Committee of the Conference. He felt that he had been especially honoured in being selected to fill the office of President of the Conference at a time when it met in the greatest city of the world and in the last year of the century, and at a time when, by the strange attraction of gravitation that all large cities possessed, London would draw people from all countries. He hoped that it would be one of the largest meetings of British pharmacists on record, and that as a result the Conference would receive a large accession of members.

Votes of Thanks.

Mr. S. R. ATKINS moved that their thanks be tendered to Mr. Park, Mr. Turney, and other members of the Executive Committee for the very excellent arrangements which they had made, and which had tended to make, the meeting at Plymouth so pleasant and successful.

Mr. ALLEN seconded the motion, and referred in glowing terms to the arrangements which had been so successfully carried out by the Local Committee.

The vote of thanks having been carried by acclamation,

Mr. PARK briefly returned thanks.

Mr. DAVY TURNEY also thanked the members.

Mr. WELLS then proposed that the best thanks of the meeting be accorded to the Mayor and Corporation of Plymouth for kindly granting the use of the Law Courts and the Corn Exchange to the Conference during their visit to Plymouth.

Mr. BRANSON seconded the resolution, which passed unanimously.

Dr. SYMES moved that the best thanks of the meeting be accorded to the President for his able and enthusiastic discharge of the duties of his office during the Session of the Conference and throughout the year.

Mr. HOLMES seconded the resolution. The way in which the President had conducted the whole of the proceedings of the Conference had earned their admiration and gratitude.

Professor ATTFIELD put the resolution to the meeting.

The vote having been unanimously agreed to,

The PRESIDENT briefly returned thanks.

A vote of thanks to the Honorary Secretaries, Mr. Ransom and Mr. Naylor, concluded the proceedings.

PLYMOUTH LOCAL EXECUTIVE COMMITTEE

List of Delegates.

Delegates:—*Pharmaceutical Society of Great Britain.*—Messrs. S. R. Atkins, W. G. Cross, W. S. Glyn-Jones, N. M. Grose, J. F. Harrington, C. J. Park, C. Symes, W. Warren, and R. Bremridge.

Pharmaceutical Society of Ireland.—Messrs. G. D. Beggs, W. F. Wells, jun., and P. Kelly.

Bristol Pharmaceutical Association.—Messrs. G. F. Turner, J. B. Keen.

Cambridge Pharmaceutical Association.—Mr. E. Saville Peck.

Exeter Association of Chemists and Druggists.—Messrs. P. F. Rowsell, Henry Gadd, J. H. Lake, and H. W. Gadd.

Edinburgh Chemists' Assistants' and Apprentices' Association.—Messrs. David McLaren, W. B. Cowie, and J. Rutherford Hill.

Forfarshire and District Chemists' Association.—Messrs. D. Ferrier and A. Naysmith.

Leeds Chemists' Association.—Mr. F. W. Branson.

Liverpool Chemists' Association.—Messrs. J. Bain, A. S. Buck, E. Evans, jun., J. Smith, T. H. Wardleworth, and J. H. Evans.

Manchester Pharmaceutical Association.—Messrs. C. A. Johnstone and A. J. Pidd.

Newcastle-on-Tyne and District Chemists' Association.—Messrs. F. E. Schofield. Geo. Foggan, G. F. Merson, and F. Gilderdale.

Leicester and Leicestershire Chemists' Association.—Messrs. Thomas Howard Lloyd (President), E. H. Butler, and Lewis Ough, F.L.S., F.C.S.

Swansea and District Chemists' Association.—Mr. J. Hughes.

Ulster Pharmaceutical Association.—Messrs. J. W. Nichols and Jas. Tate.

Bradford Chemists' Association.—Mr. R. W. Silson.

Oxford Chemists' Association.—Messrs. Matthew and Druce.

Midland Counties Chemists' Association.—Mr. Gerrard.

Western Chemists' Association of London.—Messrs. Matthews and Harrington.

Glasgow and West Scotland Chemists' Association.—Messrs. T. H. Lloyd, Ough and Butler.

Wigan Chemists' Association.—Messrs. Johnson and Phillips.

Tunbridge Chemists' Association.—Mr. Hobbs.

N.E. Lancashire Chemists' Association.—Messrs. R. L. Gifford and Sherrcck.

SUGGESTED STANDARDS OF PURITY FOR FOODS AND DRUGS.*

BY C. G. MOOR AND C. H. CRIBB.

In dealing with the analysis of articles purchased under the Sale of Food and Drugs Acts, one of the principal difficulties encountered by the public analyst is the lack of information on which he is to base the conclusions to be drawn from his work.

In other words, in the case of many articles which may be submitted to him, where and how is he to draw the line separating the genuine from the adulterated sample? In the case of very many articles there might be a third class, in addition to the genuine and the adulterated, namely, specimens "of inferior quality but not of necessity adulterated." In the case of many natural products it seems that such a class must always exist, and it is in respect of the doubtful cases that attention is specially required.

In the case of articles distinctly good or distinctly bad, there is little or no difficulty in determining how to deal with them.

The object of the present paper is to attempt to ascertain whether the dividing line between the three above-mentioned classes can be drawn somewhat more distinctly than at present. For this purpose we require to know both the average composition of genuine articles, and also the composition of articles not of the highest quality, but of proved genuineness.

Dealing with the question of standards, we have no legalised standards at all except in the case of spirits, and in the case of a few articles of food the limits adopted by the Inland Revenue authorities are known (as in the case of milk) and are probably used by most analysts. In addition certain standards were proposed by a committee in the early days of the Society of Public Analysts, which dealt with milk, cocoa, vinegar, mustard, and a few other articles, but at the present day some of the standards then agreed on would not find general acceptance.

In addition to the question of the composition of articles, the names and definition of many substances deserve attention, as a very slight change of description in the article sold may result in its composition being entirely different.

To show the need of standards in relation to articles of food (omitting drugs for the moment) we may consider the following questions:—What is the composition of the ordinary articles in everyday use which we should consider as satisfactory evidence of their genuineness, or, in other words, what limits are we to place on the various substances which are determined by analysis?

To take bread, how much water is to be allowed? Or cocoa, how much fat ought there to be in it, or need there be any at all? Or in the case of vinegar, how much acetic acid should there be? Or in mustard, should we have a limit depending on the amount of fixed oil or not? It will be seen that in the case of almost every article of food there is an important question to be answered which is at present unsettled.

There are some 300 articles which have been, or might be, purchased under the Food and Drugs Acts, and we are of opinion that in the case of many of them some mutual agreement might be come to which would result in the adoption of a provisional standard, which would be of general convenience.

We are engaged in collecting as far as possible reliable figures on the composition of the 300 odd articles mentioned, but space will, of course, only permit of the mention here of a few, which we shall select as typical. To complete the task of collecting the information (much of which is probably in existence, though unpublished), of course, necessitates the co-operation of those whose life is spent in examining the products dealt with, and it is in the hope of obtaining such help that we venture to appear to-day with this very unfinished and incomplete paper.

The scheme under which we are dealing with each article is as follows: first the name of each article, its definition and description, its adulterations, the standard where possible, or where sufficient information does not exist to formulate a standard, its average composition, next references to recent literature, and finally remarks.

In this paper, for the sake of brevity, we have omitted almost all references.

*Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

Tinct. Aconite.

Preparation.—Aconite root in No. 40 powder, 50 Gm. Alcohol 70 per cent. to make one litre (prepared by percolation).

Composition of Genuine Samples.

Sp. Gr. at 15·5.	Total Solids.	Alcohol.	Alkaloid.
0·890 (Barclay)	—	—	·02*
0·893 (Lucas)	1 (M. & P.)	—	—
0·896 (P. and M.)	1·2 (M. & P.)	64·3 per cent. (P. and M.)	—
0·893 (Caines)	—	—	—

Remarks.—On account of the variability of the alkaloid even in the best roots it does not seem possible to suggest a standard, but a single drop placed on end of the tongue should produce the characteristic numbness.

Anethi Fructus (Dill Fruit).

Definition.—"The dried ripe fruit of *Peucedanum graveolens*." B.P.)

Description as in B.P.

Adulterations.—Excess of mineral matter. Exhausted fruits.

Standard.—*Volatile* oil should be about 3 per cent. *Ash* should be about 5 per cent.

Tinct. Arnicæ.

Preparation.—Arnica rhizome in No. 40 powder, 50 Gms. alcohol, 70 per cent. (to make 1 litre).

Composition of Genuine Samples.

Sp. Gr. at 15·5.	Total Solids.	Alcohol.
·894 (Lucas).	·6*.	—
·894 (Barclay).	·46 (M. and P.)	69·0 per cent. (M and P.
·891 (M. and P.).	·92 (M. and P.)	—

Bread.

A porous substance obtained by moistening, kneading, and baking wheat-flour with provision for the mechanical separation of the dough by air or carbonic acid gas.

Adulteration.—Excessive water, foreign starches, alum, or mineral matter.

Standard.—Water not to exceed 45 per cent. Total ash not to exceed 2 per cent. Ash insoluble in acid not to exceed 2 per cent.

Remarks.—Is the separation of the germ legitimate?

Butter.

Definition.—"The fatty substance obtained on churning cream." (Murray.)

Adulterations. — Foreign fats, excess of water, salt, and preservatives.

Standard.—Water not to exceed 16 per cent., salt not to exceed 5 per cent. Fat must be true butter fat, as shown by the Reichert and Valenta tests.

Remarks.—Where both Reichert and Valenta tests concur in showing adulteration, the amount of foreign fat present should be calculated on the basis that true butter, when examined by the Reichert process, gives an acid distillate equal to 24 C.c. of decinormal alkali when 5 Gm. of butter are operated on.

Nothing is gained by multiplying tests or by more elaborate processes, and the above suggestion would secure uniformity of procedure and reporting.

Cantharides.

Definition.—"The dried beetle, *Cantharis vesicatoria*." (B.P.)

Characters.—As in B.P.

Adulterations.—Exhausted insects, mineral matter, beetles of similar appearance.

* Suggested as a standard by Barclay.

† Suggested as standard by Barclay.

Average Composition.—Water should not exceed 5 per cent. Fat, by petroleum ether, about 20 per cent. Total ash should not exceed 8 per cent. Cantharidin (total) should be about 0·5 per cent.

TINCTURE OF CANTHARIDES.

Preparation.—Cantharides in No. 40 powder, 12·5 Gm.; alcohol, 90 per cent., 1 litre (prepared by maceration).

Composition of Genuine Samples.

Sp. Gr. at 15·5.	Total Solids.	Alcohol.
0·834 (Lucas) ..	0·26* ..	—
0·838 (Barclay) ..	— ..	88·5 (P. and M.)
0·835 (P. and M.) ..	0·24 (M. and P.)	—
0·834 (Caines) ..	— ..	—

Adulteration.—Excess of mineral matter.

CAPER TEA.

Standard.—Mineral matter insoluble in dilute acid not to exceed 3 per cent.

CARAWAYS.

Definition,—

Adulteration.—

Standard.—Ash not to exceed 8 per cent. Volatile oil, about — per cent.

CAYENNE PEPPER.

Definition.—"The dried fruit of the *Capsicum minimum*." (B.P.) (This applies only to that employed in medicine.)

Adulteration.—The addition of starchy matters, mineral matters.

Standard.—Ash not to exceed 6 per cent.† B.P. Resin should be not less than 15. per cent. Water should not exceed 10 per cent.

CHEESE.

Definition.—A solid substance prepared by curdling milk and pressing the curd after draining off the whey.

Adulteration.—The addition of foreign fat. The use of skim milk. The addition of extraneous matters.

Standard.—Cream cheese should contain not less than 40 per cent. of fat. "Cheese" sold without any qualifying description should contain not less than 30 per cent. of fat. If it contains less than 30 per cent. of fat it should be sold as prepared partly from skimmed milk.

Remarks.—Several American States have fixed standards for fat in cheese.

CLOVES (CARYOPHYLLUM).

Definition and Description.—As in B.P.

Adulteration.—Exhausted cloves and excess of mineral matter.

Standard.—Moisture should not exceed 5 per cent. Extract to ether about — per cent. Ash should not exceed 7 per cent. B.P. "When indented with the nail, cloves should emit oil." B.P.

COCOA.

The roasted and ground seed of the *Theobroma cacao*, with part of the natural fat removed.

Adulterations.—The addition of starch and sugar.

Standard.—Water should not exceed 8 per cent. Ash should not exceed 5 per cent. except in samples prepared with an alkali, when it should not exceed 9 per cent.

CONDENSED MILK.

Adulteration.—The addition of preservatives, deficiency of fat, addition of any substances except sugar.

Standard.—The fat should not be less than 10 per cent., and must be true butter-fat. The nitrogenous matter should not exceed the fat. The ash should be between 2·0 and 2·4 per cent.

Remarks.—There is little actual adulteration of condensed milk in this country, but the misrepresentations on the labels as to the dilution with water are frequent, more particularly in the directions for the feeding of infants.

* Proposed as standard by Barclay.

† We have examined a genuine sample containing a higher ash.

COPPER IN FOODS.

Copper sulphate is used to improve or fix the colour of various preserved green vegetables, such as peas, French beans, gherkins spinach, etc.

The method in which it is employed results in the formation of an insoluble "leguminate" of copper, and the quantity used is so small that it would be probably quite innocuous even if such vegetables were continuously eaten in large quantities.

Copper is frequently a natural constituent of many articles, such as wheat, coffee, cocoa, oysters, etc., and might very probably be contained in peas grown on a soil containing copper, so that we suggest that in those samples, where the copper reckoned as metal does not exceed 1 grain per pound, on the mixed sample, the sample should not be regarded as adulterated.

The question of sampling such preparations is of importance and was discussed at a meeting reported in the *Analyst* for June, 1897.

The estimation of copper in peas is best carried out by completely ashing the sample and dissolving the ash in sulphuric acid, afterward depositing the copper as metal by electrolysis.

FLOUR.

Definition.—The meal produced on grinding wheat, the husk having been removed.

Adulteration.—Foreign starches, excess of water, mineral matter, alum.

Standard.—Water should not exceed 10 per cent. Total ash should not exceed 1 per cent. Alum must be absent. Microscopic appearance must be normal.

GINGER.

Definition.—"The scraped and dried rhizome of the *Zingiber officinale*."

Adulterations.—The addition of exhausted ginger, excess of mineral matter.

Average Composition of Genuine Samples.

Ash	about	5 per cent.
Soluble Ash	„	2 „
Cold water extract	„	10 „

As a provisional standard we suggest that any sample showing less than 2 per cent. of soluble ash, or less than 10 per cent. of matter extracted by cold water, is almost certainly adulterated.

The ash *may* be considerably higher than 5 per cent.

Remarks.—From the B.P. definition, any whitewashing, soaking or other treatment is excluded.

HONEY.

Definition.—"The saccharine substance collected by bees and deposited by them in the honeycomb."

Characters.—The B.P. describes "mel depuratum," but it appears that commercial honey should correspond to the same tests.

Standard.—Sp. Gr. about 1·365 (U.S.P.). Ash not to exceed 0·25 per cent. (B.P.). Water not to exceed 25 per cent. Absence of starch. Sulphates not to exceed traces (B.P.).

Remarks.—The B.P. should include the test with polarimeter.

HUMANISED MILK.

Definition.—"A preparation of cow's milk so adjusted as regards fat, albuminoids, milk and sugar as to closely approximate to the composition of human milk."

It should not vary much from the following composition:—

Fat	3·4 per cent.
Milk—sugar	6·4 „
Albuminoids	1·7 „
Ash	0·2

TINCT. HYOSCYAMI.

Preparation.—Hyoscyamus leaves and flowering tops, in No. 20 powder, 100; alcohol, 45 per cent. to make a litre.

Composition of Genuine Samples.

Sp. gr. at 15·5.	Total Solids.	Alcohol.
0·950 (Lucas).	—	45·5 (P. and M.)
0·953 (Barclay).	—	—
0·955 (P. and M.)	—	—

Barclay suggests ·008 per cent. of alkaloid as a standard.

MACE.

Definition.—The outer coat or arillus of the nutmeg *Myristica fragrans.*

Adulterations.—Bombay mace, exhausted mace, starches and mineral matter.

Standard.—Water should not exceed 10 per cent. Ash, 5 per cent. Ether extract should be about — per cent. Starch must be absent.

MALT EXTRACT.

"A honey-like substance, prepared by concentrating an aqueous extract of malt at a temperature not exceeding 130° F.

Adulterations.—Deficiency in diastatic power, excess of water, etc.

Standard.—Acidity, as lactic acid, should not exceed 1 per cent Water should not exceed 25 per cent. Diastatic power, the sample must be capable of converting its own weight of starch in ten minutes. Preservatives should be absent,

PIMENTO (ALL-SPICE).

Definition.—"The dried full-grown unripe fruit of *Pimenta officinalis.*" (B.P.)

Adulterations.—Oxide of iron, mineral matter.

Standard.—Water should not exceed 10 per cent. Ash 6 per cent. Ether extract, about — per cent. Microscopic appearance normal.

PRESERVATIVES.

The question as to the propriety of adding "preservatives" to foods is one that has recently excited much attention and is still a source of frequent contention.

The question appears to us to have a different bearing according to the kind of article in question, and we consider that in some articles they should be permitted (with disclosures of their presence), and that in certain other articles they should not be permitted at all.

In the following articles they should be absolutely prohibited:—Infants' foods, condensed milk, wines, tinned meat, fresh fruit.

In the following they might be allowed in certain stated proportions:—Milk, butter, cream, potted meat, lime juice and fruit syrups, beer, and other beverages.

TINCT. RHEI CO.

Composition altered in '98 B.P.

Composition of genuine samples:—

Sp. Gr. at 15·5.	Total Solids.	Alcohol.
0·971 (Lucas)	—	—
0·970 (Barclay)	16·7 (Caines)	51·9 (P. and M.)
0·972 (P. and M.)	—	50·8 (M. and P.)
0·974 (Caines)	—	—
0·971 (M. and P.)	—	—

SAFFRON.

Definition.—"The dried stigmas and tops of the styles of *Crocus sativa*" B.P.

Adulterations.—Barium sulphate, gum, oil safflower, dyed marigold leaves.

Standards.—As in B.P., with addition, that if 1 Gr. is extracted in the cold with 60 per cent. alcohol and the extract dried it should weigh about 0·06 Gm.

WINE VINEGAR.

Adulteration.—The substitution of acetic acid prepared from other sources.

Standard.—Acetic acid about 6 per cent. Total solids about 1 per cent. Ash about 0·25 per cent.

DETERMINATION OF CORRECT MELTING POINTS.*

BY THOMAS TYRER AND ALBERT LEVY.

The difference found in the melting point of various pharmaceutical compounds as compared with those given by the Pharmacopœia has suggested a series of determinations of melting points by various methods. A reference to the work of Arnold Reissert, *Ber.*, **23**, 2 (1890), p. 2239, and to that of Landolt, *Z. physik.* Ch. 4, 352, will show the necessity of extreme caution and care in this work.

The above-mentioned show how different results are obtained amounting to several tenths of a degree by using capillary tubes of different bore, and also the need of using exact thermometers and for correcting the same frequently. Besides these points they show the corrections for exposed portions of a mercurial column must be made, and for this purpose Reissert recommends Rimbach tables, *Ber.*, **22** (1889), p. 3075. (See tables.) The first published formula for this correction was given by Kopp, *Ann. Chem. Pharm.*, 94, p. 262, and is that the correction $= \alpha N (t-t')$, where α stands for the apparent co-efficient of expansion, that is the difference between the co-efficient of expansion of quicksilver and of glass, and then stands for the number of degrees of the exposed mercury column; t stands for the observed melting point, and t' the mean temperature of the exposed column.

In the *Handwirtebuch d. Chem.*, **7**, 368, and *Journal of the Chem. Soc.*, **37**, 160, the correction is made, using, instead of the true value of alpha, which is 0·000154, the factors $\alpha = 0{\cdot}000135$, or 0·000143.

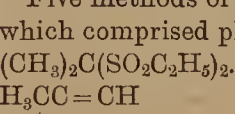
Landolt in the above reference uses this latter value, which is also adopted by the P.B.

The table of corrections according to this formula is given to serve, as Rimbach's, as a means of obtaining the correction at a glance. There is also a table given in the *Chemiker Kalender*, by Dr. R. Riedermann calculated from the formula correction $= t + (t - t')\ N\ 0{\cdot}000154$.

In our experiments, Centigrade thermometers were used, graduated from −0·5 to +360° in single degrees, which were compared with two standard thermometers, one graduated from minus 10 degrees to plus 50 in tenths of a degree, and the other from minus 10 degrees to 100 in fifths of a degree.

An additional thermometer was used to take the average temperature of the exposed column.

Five methods of determination have been used for each substance, which comprised phenacetin, $C_2H_5O{\cdot}C_6H_4{\cdot}NHCOCH_3$. Sulphonal, $(CH_3)_2C(SO_2C_2H_5)_2$. Acetanilid, $CH_3{\cdot}CO{\cdot}NH{\cdot}C_6H_5$. Phenazone,



(1) The B.P. method. (B.P., 1898, page 436.)

(2) Method described by Graebe (*Ber.*, 228-320) in which the substance is placed in a capillary tube attached as usual to thermometer, inserted in a test tube containing sulphuric acid, which test-tube in turn is warmed by sulphuric acid heated in a small flask.

(3) Landolt's method (*Z. physik.*, p. 353) also recommended by Reissert. The substance being placed in a test-tube of 30 millimetres bore, and 175 millemetres length. This tube is surrounded by one of 40 millimetres diameter, the whole being surrounded by a cylinder open at both ends and heated by a Bunsen burner so as to practically compose an air bath. The inner tube is closed with a cork through which a thermometer and glass stirrer pass. For protecting the outer glass from the direct flame a small disc of asbestos covered with wire is advantageous. Accurate results are obtained by this method, if the temperature is taken at the beginning and completion of melting, and at the re-solidification point of the substance. The only objection to this method is the comparatively large amount of substance required.

* Read before the British Pharmaceutical Conference, at Plymouth, July, 1899

(4) Piccard's method (*Ber.*, **8** (1875), p. 687), in which the substance is heated in a capillary tube on the end of which is blown a bulb at an acute angle and attached to thermometer in the usual way. On heating, the air in the bulb expands and forces the substance up the capillary at the moment of melting, so that this point is easily seen. This method tends to give high results.

(5) Loewe's method (*Z. analyt.*, ch. 11, 211) and Chrystomane's (*Ber.*, **23**, 1093), slightly modified where a very small quantity of the substance to bo tested, prevents contact between the platinum wire and mercury. The mercury is heated, causing the substance to melt, which allows the platinum wire more contact with the mercury, completing a circuit in which is included an electric bell which thus rings at the moment of melting. This method gives rather high results, as the substance must be entirely liquid before contact can be made.

Regarding the B.P. method, somewhat high results are obtained, as when the substance is melted the second time, this is almost invariably observed. Graebe and Landolt's methods agrec fairly well. A remarkable difference was found when comparing the melting points of the commercial article, the same dried, and the same purified until two consecutive crystallisations showed the same melting point. Rimbach states, *Ber.*, **22** (1889), p. 3,075, that the corrections of Kopp, Holtzmann, and Thorpe give too low results if the exposed columns are long, and too high results if they are short. In fact, the difference of Thorpe (B.P.) and Holtzmann are more than 1 degree Centigrade (see curves of acetanilid and phenazone, which also show that different values of alpha produce a marked difference). Again, it cannot be too strongly insisted on that the precautions advisad by Reissert should be strictly followed out. The diffcrence between the B.P. and other methods is due to the fact that in the first the melting point of the substance is taken on its being melted for the second time as above noted.

In any of these determinations a fact often overlooked is that the thickness of the capillary tubes walls should be as near as possible the same as the thickness of the walls of the thermometer bulb.

At some future time we propose to show some discrepancies in the Pharmacopœia boiling points which are even more marked than in the melting points.

It becomes necessary to add that some experience in manipulation and chemical physics is essential to correct results, such as the standardising of thermometers, the construction of suitable apparatus and the condition of the substances made by examination. We fear the training of many pharmacists is scarcely covered in these particulars by the course of education provided. We point out, too, how certain physical conditions are improved in the Pharmacopœia, such as melting and boiling points—the data for testing which are in some cases inconsistent. Further, no margin appears to be allowed for the normal conditions of business. For instance, as in the case of acetanilid the normal condition of the atmosphere considerably affects the melting point, as shown by the diagram. These determinations were conducted in the laboratories of Messrs. Thomas Tyrer and Co., Limited.

Melting Points given by:

	Acetanilide.	Phenacetine.	Sulphonal.	Phenazone.
Japanese Pharmacopœia	113	135	125-5	113
Italian Pharm.	112-113	—	—	—
Dutch Pharm.	under 120	135	125-126	113
Pharm. Germ. III.	113	—	—	110
U.S.A. Pharm.	113	—	—	113
British Pharm.	113·5	—	—	110

DETERMINATION OF EXACT MELTING POINTS.

Melting Points determined by the following methods.

		ELECTRIC METHOD.					PICARD TUBE METHOD.					LANDOLT'S METHOD.					GRAEBE'S SULPH. ACID.					B.P. METHOD.					AVERAGES.				
		B.P. α 00143	Holtz α 00135	Ch. K. α 00154	Rimb. Tab.	Average.	B.P. α 00143	Holtz α 00135	Ch. K. α 00154	Rimb. Tab.	Average.	B.P. α 00143	Holtz α 00135	Ch. K. α 00154	Rimb. Tab.	Average.	B.P. α 00143	Holtz α 00135	Ch. K. α 00154	Rimb. Tab.	Average.	B.P. α 00143	Holtz α 00135	Ch. K. α 00154	Rimb. Tab.	Average.	B.P. α 00143	Holtz α 00135	Ch. K. α 00154	Rimb. Tab.	Average.
Phenazone.	Com'cl.	111·55	111·52	111·63	111·62	111·58	111·52	111·52	111·60	111·59	111·52	111·20	111·02	111·13	111·35	111·14	111·47	111·42	111·60	111·59	111·62	111·57	111·50	111·70	111·69	111·62	111·30	111·29	111·36	111·39	111·46	111·36
	Dried	112·56	112·51	112·68	112·69	112·61	112·78	112·84	112·80	112·84	112·78	112·48	112·15	112·29	112·36	112·25	112·71	112·61	112·71	112·68	112·69	112·43	112·38	112·57	112·55	112·48	112·16	112·31	112·39	112·46	112·52	112·42
	Purified	113·61	113·53	113·73	113·74	113·65	113·62	113·68	113·71	113·59	113·62	113·48	113·05	113·27	113·48	113·25	113·56	113·51	113·51	113·63	113·74	113·86	113·63	113·86	113·88	113·78	113·17	113·36	113·56	113·61	113·49	
Sulphonal.	Com'cl.	134·46	134·38	134·67	134·65	134·54	134·25	134·50	134·49	134·59	134·49	133·86	133·77	133·90	133·93	133·83	134·21	134·09	134·37	134·33	134·64	134·13	133·84	134·73	134·49	134·10	133·17	133·69	133·95	133·95	134·02	133·86	
	Dried	135·01	134·88	135·19	135·23	135·08	135·01	135·44	135·03	135·76	135·08	134·44	134·33	134·60	134·58	134·59	134·35	134·33	134·60	134·58	134·64	135·03	134·73	135·03	135·03	134·91	133·22	134·15	134·41	134·44	134·51	134·31	
	Purified	135·44	135·31	135·61	135·65	135·41	135·49	135·58	135·71	135·37	135·35	134·43	134·29	134·46	134·53	134·41	134·35	134·33	134·58	134·37	134·50	134·51	134·47	134·59	134·76	134·66	134·69	134·77	135·03	135·05	135·05	135·03	
Phenacetine.	Com'cl.	125·19	125·07	125·34	125·36	125·24	125·17	125·28	125·25	125·37	125·27	125·13	125·02	125·18	125·25	125·27	125·48	125·39	125·61	125·63	125·52	125·07	124·74	124·53	124·63	124·83	124·79	124·77	124·73	124·82	124·87	124·96	124·90	
	Dried	125·53	125·43	125·67	125·69	125·58	125·53	125·63	125·35	125·37	125·35	125·03	125·18	125·35	125·44	125·37	125·60	125·47	125·71	125·75	125·63	124·78	124·78	124·96	124·71	124·79	124·81	124·87	124·91	124·87	124·96	124·78	124·87	
	Purified	125·77	125·69	125·95	125·93	125·84	125·77	125·57	125·44	125·37	125·35	125·32	125·26	125·32	125·26	125·26	125·53	125·41	125·66	125·69	125·57	124·79	124·71	124·87	124·79	124·71	124·69	124·82	124·60	124·69	124·82	124·69	124·73	
Acetanilide.	Com'cl.	109·54	109·49	108·69	109·67	109·59	109·17	109·25	109·16	109·05	109·20	108·87	108·77	108·89	109·03	108·87	109·20	109·05	109·16	109·25	109·17	109·59	109·42	109·60	109·52	108·58	108·52	108·67	109·25	109·20	109·10	108·87	109·18	
	Dried	110·46	110·37	110·58	110·57	110·45	110·19	110·24	110·26	110·09	110·16	109·25	109·17	109·28	109·34	109·25	110·16	110·09	110·26	110·24	110·19	110·69	110·52	110·64	110·61	108·60	108·72	109·69	109·54	109·68	110·04	109·25	110·04	
	Purified	112·98	112·91	113·10	113·12	113·03	112·91	112·96	112·98	112·82	112·87	112·49	112·43	112·54	112·52	112·49	112·87	112·82	112·98	112·96	112·91	113·22	113·01	113·23	113·14	112·78	112·72	112·91	112·95	112·95	112·94	112·88		

Phenazone. Sulphonal. Phenacetine. Acetanilide.

TABLE FOR THE RAPID CALCULATION FOR THE EMERGENT COLUMN.

Corrected Temperature = T + 000143 (T-t) N.

T = observed temperature.

a = 0·000143 = difference between the co-efficient of cubic expansion of quicksilver and glass.

N = length of the emergent column.

t = mean temperature of the emergent column.

T-t.	30	35	40	45	50	55	60	65	70	75	80	85	=
10	0·04	0·05	0·06	0·06	0.07	0·08	0·09	0.09	0·10	0·11	0·11	0·12	10=N
20	0·09	0·10	0·11	0·13	0·14	0·16	0·17	0·19	0·20	0·21	0·23	0·24	20
30	0·13	0·15	0·17	0·19	0·21	0·24	0·26	0·29	0·30	0·32	0·34	0·36	30
40	0·17	0·20	0·23	0·26	0·29	0·31	0·34	0·37	0·40	0·43	0·46	0·49	40
50	0·21	0·25	0·29	0·32	0·36	0·39	0·43	0·46	0·50	0·54	0·57	0·61	50
60	0·26	0·30	0·34	0·39	0·43	0·47	0·51	0·56	0·60	0·64	0·69	0·73	60
70	0·30	0·35	0·40	0·45	0·50	0·55	0·60	0·65	0·70	0·75	0·80	0·85	70
80	0·34	0·40	0·46	0·51	0·57	0·63	0·69	0·74	0·80	0·86	0·92	0·97	80
90	0·39	0·45	0 51	0·58	0·64	0·71	0·77	0·84	0·90	0·9	1·03	1·09	90
100	0·43	0·50	0·57	0·64	0·72	0·79	0·86	0·93	1·00		1·14	1·22	100

CORRECTION for the emergent column according to E. Rimbach's Table III., *Ber. D.D., Chem. Ges.*, 1889, 2, page 3074.

0–100° divided in 0·1° 4 min. length of a degree.

T-t°=	30	35	40	45	50	55	60	65	70	75	80	85	=T-t°
10	0·04	0·04	0·05	0·05	0·05	0·06	0·06	0·07	0·08	0·09	0·10	0·10	10=N
20	0·12	0·12	0·13	0·14	0·15	0·16	0·17	0·18	0·19	0·20	0·22	0·23	20
30	0·21	0·22	0·23	0·24	0·25	0·25	0·27	0·29	0·31	0·33	0·35	0·37	30
40	0·28	0·29	0·31	0·33	0·35	0·37	0·39	0·41	0·43	0·45	0·48	0·51	40
50	0.36	0·38	0·40	0·42	0·44	0·46	0·48	0·50	0·53	0·57	0·61	0·65	50
60	0·45	0·48	0·51	0·53	0·55	0·57	0·60	0·63	0·66	0·69	0·73	0·78	60
70						0·66	0·69	0·71	0·75	0·81	0·	0·92	70
80							0·76	0·81	0·87	0·93	1	1·06	80
90								0·92	0·99	1·06	1·13	1·20	90
100									1·10	1·18	1·26	1·34	100

LABORATORY NOTES.*

BY F. C. J. BIRD.

Liquor Ferri Perchloridi Fortis, B.P.—Most commercial samples of this liquor will be found to answer to the official test of official gravity (about 1·42). Manufacturers generally have therefore relied on the specific gravity as indicating agreement with the Pharmacopœial standard of strength in ferric chloride, but, as has recently been shown, the official figures are not concordant, a liquor made strictly by the B.P. process being only capable of yielding a maximum of 1·43 Gm. of F_2O_3 per 5 C.c., instead of the 1·6 Gm. required. That 166 indicates the proportion of iron salt desired by the compilers may be inferred from the statement in an earlier paragraph of the formula, that "100 C.c. contain 22·5 Gm. of iron;" one-twentieth part accordingly is represented by 1·6 Gm. of ferric oxide. The following table gives in parallel columns the calculated quantities of material contrasted with the amounts actually ordered in the Pharmacopœia, and it is suggested that when making this preparation the figures in the last column should be substituted for the corresponding official quantities in order to produce a liquor which will yield on analysis 1·6 Gm., Fe_2O_3 per 5 C.c.

The point at which evaporation may be considered to have proceeded far enough for the complete removal of nitrous compounds is usually marked by the appearance of a pellicle on the surface of the liquid rather than by a precipitate commencing to form as described in the B.P., and as the extent to which evaporation is carried may vary under different conditions, more or less free hydrochloric acid remaining in the solution, the advisability of stating an approximate specific gravity (*e.g.*, *about* 1·42) becomes apparent.

* Read before the British Pharmaceutical Conference at Plymouth, July, 1899.

A sample of liquor ferri perchlor. fort. made exactly according to the directions of the Pharmacopœia, but using the metric quantities suggested in the fourth column of the table, had a specific gravity of 1·488 at 15·5 C., and on analysis yielded 1·604 gm. ferric oxide per 5 C.c.

Theoretical amounts corresponding to 12½ fl. oz. acid. hydrochlor, B.P.		B.P. Quantities.	Theoretical amounts corresponding to 1·6 Gm. Fe_2O_3 per 5 C.c.	Suggested alterations in B.P. Quantities.	
				Ozs.	Gm. & C.c.
Iron	3·54 oz.	4 oz. (0·46 oz. excess).	3·92 oz.	4½oz.(0·58oz. excess).	90 Gm.
Hydrochloric acid	12·5 fl. oz.	12·5 fl. oz.	13·89 fl. oz.	13 fl. oz. 428 M.	278 C.c. (0·2 C.c. excess).
Hydrochloric acid (to raise to ferric state).	6·25 fl. oz.	7 fl. oz. (0·75 fl. oz. excess).	6·945 fl. oz.	7 fl. oz. 5½ dr. (0·74 oz. excess).	154 C.c.
Hydrochloric acid	—	1 fl. oz.	—	1 fl. oz.	20 C.c.
Nitric acid ..... (to raise to ferric state).	1·335 fl. oz.	1·5 fl. oz. (0·165fl.oz. excess).	1·48 fl. oz.	1fl. oz. 5 dr. (0·145 fl. oz. excess).	32·5 C.c.
Specific gravity..	1·476 (F. J. Allen)	about 1·42	about 1·49 (by experiment).	about 1·49	
5 C.c. contain .... and	1·011 Gm. Fe.	—	1·12 Gm. Fe.		
Yield on analysis	1·44 Gm. Fe_2O_3	1·6 Gm. Fe_2O_3 (0·156 Gm. morethan theoretically possible).	1.6 Gm. Fe_2O_3	1·6 Gm. Fe_2O_3	

Detannated Wine. — The use of detannated wine for the dilution of "miscible" extracts of alkaloidal drugs is almost a necessity on account of the slight, but oftentimes annoying, precipitation caused by the astringent matter usually present in ordinary wine.

The process given in the B.P.C. for the preparation of detannated wine is as follows:—Sherry (or orange) wine, one gallon; gelatin, cut small, ½oz. Macerate together for fourteen days and decant. The product of this formula is perfectly satisfactory, but the time during which the ingredients are directed to be macerated together, is inconveniently long and here, at least, there is room for improvment in the formula. Gelatin when immersed in a weak alcoholic liquid such as wine, absorbs water and swells considerably. Any astringent bodies which the wine may contain gradually combine with the moist gelatin forming an insoluble compound which to a certain extent is probably deposited on the surface of the gelatin thus retarding further action. For this reason it may be inferred that the rate at which the tannin is withdrawn from solution is largely dependent on the surface exposed by the gelatin and it appeared likely that by submitting a larger surface (such as would be offered by gelatin in fine powder) to the action of the liquid the rapidity of combination might be increased and the time of maceration consequently shortened. On trial this supposition proved correct, and it was found possible by substituting gelatine in No. 100 powder (now obtainable in commerce) for the gelatin cut small of the B.P.C. formula, to completely detannate an average sample of sherry in twenty-four hours with the aid of occasional shaking, or in eight hours if frequently agitated. The same wine treated with sheet gelatin cut small, in similar proportion, required days for the completion of the process. Care must be taken to keep the temperature of maceration at or below 15·5° C., or during extremely hot weather the gelatin will probably pass into solution.

A sherry wine such as is ordinarily used for pharmaceutical purposes, on treatment with perchloride of iron solution strikes a dead brownish-green colour, followed by a greenish opalescence, and, on standing, a dark coloured precipitate falls. After detan-

nation a brownish-green tint is still produced, but it is much lighter and there is no opalescence.

Contrary to what is generally supposed, a portion of the gelatin (in hot weather at all events) dissolves in the wine, as is evidenced by the increased precipitation on the addition of three volumes of absolute alcohol to one of the wine after it has been detannated.

Lead acetate, although an excellent precipitant of tannic acid, is not reliable as a test for the absence of astringent matter in wine. Other bodies present affect it, and render its indications uncertain. The coloration, etc., produced by iron perchloride has been already alluded to 5C.c. of detannated wine should be diluted by 5C.c. of water and three drops of the B.P. solution of iron perchloride added. Not more than a faint greenish-brown tint is obtained in a wine free from tannin; imperfectly detannated wine becomes opalescent on standing.

A solution of quinine hydrochloride (8 gr. to the fl. oz.) forms the most serviceable test for this preparation. One volume added to two volumes of detannated wine should not show the slightest turbidity even after standing several hours, but the mixture should remain permanently bright.

DENTAL NOTES.

When Backing Teeth, some dentists take hold of the pins too near the backing, thus laying too much strain on the porcelain. If in bending the pins they took hold of them nearer the ends, they would have less cracked porcelain.—*Items.*

To Clean an Oil Stone.—Smear a flat block of wood with glycerine and fine pumice, and rub the stone, face down, till all traces of previous usage have disappeared. This will greatly improve the working qualities of the stone. To ruin an oil stone clean it with kerosene.—*Brit. Jour. Dent. Science.*

Duplicates of Dentures.—To make an exact duplicate of a full denture in the absence of the patient, first cleanse thoroughly, then cast the mould upon the palatal portion of the plate, not necessarily extending posterior to the condyles. In order to duplicate the "fulness" of the lateral portions and the mould and size of the teeth, cast two sections of plaster, extending from condyle to median line, and from median line to opposite condyle, and from base of the model to the cutting edge of teeth. When plaster comes in contact with plaster, use separating fluid. In order to duplicate the exact thickness of the denture, cast the lingual portion, extending from condyle to condyle, and covering the lingual surface, to the edge of the cast, labial sections extending thus over the cutting edges of the teeth. With these four parts set and removed, the teeth may be selected to fit the labial models, proper shade, and ground exactly to fit; then set up and waxed upon the model—the labial moulds being in position relative to the model—the thickness of the wax determined by the lingual cast in its proper relative position. When vulvanised and finished, an exact duplicate should result.—*Cosmos.*

Local Anæsthesia with Orthoform.—Dissolve orthoform chloride in 40 times its weight of water, warm slightly, and add an equal weight of neutral orthoform. This meets all the requirements for a local anæsthetic. The anæsthesia lasts longer than with cocaine, there are no bad after effects such as swelling or sloughing, the solutions are non-toxic, and several injections can be made at one sitting. There is very little hæmorrhage, and the wounds heal quickly.—*Ohio Dent. Jour.*

To Remove Plaster from Vulcanite use strong cider vinegar. Rub the surface of vulcanite coated with plaster, and all traces will be removed.—*Brit. Dent. Jour.*

The Use of Asbestos Fibre for packing the bed of vulcaniser is much easier and more lasting than using lead. It makes it perfectly steam tight, and will last for years.

EXTRACTS FROM CONSULAR REPORTS.

Experiments in Tobacco Cultivation are being made, according to a recent report, in Venezuela, where it is considered by some that the soil is adapted for producing tobacco equal to that grown in Cuba. Tobacco has always been grown in Venezuela, but on a small scale, and it is now suggested that it should be made a staple product, and by a judicious selection of soil and the planting thereof with good seed under the direction of experienced hands it is expected that good results will be obtained. So far, the results of the experiments have been fairly encouraging. One gentleman, who is experimenting on a large scale, was not very successful last year, but this year the plants are said to look extremely healthy, and the Cubans imported to work the field state that the leaves are just as good as in Cuba. Some months must, however, elapse before the final result is known, and even if it is good, it is probable that the experiments will not pay on account of the great cost of labour, every leaf requiring careful attention in the removal of insects. Another obstacle against the cultivation of tobacco in Venezuela appears to be the fact that only Havana seed can be used to produce good tobacco, and this seed has to be yearly renewed otherwise it degenerates, a fact which, as Her Majesty's Minister at Caracas remarks, is rather curious with tobacco, an indigenous plant.

A Vast and Inexhaustible Supply of Wealth is reported to be practically untouched in the Venezuelan deposits of asphalt, which are said to be almost unlimited, and in some respects of better quality than those of Trinidad. The asphalt lakes of Venezuela apparently form part of the same system in which is included the famous pitch lake in the neighbouring Island of Trinidad, a source of revenue to the Colonial Government last year of £33,998, while the total value of asphalt exported from Trinidad was £113,817. In the case of the Venezuelan deposits there seems to be, at all events with regard to one or two of the lakes, every facility for working and transport as they lie close to the sea. It is reported, however, that an American company has been in negotiation for working the lake of "Guanoco" in the State of Bermudez, and has begun operations there recently having already sent one or two shiploads of asphalt to the United States.

The British Drug Trade with Venezuela does not compete with the German, probably owing to the fact that while there are numbers of German commercial travellers, there are no British. This, Mr. W. H. D. Haggard thinks, is to be regretted, as an immense amount of medicine is dispensed, and the chemists' shops are said to be out of all the usual proportions to the number of the inhabitants. It is thought that British patent medicines would have a ready sale.

The Balata Rubber Industry in the Republic of Venezuela has increased in importance during 1898, over 500 tons being exported from Ciudad Bolivar. This rubber is extracted from the bullet-wood tree, of which vast forests exist in the country south of the Orinoco, but as Vice-Consul de Lemos points out, the system followed for obtaining this rubber is likely to make its collection more and more difficult. Instead of tapping the bark, which would admit of an annual crop, the trees are cut down to facilitate the extraction of the juice. The consequence is that the workers have to move on as the forests become exhausted, and they are even now in some places working at considerable distances from the centres, and it is to be feared that this waste will within an appreciable time exhaust the supply.

The Same Remark also applies to the destruction of birds for the supply of aigrettes for ladies hats, and although this matter has no direct bearing on pharmacy, the figures quoted by Mr. de Lemos may perhaps interest the lady members of the pharmacist's household. The Vice-Consul at Ciudad Bolivar states that the quantity of egret feathers exported during 1898 reached the high total of 2,839 kilos.; that 870 birds have to be killed to produce 1 kilo. of the smaller feathers, and about 215 for 1 kilo. of the larger. If therefore the average is taken, the number of birds killed last year, in one country only, was 1,538,738, but if the highest number is taken it was 2,469,930, while even the lowest accounts for the slaughter of 610,385. This, Her Majesty's Minister at Caracas exclaims, is really appalling.

NEW REMEDIES.

Sodium Meta-vanadate in Medicine.—Sodium meta-vanadate, acting as a powerful oxidising agent, although toxic in large doses, is a powerful stimulant to the organs of nutrition, when given in minute quantities. It may be administered without inconvenience or danger in doses of 1 to 5 milligrammes in 24 hours. It is better to allow an interval of two or three days after each week of treatment; it should be taken before meals. The administration is rapidly followed by an improvement of the appetite, with increased strength and weight. In tonic properties it appears superior to salts of arsenic.—*Nouv. Rem.*, **15**, 241.

Dormiol, Amylenechloral.—The name dormiol has been applied by Fuchs to a compound of chloral hydrate and amylene hydrate which is stated to be an efficient hypnotic. It is an oily, colourless liquid, with a camphoraceous odour; sparingly soluble in water, but readily dissolved by alcohol, the fatty acids, and ether. The dose is 50 centigrammes to 1 Gm.—*Rev. Med. Pharm.*, **6**, 164.

Methyl Salicylate for Pruritus.—Leredde finds that methyl salicylate is one of the best and most universally effeotive remedies for allaying itching in various skin diseases. It is best applied in the form of a thick ointment combined with zinc oxide such as the following:—Zinc oxide, vaseline, of each 30; methyl salicylate, 1; the salicylate does not occasion cutaneous irritation.—*Bullet. Comm.*, **27**, 230.

Ipecacuanha in Chronic Constipation.—R. Blondel finds that ipecacuanha gives excellent results in the treatment of chronic constipation, particularly in the case of women, who are notoriously liable to this functional disorder. In order to avoid the feeling of nausea which frequently attends the administration of the drug in the usual way, the author employs a rectal injection of 0·4 to 0·8 Gm. of the official (Codex) extract in 150 Gm. of water. The extract is prescribed as a 1:5 aqueous solution, a teaspoonful of which is directed to be used in 150 Gm. of water, as an enema, which should be retained for half an hour. The action takes place some hours afterwards, and is not attended by any feeling of nausea or pain.—*Bull. gen de Therap.*, **137**, 725.

Aspirin.—This substance introduced as a remedy in articular rheumatism, having the formula $C_6H_4 < \begin{matrix} COOH \\ OCOCH_3 \end{matrix}$ is obtained by the action of acetic anhydride on salicylic acid. It occurs in minute white crystalline needles, which melt at 135 C. It is sparingly soluble in tepid water, but readily so in ether and alcohol. The gastric secretion is without action upon it, but it is decomposed by the pancreatic secretion liberating salicylic acid. It is given in doses of one gramme three times daily in the form of powders.

Galloformin.—This product, $C_6H_2(OH)_3COOH(CH_2)_6N$, is a condensation product of hexamethylene tetramine and gallic acid. It occurs in needles which are slightly soluble in ether, alcohol, and water. It is employed both internally and externally, as it readily liberates formaldehyde.—*Rev. Med. Pharm.*, **6**, 69, *after Rev. de Flandres.*

Ovarian Extract as a Remedial Agent.—From a review of the modern literature of the therapeutic employment of ovarian extract, W. A. Newman-Dorland concludes that the ovaries, in common with the other glandular organs in the body, exert an occult, but very positive influence upon the general organism. When this influence is removed, either by the natural atrophy of the glands at the climacteric, or by the destruction of the ovarian stroma by pathological processes, or by extirpation of the organs, there results a series of distressing phenomena, hot and cold spells, nervous and mental derangements, and neuralgic attacks. The administration of ovarian extract, or of the ovarian substance, is promptly and very generally followed by a marked amelioration of these symptoms. The average dose required varies from 2 to 5 grains of the extract thrice daily. Excessive doses are followed by cardiac or nervous disturbances. In some cases, a tolerance to the remedy appears to be developed, lessening the intensity of its effects. It is better, therefore, to commence the treatment with small doses, gradually increasing the amount administered according to the requirements of the case.—*Therap. Gaz.*, **23**, 225.

Sodium Cacodylate.—As a means of administering arsenic, J. Rénaut strongly recommends sodium cacodylate, especially in cases of phthisis; the tonic effects are very marked, but no gastric irritation is caused by doses as high as 2 to 4 grains in 24 hours, and even a gramme of the salt may be taken without harm. In pulmonary phthisis, however, he prefers to administer the drug in the form of rectal injections or hypodermically, the dose for the latter being from ½ to 1 grain in 24 hours, given for 8 days, then a rest for a week, when the injection should be resumed. The salt affords also the most suitable means of administering arsenic by rectal injections, since it is absolutely without irritant action on the mucous membrane of the bowel; the results, too, are more constantly satisfactory than with the dilute Fowler's solution hitherto employed in this way. For this purpose a solution of 25 centigrammes in 200 grammes of water, the dose for rectal injection being 5 C.c. of this solution.—*L'Union Pharm.*, **40**, 252.

Chinosol in Leprosy.—From results obtained in the Leper Hospital in Java, Müller concludes that chinosol is a valuable remedial agent in the treatment of leprosy. Not only have good results followed the local application of the remedy, but internal doses of 15 grains per diem have given immediate beneficial results.—*Therapist*, **9**, 156.

Credé's Silver Salts, Itrol, and Actol, and Soluble Silver.—For fistulas, deep wounds, and for endometritis Credé uses itrol in sticks, composed of itrol 2·5, white wax 1·0, cacao butter 9·0. Melt and divide into thirty sticks of 2·4 Cm. in length and 0·4 Gm. in weight. In fetid middle ear discharges, itrol introduced in the form of pills produces surprisingly quick healing. Itrol 1·5, bol. alb. 4·5. Mass and divide into thirty pills (0·05 itrol in each). The stains produced by these salts on the linen may be removed by successive treatment with the following solutions:—(1) The articles to be cleaned are placed for five minutes in a sublimate salt solution and rinsed two or three times in pure water. (2) A solution of ammonium chloride is prepared 1:5, and iodine tincture is added to it until it is coloured yellow to brown. This solution is allowed to act for five minutes on the stains. Subsequently 300 C.c. water and a few crystals of sodium sulphite, or thiosulphate, and a little solution of ammonia are added, the cloth being rubbed in it. If the stains have not disappeared the process is repeated. (3) The cloth is moistened with eau de Javelle after five minutes' washing in water containing 5·0 hydrochloric acid to each litre. Rinse until the stains disappear.—*Therap. Monatsh.* **13**, 162.

Alcornoco Bark.—Hartwich recommends alcornoco bark as a substitute for jaborandi leaves, which are seldom obtainable of good quality. The bark is much more active, and is identified as being derived from *Browdichia virgilioides*, Kunth., a member of the Cæsalpiniæ.—*Oest. Zeit. für Pharm.*, **53**, 115, after *Apoth. Ztg.*

Oxaphor.—This name is given to a 50 per cent. solution of oxycamphor in alcohol. Oxycamphor was formerly recommended as a remedy for dyspnœa, and is now introduced by Rumpel for respiratory troubles produced by organic heart complaints, constipation, emphysema, bronchitis, and consumption. It is given in a single dose, 0.5 to 1.0 Gm., or 1.5 to 2.0 Gms. in twenty-four hours.—*Oest. Zeit. für Pharm.*, **53**, 115.

Benzozol in Chronic Pulmonary Tuberculosis.—In cases of phthisis which were complicated by gastro-intestinal lesions, J. L. Salinger has obtained good results with benzozol. This body, which is a compound of benzoyl and guaiacol, is not affected by acid solutions, but is decomposed in the alkaline secretions of the intestines. The exhaustive diarrhœa of phthisis was usually promptly relieved by its use, in 5 or 10-gr. doses, in the form of a powder or compressed pill, given three times a day.—*Therap. Gaz.*, **23**, 150.

Lactic Acid in Ringworm.—Balzer finds that lactic acid gives good results in many cases of ringworm of the scalp. The parts are first thoroughly washed with a mixture of alcohol and ether; and then rubbed twice a day with a solution of syrupy lactic acid, 1 fl. pt., in alcohol, 2 fl. pts. The rubbing is continued until redness is obtained; the pain occasioned by the application is not very sharp, and subsides in a quarter of an hour. To complete the treatment, the patient is directed to wash the parts with a 1-2000 solution of mercuric chloride.—*Med. Press*, **87**, 432.

SELECTED PRACTICAL FORMULÆ.

IMPROVED COPPER DRESSING FOR PHYLLOXERA.

It is well known that the effect of the various forms of copper dressings applied as remedies for phylloxera is more or less transient, owing to the non-adhesive properties of the mixture, to their instability, or to separation of the active constituents. E. Crouzel proposes to overcome these defects by the employment of milk as an ingredient in the wash, thus—2 kilos. of cupric sulphate are dissolved in 10 litres of water, 4 litres of milk are then added with vigorous stirring for five minutes. The emulsion thus formed is then diluted to 100 litres with more water. The dressing thus made adheres well to the plants; the finely suspended copper caseinate does not choke the pipes of the spraying apparatus used to distribute it, and it keeps well.—*Repertoire* [3], **11**, 241.

CREAM FOR SEA-SIDE SHOES.

(1) Melt yellow wax, 300, on the water bath, and add oil of turpentine, 1,000. Resin soap, 120, are dissolved separately in water, 1,000, and the mixture stirred in with the wax and turps; when cold, a frothy paste results, which is coloured with a solution of Nankin brown, 15, in alcohol, 75. (2) For renovating brown boots a cream is prepared in yellow vaseline, 1,000; olive oil, 70; ceresin, 500; leather yellow, 1. The last ingredient is added as a colouring matter to the hot mixture.—*Pharm. Zeit.*, **44**, 349, after *Seifenfabrikant.*

HINTS FOR MAKING TABLETS AND PASTILLES.

E. Witzenberg finds that sodium chlorate, potassium permanganate, potassium chlorate, antipyrine, sodium bromide, and sodium bicarbonate may be formed into tablets without the addition of any binding material. These bodies are placed into a tablet machine in a crystalline condition and compressed simply by pressure. Antifebrine, phenacetine, sulphonal, and quinine salts are first mixed with a little sugar and compressed without moisture, the machine having been previously dusted over with French chalk. The mixture of cream of tartar and sulphur may be treated in the same way. Dry extracts are compressed in a roughly-powdered condition without employing French chalk or oil. Effervescing powders and similar mixtures must be quite dry, they are compressed with very little French chalk. *Camphor Tablets* of camphor, 5 centigrammes; sugar 50 centigrammes; peppermint oil, ½ a drop; are prepared by powdering the camphor finely by the aid of a little ether, then mixing the sugar and oil and compressing without other aid. A mixture of camphor and sugar alone may be compressed into tablets, the latter coated with chocolate, when cold again compressed, the mould being rubbed over with a little oil. The tablets should then be coated with a little gelatin or collodion. *Phosphorus Tablets:* These are composed of phosphorus, 1 milligram. cocoa paste and cocoa butter aa q.s.; cinnamon oil, ½ a drop. A little cocoa butter is melted, the weighed dry phosphorus introduced into the warm oil, the solution shaken, and the concentrated phosphorus oil thus obtained is allowed to congeal. Equal parts of this oil are mixed with sugar and cocoa freed from oil. Cinnamon oil is added and the mixture rolled out on the pill machine into pills, which are then compressed into tablets. *Santonin Tablets* of chocolate are prepared by adding the santonin to a melted mixture of cocoa and sugar. The mass is left to congeal and pressed out. *Mouth Tablets* for cosmetic purposes may be prepared thus: Anise oil, 4 drops; cinnamon oil, 1 drop; lemon oil, 5 drops; cherry laurel oil, 1 drop; tincture of musk, 10 drops; clove oil, 4 drops; peppermint oil, 5 drops; gum arabic, 5 Gm.; powdered sugar, 25 Gm. The substances are mixed and compressed out into tablets without the addition of any other ingredients. *Mouth Water Tablets*: Compress heliotropine, 1 centigamme; saccharine, 1 centigramme; salicylic acid, 10 centigrammes; menthol, 1 Gm.; milk sugar, 5 Gms.; spirit of rose, q.s. *Sublimate Pastilles*: Mercuric chloride, sodium chloride, aa 100 Gm.; distilled water, 14; eosin q.s.; divide into 100 tablets. (Label poison.) If the tablet press is used the water is not necessary. *Tamarind Pastilles:* Tamarinds, 350 Gms., are boiled to a paste with water 700, and pulped. The pulp is evaporated to 175, and sugar, 225, added. The mixture is rolled out and cut into 120 oval pieces of equal weight. The pastilles are fastened on a needle, dipped into fluid chocolate and dusted over with crystals of sugar. *Castor Oil Pastilles:* Castor oil, 3; almond meal freed from oil, 4; lemon oil, 1. The oil is mixed with the almond meal, the lemon oil added and the mass formed into pastilles which are coated with chocolate.—*Pharm. Ztg.*, **43**, 917, after *Nederl. Weekbl. v. Pharm.*

ADHERENT COPPER DRESSING FOR GRAPE VINES.

In order to render the copper insecticides applied to vines more adherent, and, therefore, more efficacious, J. Perraud advocates the use of resin soap; he has devised the following formula to replace the "bouillie Bordelaise" or "bouillie Bourguignonne" used for the purpose. Water, 100 litres; copper sulphate, 2 kilos; resin, 500 Gms., washing soda sufficient to make a slightly alkaline mixture. The resin should be dissolved in a hot solution of the soda and the mixture added to the sulphate of copper, previously dissolved.—*Repertoire* (3), **11**, 214.

FLUID GLYCERIN SOAP.

(1) Olein, 100 parts, are heated on the water-bath, glycerin, 300 parts, are stirred in, and the mixture heated to about 62.5° C.; of 38 per cent. potash solution, sp. g. 1.36,52 parts, previously diluted with 1 part of distilled water, are added, when the soap commences to form. The thick mass is set aside to cool, 6 parts pearlashes dissolved in hot water, 10 parts, are then added, and the mixture is set aside for three days, well covered up. It is finally poured into a bottle and 20 parts perfume, dissolved in 30 parts 96 per cent. alcohol, are added; the whole well shaken and set aside for several days and filtered. (2) 2 parts of transparent soft soap, prepared without resin, are dissolved in 1 part water and 1 part alcohol; the solution is filtered, mixed with 1½ parts glycerin, and perfumed. (3) 1 part of soft soap prepared from saponified oleiu is dissolved in 1 part glycerin and 6.8 per cent. of alcohol is added. (4) Fine Provence oil, 9 parts; cocoanut oil, 4½ parts; caustic potash solution (sp. g. 1.38), 7 parts; diluted with water, 3 parts, and alcohol (90 per cent.), 1 part. After standing for a day the soap is dissolved on the water bath in glycerin, 20 parts, perfumed with equal parts of geranium oil, citronella, and lavender oil, dissolved in alcohol.—*Pharm. Ztg.*, **44**, 135, after *Seifen Fabrikant.*

ANTACID POWDERS.

Lyon prescribes the following powders for hyperacidity:—(1) Sodium bicarbonate, 6 grs.; prepared chalk, 2 grs. One such powder to be taken three times a day. (2) Sodium bicarbonate, 15 grs.; prepared chalk, calcined magnesia, of each 2 grs. (3) Sodium bicarbonate, 6 grs.; borax, 2 grs.; sodium salicylate, 3 grs. To be taken before breakfast and also after that meal in a small glass of seltzer water to stop fermentation and to relieve flatulence and pain. Einhorn prescribes calcined magnesia, 2 drachms, powdered rhubarb, 2 drachms; sodium carbonate, sodium bicarbonate, powdered sugar, of each half an oz. Oil of peppermint enough to flavour. A saltspoonful of this to be taken in Vichy water two hours after each meal. Rosenheim employs calcined magnesia, 90 grs., sodium bicarbonate, powdered rhubarb, of each 1 drachm; extract of belladonna, 2 grs. A saltspoonful to be taken three times a day in half a tumblerful of water.—*Therap. Gazette*, **23**, 231.

LETTERS TO THE EDITOR.

NOTICE TO CORRESPONDENTS.—All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received, if specially arranged for, as late as Thursday morning. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C., and Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

A Pessary Mould.

Sir,—The preparation of a dozen or so of one or two drachm theobroma pessaries is not perhaps an everyday task in country pharmacies; therefore a hint on the selection of a convenient mould may not be thrown away. The little earthenware medicine measures known as Proctor's may be used to obtain a smooth and shapely product, uniform in size and correct in weight. Fill them with glycerin—drain it off, and having prepared your mass, pour it into the measures while it is just warm enough to flow. When set, a sharp penknife may be run round the edge, and a sharp tap of the inverted mould on a sheet of paper will release the finished article.

Dover, July 21, 1899. J. F. Brown.

Liquor Ferri Perchlor. Fort., B.P.

Sir,—I have revised my calculations regarding Liquor Ferri Perchlor. Fort., B.P., as desired by Mr. Athey, but fail to see any reason for altering the figures given in my previous letter. The quantity of hydrogen chloride contained in 14½ oz. by weight of acid. hydrochlor., B.P., is ascertained by the following calculation :—

$$\frac{14{\cdot}5 \times 31{\cdot}79}{100}$$

which, with me, works out to 4·609.

Will Mr. Athey kindly explain how he obtains 5·1 oz. as the hydrogen chloride content of 14½ oz. by weight of acid. hydrochlor., B.P. ?

London, July 23, 1899. F. C. J. Bird.

The Sale of Benzene.

Sir,—I have just received the printed instruction from the County Council as mentioned in this week's Journal. It is true the Executive of the Society have gained a concession, but not so great as I expected. In my other letter I alluded to the fact that a great many chemists, especially in London, only keep a pint bottle in stock, in those cases I consider they should be totally exempt from the operations of the Petroleum Acts, as they practically stand in the same position as private individuals who go to the licensed retailers and can purchase any quantity of petroleum without any restrictions as to its after-use. I trust the Society's Executive will see their way to hammer again at the County Council with the idea of obtaining some further concessions.

East Dulwich, July 18, 1899. F. W. Sandy.

*** The London County Council has conceded all that the Statute allows, and further "hammering" would be futile.—[Ed. *P J.*].

The Company Trading Question.

Sir,—There are two facts which you refer to in your able article on pharmaceutical legislation which are of more than passing importance. The first is that chemists are perceiving more and more that it is hopeless to demand prohibitive legislation, and second (by inference), the growing feeling in favour of a regulation scheme. The proposals of the Edinburgh Chemists' Trade Association (*Ph. J.*, June 17), whereby companies would be brought under the direct control of the Pharmaceutical Society; their shops and managers registered; titles restricted to registered persons, and proprietors made responsible for the acts of their unqualified assistants would, in my opinion, form a basis of settlement that would bring about the best obtainable results. Now it may seem strange that we should be prepared to receive into our fold those who have stolen our titles and usurped our functions, but we are bound to recognise that they have carried on the business by means of registered assistants, and, so far as the safety of the public is concerned, have placed themselves on an equal footing with chemists and druggists. The Pharmaceutical Society has hitherto had difficulty in enforcing the Pharmacy Act, and especially in regard to the sale of poisons by unqualified assistants, the unqualified "victims"—who are usually unable to pay—being fined, while the real offenders (the proprietors) have escaped. Just one word in reply to Mr. Gifford. I have been "thinking this matter over again," and have come to the conclusion that there is something wrong either in my reasoning or with Mr. Gifford's. I have offended Mr. Gifford by asking questions and answering them. In Clause 2 of the Council's suggestions no one except registered chemists may sell, dispense, or compound medicines. In Clause 3 the penalty for contravening Clause 2 is £5. Will Mr. Gifford tell me if this means that a grocer would be fined £5 for selling cream of tartar, Epsom salts, castor oil and such-like medicines? Of course Mr. Gifford has condemned the Council's suggestions himself, but says that "efforts can be based upon these suggestions." In what way can we base our efforts upon Clause 2? When Mr. Gifford answers these questions I shall then be able to explain "cap in hand" my reference to the principles of free trade.

Edinburgh, July 24, 1899. W. S. Glass.

"Income-tax Overcharge."

Sir,—The Chancellor of the Exchequer, judging from his recent speech at the Mansion House, does not appear to entertain the opinion that there is any probability of a reduction in the rate of income-tax. The popularity of this tax with successive Chancellors of the Exchequer is readily understood when it is remembered that when it was first imposed, a century since, it produced £7,000,000, and now, although its incidence has been altered by certain exemptions and abatements, it produces the prodigious sum of £18,000,000. Being so easily collected, it is to be feared that taxpayers will never be free of income tax, while there are very many persons who even pay tax twice upon the same income when derived from dividends declared "free of income-tax," they being under the impression that these words mean that such dividends have not been taxed. Of course this is a mistake, as the tax is in such cases charged upon, and deducted from the total profits before they are divided, whereas in the case of dividends not paid "free of income-tax" the profits are first divided and tax deducted from each individual shareholder's dividend. We suggest that the growth of joint-stock companies renders it imperative that in future whenever the tax is deducted from the profits before division, such dividends should be declared as "income-tax paid," instead of "free of income-tax," and we ask directors of companies to take care that the latter misleading phrase does not again appear on their dividend warrants or in their reports. With few exceptions, all persons whose incomes are derived from rents, dividends, annuities, etc., and did not exceed £500 for 1896-7 and 1897-8, or £700 for 1898-9, can now make claim for repayment of tax overpaid in those years. Claims can also be made in respect of diminution of business profits (on furnishing a proper account, which is easily possible by using "The Taxpayers' Cash Book"); losses in farming or business can be set off against income from other sources; partners in a business can claim abatement or exemption if their incomes are within the limits, etc., etc., while a claim can be made by any person in respect of life insurance premiums or contracts for deferred annuities even when the income exceeds £700. All claims should, however, be made with the least possible delay, as the time allowed for making some of them is strictly limited. We shall be glad to advise any of your readers gratuitously whether they can make a claim for repayment of income tax, on their sending us full particulars of their incomes and a stamped addressed envelope.

The Income Tax Adjustment Agency.

12 *and* 13, *Poultry, London, E.C., July* 26, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Botanical (J. S. W.—31/28).—It is a specimen of.

Botanical Druggist (G. F.—31/26).—There is no such qualification, but it is illegal to use the title "druggist," however qualified, unless the person using it is registered under the Pharmacy Act, 1868. Anyone is free to dispense, but only duly registered persons may sell and dispense poisons.

Index (D. and Co.—31/25).—A general index for the last seventeen volumes of the third series of the Journal (to the end of June, 1895) has been in course of preparation for some time past, but failing the promise of a sufficient number of subscriptions to cover the cost of producing it, there is no immediate prospect of it being published. Apply to the Secretary of the Pharmaceutical Society, 17, Bloomsbury Square, W.C., for a copy of the early index you require.

Lactopeptin (J. S., 31/21).—The following has been published as the composition of lactopetin:—Milk sugar, 80; pepsin scales, 16; pancreatin, 12; diastase, 1; lactic acid, 10; hydrochloric acid, 10. Mix, and dry. For filling prescriptions you should obtain the original article, and not substitute a preparation of your own compounding.

Prescription Difficulty (J. T.—30/11).—Most probably the cause of your trouble is combination between the magnesia and some resinous constituents of the cascara. Resins are acid in constitution and combine with magnesia (and lime) to form usually insoluble compounds. Try making up the mixture, leaving out the cascara from the syrup. If our suggestion proves correct, we see no way of avoiding the difficulty except leaving out one or the other of the constituents mentioned.

Dispensing Pills (L. E.—30/25).—We see no difficulty in making the pill mass by the aid of the ordinary plastic excipients. Of course, the pill will be very large, and probably the prescriber does not realise this. We should suggest making the quantity given into two pills.

Makers of Paraffin Wax (T. C. K.—31/27).—Price's Patent Candle Company, Limited, 7, Belmont Works, Battersea, London, S.W.

Mercuric Oleate (T. G. W.—30/32).—There is no doubt that the percentage figure should refer now to the oleate itself, although a certain amount of ambiguity will still remain in the case of prescriptions written before the publication of the present pharmacopœia.

Apomorphine Hydrochloride and Sodium Nitrite (A. B. 28/24).—Apomorphine in aqueous solution alone is anything but stable; you will find the B.P. recommends the official injection to be "recently prepared." The presence of a nitrite would certainly tend to hasten decomposition.

Potassium Chlorate (T.G.W.—30/32).—It does not explode spontaneously. When heated strongly the oxygen is evolved with almost explosive rapidity. The danger with chlorate is chiefly due to proximity to carbonaceous materials. If a small portion of a mixture of such bodies be ignited by flame or the heat generated by friction or percussion, the combustion rapidly spreads throughout the entire mass and the gases so generated are the cause of explosion.

Presence of Oil in Tinct. Nucis. Vom. (C. H. W. 29/9).—Probably the liquid extract of nux vomica you have used is at fault; if it has been prepared with a stronger alcohol than that prescribed by the B.P. it will contain an undue proportion of oil. This will show itself as you describe when you convert it into the tincture. There is no need to extract the nux vomica first with ether if a properly diluted alcohol be used for the preparation of the fluid extract. Such a procedure would unnecessarily increase the cost of the preparation and unduly lengthen the process.

Sol. Cupro-Ammonii (E. W.—29/8).—You do not state for what purpose your solution is to be used. Probably the "aqua cupri ammoniati" of the Dubl. Ph., 1826, is what you require. This is made by dissolving 1 part of ammoniated copper in water 100 parts. It was used chiefly in veterinary practice as a lotion for ulcerated sores. Ammoniated copper is prepared by mixing in a mortar, copper sulphate, 2; ammonium carbonate, 3; triturating until effervescence ceases, drying first between folds of bibulous paper, and then by exposure to the air.

Concentrated Magnesia Mixture (E. B.—28/3).—Try suspending the magnesium carbonate with a little tragacanth, and substitute glycerin for the syrup employed as a sweetening agent.

Strength of Opium (E. J. W.—31/24).—If you refer to the B.P. monograph on opium you will find that any suitable variety of opium may be used for preparing the tincture and extract, provided that when dry it contains not less than 7·5 per cent. of anhydrous morphine. For other purposes, opium, when dried and powdered, should yield from 9·5 to 10·5 per cent. of anhydrous morphine. Since the tincture and extract are directed to be standardised, it is immaterial what the exact strength of the opium is to begin with. With the samples you refer to, you would probably get satisfactory results by mixing them in equal proportions or thereabouts. But in any case you must standardise the official preparations in accordance with the B.P. instructions.

Precipitate in Mixture (E. A. G.—31/2).—We do not get any precipitate in making up your prescription. Nor did we expect any, seeing that quinine hydriodide is sufficiently soluble and that so much free acid is present. On standing for some time probably a little iodine would be set free: in this case a black precipitate of quinine iodo-sulphate or some similar compound would be formed.

"Sugaring" for Attracting Moths (S. T. F.—31/35).—The following has been found to give far better results than any of the mixtures generally sold or recommended for the purpose;—Foot's sugar, 1 lb.; black treacle, 1 lb.; beer, 10 fl. oz. or q.s. Heat together until the sugar has dissolved, then thin down with a little more beer, until, when cold, the product is just workable with a brush. Then add common methylated spirit, 3 fl. oz. or more; essence of pineapple, ½ fl. oz. Several times this summer over 250 noctuæ have been counted at a dozen patches of this "treacle" exposed on a fence in a suburban garden. You may confidently recommend to your entomologist clients essence of pineapple as a lure for moths, as being far more attractive than rum or aniseed when combined with the sugar and beer basis.

Preserving Eggs (J. B.—32/1).—Immerse the eggs in solution of sodium silicate, sp.gr. 1·1, so that they are wholly covered: take them out carefully and dry in a warm place, moving them occasionally to prevent them from sticking.

Elder Wine (D. B.—31/22).—Pour boiling water, 3 gallons, on ripe elder berries, free from stalks, 20 lbs. Let stand for twenty-four hours, then break up the fruit, strain, press, and filter through a bag. To every gallon of juice obtained add white sugar, 3 lbs.; freshly crushed ginger, ½ oz.; cloves, 1 drachm; stoned raisins (not sultanas), 1 lb. Boil the mixture for an hour, skimming thoroughly during the process. Let it cool to 98° F., strain into a clean cask, add two ozs. of yeast for every 9 gallons of liquor; let it ferment for fourteen days, then add brandy, 5 fl.-oz., for every gallon of liquor. Then bung up tight, and let it alone for six months before bottling off.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

SYMBIOTIC SAPROPHYTISM.

Professor D. T. Macdougal regards saprophytism as an adaptation of absorbent mechanism or of the metabolic capacity of an organism. Symbiotic saprophytism is the natural result of the supplemental capacities of two organisms brought into nutritive contact chemotropically. The fungi which form mycorhiza are capable of independent existence, and undergo modifications of the hyphæ and reproductive organs in the portion of the mycele in contact with the protoplasm of the host-plant. The changes in the host-plant are of two kinds—degeneration of normal structure, and the formation of special cells for the accommodation of the fungus. The velamen of roots, as those of Orchideæ, and the trichomes of coralloid structures, are devices which facilitate absorption by endotropic fungi. The acquisition of the habit of symbiotic saprophytism renders a group of plants extremely unstable as to specific characters. The penetration of non-absorbent organs by the fungal symbiont affords opportunity for the utilisation of these organs for absorption in case of a diminished supply of food from the ordinary sources. There are but few constaut anatomical characters indicative of partial or complete saprophytism. Absence of chlorophyll is the only invariable accompaniment of holosaprophytism, while degeneration or alteration of the vascular bundles does not always follow. In the formation of mycorhiza the fungus may be associated with prothallia, roots, or stems.—*Ann. of Botany*, 1899, p. 1.

ORIGIN OF STORAX.

J. Moeller, in his investigation of the origin and development of storax, has determined that this balsam is not produced in the bark, but is formed in the wood; that it is not a physiological secretion, but a pathological product which arises after damage to bark or wood. The first effect of a wound is the development of schizogenous glands which are subsequently converted into lysigenous spaces. These facts were verified both for styrax liquidus from *Liquidambar orientalis*, and for sweet gum from *L. styraciflora*. In both cases the balsam does not exist in normal plants; it was found only after the tree was wounded. Circular cuts were made in a tree of *Liquidambar styraciflora* six metres high. When the branches were not wounded there was no trace of balsam, but where the damage had affected the cambium, rows of balsam glands could be detected with a lens. There seems, therefore, no doubt that storax is a pathological product.—*Centralbl. f. Bakteriologie u. Parasitenkunde*, 2te Abth., **5**, 412.

ACETONE DICARBONIC ACID.

G. Denigès finds that the body which gives the insoluble precipitate with mercuric sulphate in his test for the presence of citrates, in which the citrate is first oxidised with permanganate and then treated with an excess of the mercuric sulphate, is acetone dicarbonic acid—$HO.OC.CH_2.CO.CH_2.CO.OH$. The composition of the mercury compound is $HgSO_4.2HgO.2(C_5H_4O_5.Hg)$.—*Bulletin de la Soc. de Pharm. de Bordeaux*, **39**, 97.

ANTHEROZOIDS IN ANGIOSPERMS.

Professor S. Nawaschin, of Kieff, and M. L. Guignard have made some very remarkable observations on the mode of impregnation in *Lilium Martagon* and in *Fritillaria*, which serve further to bridge over the gulf between the processes in the higher Cryptogams and in Angiosperms. Before entering the embryo-sac the two generative nuclei of the pollen-tube elongate into vermiform bodies, which display indications of one or two spiral coils. Although not provided with cilia, M. Guignard claims for these bodies the term "antherozoid," in order to emphasize their homology with the corresponding bodies in Gymnosperms and the higher Cryptogams; and Professor Nawaschin believes them to be endowed with the power of spontaneous motion. At the period of the entrance of the pollen-tube into the embryo-sac, the union of the two "polar" nuclei to form the secondary vegetative nucleus of the embryo-sac has not been completed. When the two nuclei of the pollen-tube enter the embryo-sac, one of them, usually the posterior one, fuses with the oosphere, while the other unites with one of the two polar nuclei which have not yet completely fused together. This is not regarded by M. Guignard as a process of true sexual impregnation, but rather as one of "pseudo-fecundation." It is the origin of the formation of the endosperm, which has advanced as far as an 8-celled structure before the impregnation of the oosphere by the other pollen-cell nucleus. These observations have been confirmed, in the main, in this country, by Miss Ethel Sargant.—*Bonnier's Rev. Gén de Bot.*, 1899, p. 129: and *Bot. Centralbl.*, **77**, 62. See also *Proceedings of the Royal Soc.*, **65**, 163.

TOXICITY OF HEDERIN.

A. Joanin states that hederin has a markedly toxic action on warm-blooded animals, from 5 to 7 centigrammes for each kilo. of body weight being the lethal dose to rabbits and guinea-pigs for hypodermic injections; and 2 to 3 centigrammes for intravenous injections. On dogs it acts as a powerful emetic and purgative, and is doubtless the cause of the sickness and cathartic effect observed in cases of ivy poisoning. *Comp. rend.*, **128**, 1467.

ALBUMINOIDS AND ALKALOIDAL TOXICITY.

S. Pouchet finds that the juice of the fly agaric contains certain albuminoids, which, although not themselves powerfully toxic, by their action on the intestinal mucous membrane, greatly increase the toxicity of the muscarine contained in the juice. The lethal dose of the juice deprived of these albuminoids is much larger than that in the normal state. The observed symptoms differ: the simultaneous injections of what alone would be non-toxic doses, both of the alkaloid and of the albuminoids, is speedily followed by death. Experiments are being conducted to determine if the observed toxicity of other organic substances, such as curare, may, not in part, be due to the action of some such albuminoids, which alone are of comparatively low toxicity, but which aid the absorption of the toxic alkaloids.—*Bull. Gen. de Therap.*, **137**, 901.

CHEMISTRY OF PECTINS.

Summarising the results of his investigation on the pectins, Borquelot states that all those hitherto examined by him are strongly dextrogyre in their action on polarised light; all give arabinose when hydrolised with dilute sulphuric acid; all are susceptible to the influence of a ferment, pectinase, which probably exists in the tissues of all plants, being derived for the purpose of experiment from untorrified germinating barley. All pectins are coagulated by the ferment pectase, but after being treated with pectinase they no longer coagulate with pectase. Moreover, if pectinase be added to the coagulum already produced from pectin by pectase, liquefaction results. These results appear to be analogous to those obtained with rennet ferment and trypsin on casein; the former coagulating casein, the latter, if added first, preventing its coagulation, or if added subsequently, digesting the coagulum.—*Journ. Pharm. Chim.* [3], **9**, 563.

OXYDASE IN HELLEBORUS FETIDUS.

The fact that the leaves of *Helleborus fetidus* turn colour when dried, has led P. Vadam to suspect the presence of an oxidising ferment. He finds by chemical tests that this is the case, and that the plant contains a powerful oxydase, which reacts with the usual tests; it is precipitated by alcohol, and is destroyed at 100° C.—*Journ. Pharm. Chim.* [3], **9**, 515.

ESSENTIALS OF VEGETABLE HISTOLOGY
AS APPLIED TO PHARMACOGNOSY.

Temporary Mounting and the Examination of Objects.

AIR-BUBBLES.—Upon placing a small quantity of a vegetable powder upon a glass slip, adding to it a droplet of water, covering with a thin glass disc, and then examining under the microscope by transmitted light, there will probably be observed well-defined rounded bodies, which invariably command the attention of those unfamiliar with the microscope. They are air-bubbles (Fig. 5), and may be identified by these characters: they have a broad black

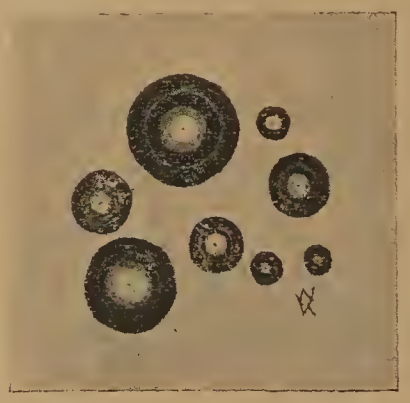


FIG. 5.—AIR-BUBBLES IN WATER.

ring tending to greyness on the edges and enclosing, when properly focused, a small bright centre; when the microscope tube is depressed the centre increases in brightness but diminishes in size, and when the tube is raised it becomes less bright and increases in size, encroaching upon the surrounding ring. The appearances are due to the strong refraction of light caused by the difference in the refractive power of water and air. In very small air-bubbles the bright spot of light may be altogether absent; these have the appearance of a black spot with margins shaded grey so as to suggest a bevelled edge. Upon raising the microscope tube, a more or less pronounced grey disc spreads from the centre towards the periphery. Air enclosed in cells or fibres may give rise to appearances which are very misleading. If the cell lumen be large and filled with air, the walls will apparently have thick black walls; but if the lumen be small or narrow, as in a fibre, it will be almost uniformly black. To expel air from a powder or a thin section, if other considerations are not unfavourable, it is sufficient to use a drop of alcohol before adding the mounting fluid. Or the powder may be well mixed on the slip with the mounting fluid by means of a needle; or the section, if not too thick, may be gently warmed on the slip with a little of the fluid. Occasionally circumstances arise when alcohol and heat would be equally objectionable; then the material should be subjected to prolonged soaking in some inert fluid, and in a last extremity diminished air pressure may be resorted to. In botanical work it very rarely happens that the air-pump needs to be called into requisition. Alcohol, gentle heat, and patience generally conquer this enemy.

OIL-DROPS.—These may very easily be mistaken for air-bubbles and *vice-versâ*. The limiting black ring is narrowed almost to a line (Fig. 6), and has the lighter shading on the inner margin when properly focused. The central area is light grey, and when the objective is lowered overspreads the black ring. Upon raising the objective from the original position concentration of light is produced in the centre of the area, and there results, with a high power, a bright spot, or, with a low power if the drop be spherical, a bright image of any object reflected from the microscope mirror. The alterations in the focusing adjustment cause appearances precisely the reverse of those which are characteristic of air-bubbles. Concerning the reactions of oil-drops it will be better to treat under the heading of cell-contents.

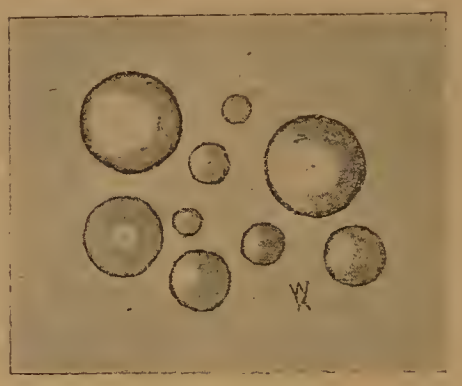


FIG. 6.—OIL-BUBBLES IN WATER.

In the examination of a powder, unless some care is taken, deceptive appearances may be presented to the observer. A little vegetable powder containing sclerotic cells or mineral matter may quite easily be put up on a slide so as to produce the impression that a much larger proportion of the sclerotic elements or mineral substances is present than is actually the case. For example, the powder is mixed with an aqueous or glycerin mounting fluid upon the slip, and either so small a cover-glass or so large a quantity of fluid is used as to cause a ring of fluid containing a portion of the powder to surround the cover-glass. The less heavy particles are those which will float out in the fluid, and the heavier ones will remain where originally placed. Thus there is a separation of the various particles according to their varying size and specific gravity, and a considerable proportion of the smaller and lighter particles is carried out of the range of observation. It is, therefore, always a safe rule to never permit a fluid mountant to escape beyond the verge of the cover-glass except in special cases when putting up permanent mounts. Under the most favourable conditions, powders consisting either of one or several constituents undergo in mounting fluids a certain amount of separation, the lighter elements in heterogeneous powders, such as fragments of parenchyma and small starch granules, and the lighter particles in homogeneous powders being found towards the margin of the fluid. The attempt to estimate the proportion of elements in a mixed powder by counting them in given areas or fields should be done with due regard to this possible source of error.

A little care is also needed in the application of the cover-glass to a fluid mount. A good firm thin section of a drug will often permit of the cover glass being firmly pressed down, and by so doing the details may be seen with greater clearness than would otherwise be the case. But if a delicate transverse section of a leaf, for instance, were to be examined, it would almost certainly happen, upon pressing down the cover glass, that the relation of the parts would

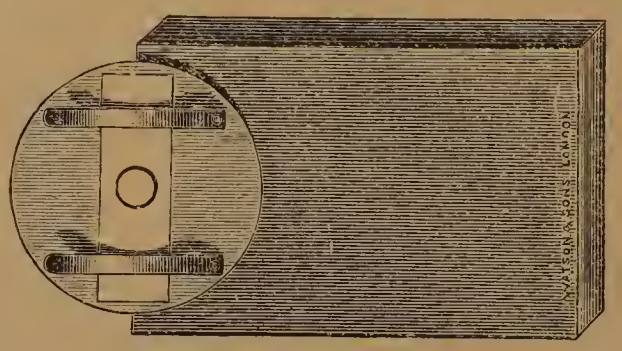


FIG. 7.—TURNTABLE FOR RINGING SLIDES.

be altered, the epidermis probably presenting a surface view instead of a sectional one. Masses of soft tissues and delicate crystals in powders would also be injured by this procedure. In fact, powders

should always be examined either with a loosely applied cover glass or in a shallow cell, as well as with one pressed down. An extemporary cell can be made quickly by sticking narrow strips of gummed paper on the glass slip so that the cover glass may rest upon them. Better still, cells may be made by ringing the slips by means of a turn-table (Fig. 7), with an alcoholic shellac varnish to which a small proportion of Canada balsam or castor oil has been added to make it less brittle. For this purpose there is nothing quite so useful as Ward's brown cement,* which answers for both cement and varnish. By avoiding pressure upon the powder the various components are not only preserved entire, but they may be made to present different aspects to the eye—a matter of very considerable importance, because for the most part, in monocular microscopes the single eye only sees one plane of an object. This is especially the case with objectives having a high angle of aperture. Low power objectives with low angle of aperture possess a certain amount of so-called penetrating power, which enables the observer to ascertain the relations subsisting between the planes immediately above and below the one in focus, but it does not avail in obtaining a stereoscopic view of a body. To make amends for this limitation of vision, the next best thing (as already suggested) is to secure a view of every aspect of the body, and this may often be done by causing it to slowly revolve at will in the field of the microscope by very carefully producing a movement in the mounting fluid with the aid of a mounted needle pushing the loosely-placed cover-glass.

SALINE SOLUTIONS FOR INJECTION IN INFECTIOUS DISEASES.†

Luton's Serum.—Crystalline sodium phosphate, 4; sodium sulphate, 10; boiled distilled water, 100.

Hayem's Serum.—Pure sodium chloride, 5; pure sodium sulphate, 10; boiled distilled water, 1,000.

Surgical Serum.—Sodium chloride, 7·5; boiled distilled water, 1,000.

Crocq's Serum.—Sodium phosphate, 2; boiled distilled water, 100.

Cantani's Serum.—Sodium chloride, 4; sodium carbonate, 2; boiled distilled water, 1,000.

Leclerc's Strong Serum.—Sodium chloride, 40; sodium phosphate, 5; sodium sulphate, 5; boiled distilled water, 1,000.

Cheron's Serum.—Crystalline phenol, 1; sodium chloride, 2; sodium phosphate, 4; sodium sulphate, 8; boiled distilled water, 100.

Latta's Serum.—Sodium chloride, 3 to 5; sodium carbonate, 1·7; water, 3,400.

Kronecker and Lichtenstein's Serum.—Sodium chloride, 6 to 7; sodium carbonate, 0·1; water, 1,000.

Schwartz's Solution.—Sodium chloride, 6 Gm.; solution of caustic potash and soda, 2 drops; water, 1,000 C.c.

Herard's Solution.—Sodium chlorate, 0·5; potassium chloride, 0·25; sodium phosphate, 1·26; sodium chloride, 4·5; distilled water, 1,000.

Dujardin-Beaumetz's Solution.—Sodium carbonate, 1; potassium sulphate, 1; sodium lactate, 1; sodium phosphate, 0·5; sodium chloride, 3·1; distilled water, 1,000.

Sapelier's Solution.—Sodium chloride, 60; potassium chloride 5; sodium carbonate, 32; sodium phosphate, 1·5; potassium sulphate, 3·5; boiled water, 900.

Sydmann's Solution.—Sodium chloride, 6; sodium bicarbonate, 1; water, 1,000.

Mathieu's Solution.—Sodium sulphate, 6; sodium phosphate, 4; sodium chloride, 1; glycerin, 20 fluid parts; water, 100 fluid parts.

Huchard's Solution.—Sodium phosphate, 10; sodium chloride, 5; sodium sulphate, 2·5; distilled water, 100.

Renzi's Solution.—Pure iodine, 1; potassium iodide, 3; sodium chloride, 6; distilled water, 1,000.

*Obtainable of most microscopical dealers, or from Mr. Ward, 249, Oxford Street, Manchester.

† From the *Bulletin de la Société de Pharmacie de Bordeaux*.

REVIEWS AND NOTICES OF BOOKS.

The Cold-Bath Treatment of Typhoid Fever. By F. E. Hare, M.D. Illustrated. Pp. 191. Price, 6s. net. London: Macmillan and Co., Limited.

This work contains a detailed account of the cold-bath method of treating typhoid fever as practised at the Brisbane Hospital, and it is based upon personal observations made by the author in the fever wards and the post-mortem room in the same institution. The origin of the method is traced to the late Dr. Brand, of Stettin, whose rule was to have the patients' temperature taken in the rectum every three hours night and day, and on each occasion that it attained or exceeded 102°·2 F. a full length bath of a temperature about 68° F. was administered for an average period of fifteen minutes. The author quotes Dr. J. C. Wilson as to the individuality of this plan of treatment: "The treatment stands by itself as a definite procedure, not to be confounded with the treatment of enteric fever by graduated baths, the cold pack, cold affusions, sponging, continuous immersions, or other hydrotherapeutic measures. It is especially to be looked upon as a method entirely distinct and different from any *merely* antipyretic treatment." It is to be regarded as essentially a prophylactic against the consequences of protracted pyrexia. "Hence, *to obtain the greatest possible benefit from it, it is above all things necessary that it be commenced at the earliest possible period of the fever, before signs of danger have appeared; and in direct proportion as this indication is responded to is the success of the treatment.*"

In ten years 1902 consecutive cases were treated by this method and a careful record of the clinical course in each case was kept under Dr. Hare's supervision. Thus was obtained an extensive basis for comparing the results of the expectant treatment previously employed at the same hospital with those of the cold-bath treatment.

Sixteen pages are devoted to a detailed account of the mode of administering the baths, and the value of this section of the work is greatly enhanced by numerous and excellent photographs.

The succeeding sections deal respectively with the influence of the method of treatment on the temperature, the circulatory, the respiratory, the nervous and the digestive symptoms; perforation and hæmorrhage, the renal and cutaneous symptoms, and finally on the general nutrition. The gross results of 1828 cases treated by the expectant method are compared with those of 1902 cases treated by the cold bath method; in the former the mortality came out at 14·8 per cent., against but 7·5 per cent. in the latter. Dr. Hare considers his statistics from various aspects—*e.g.*, according to the immediate or "secondary" causes of death. He also enters fully into the consideration of modifications rendered necessary by the supervention of serious events, such as hæmorrhage or perforation.

Many physicians in this country will probably fail to be convinced of the superiority of the cold-bath method as a routine measure in the treatment of typhoid, but every physician will accept Dr. Hare's work as a most thorough, careful, and reliable statement of an extensive experience of the most tedious and trying of all the zymotic fevers.

The production of the work leaves nothing to be desired.

The Administration of Castor Oil.—Castor oil, cod-liver oil, and other fatty oils are stated by Löwy to be rendered easy to take by the following method:—Beer is poured into a conical wineglass to the height of about a centimetre, then the dose of castor or other oil, and finally the froth of beer to the height of another centimetre is added. The whole may be swallowed at a draught without experiencing any other taste than that of the beer. Beer froth is quickly obtained by beating up powdered sugar with beer.—*Pharm. Centralh.*, **40**, 152, after *Therap. Monats.*

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, AUGUST 2, 1899.

Present :—

Mr. WM. MARTINDALE, President.

Mr. G. T. W. NEWSHOLME, Vice-President.

Messrs. Allen, Atkins, Bateson, Carteighe, Corder, Cross, Glyn-Jones, Grose, Harrington, Harrison, Hills, Johnston, and Park.

The minutes of the previous meeting were read and confirmed.

Letter from the Privy Council.

The PRESIDENT announced that a letter had been received from the Privy Council acknowledging receipt of the resolution relative to carbolic acid. He did not think that the matter would be dealt with by that body before the autumn.

The Conference at Plymouth.

Mr. ATKINS said he should like as one of the delegates from the Council to the British Pharmaceutical Conference to express their great indebtedness to the chemists of the Plymouth district for the great hospitality extended to them. He did not think he ever saw a more effective organisation, the whole of the details being thought out and carried out to an extent which was quite unique. He need hardly say that the President was missed. The weather, if rather warm, was superb. They were welcomed by three mayors. The papers were so numerous that only abstracts of some of them could be read, but the quality was high, and so was that of the discussions, though they, too, had to be curtailed for want of time. The proceedings extended over an extra day, and those who stayed over the Friday would agree with him that the garden party given by the Mayor of Plymouth at his country residence on the moors was immensely enjoyable, and would never be forgotten. They then went on to visit the works undertaken at vast expense by the Three Towns for the provision of an efficient water supply, which were well worth examination. The only drawback to the pleasure of the visit arose from a circumstance which the local committee were in no way responsible for, the simultaneous meeting of the Conference of Mechanical Engineers, which led to their own members being more scattered about in different hotels than usual, and he hoped this would not occur again. Looking back to his correspondence of twenty-two years ago, he came across a letter from a pharmacist of that district who was still living, in which he expressed the conviction that the meeting of the Conference, under the presidency of Professor Redwood, had levelled up pharmacy very considerably in the West of England, and had also brought chemists into much closer union amongst themselves. He hoped this renewed visit would have a further influence in the same direction, and again, on behalf of the delegates, expressed their thanks to the local committee.

Mr. CROSS wished to re-echo the remarks made by the Treasurer. He had attended many conferences, but could not remember an occasion on which the delegates from the Council had received a warmer welcome than they received at Plymouth. If any visitor to Plymouth had not enjoyed himself it was his own fault. He had noticed with pleasure the way in which the chemists of Plymouth co-operated not only with each other, but with the visitors to the Conference. It was in every respect a record meeting.

The PRESIDENT regretted that his official duties at the Society, in connection with the examinations, had prevented his attending the Conference. He had also had a lot of anxious private business of his own requiring his attention.

Election of Members and Student-Associates.

ELECTION OF MEMBERS.

The following persons having tendered their subscriptions for the current year, were elected "Members" of the Society :—

Aird, George H.; Newcastle-on-Tyne
Andress, Richard; Beaminster
Atkins, John; Brighton
Baker, Cyril H.; Westbourne Grove
Barley, Maurice Arthur Hurd; Cardiff
Beynon, John Thomas; Whitland
Bindloss, Herbert Meynell; Harlesden
Birt, Henry; Birmingham
Bloor, Richard Hardy; Holborn
Bonello, Francis; Malta
Boyd, Thomas; Glasgow
Buckingham, Frank E.; Harleston
Cable, Alice Mildred; London
Cain, John; St. Leonards-on-Sea
Clarke, Henry Pitman; Plumstead
Dyson, John George P.; Horwich
Exon, Frank H.; Clacton-on-Sea
Fairburn, Henry; Northallerton
Ferguson, Wiliam Cross; Motherwell
George, Enos Davies; Aberfan
Gray, Percy Bunting; Rugby
Griffiths, Edwin; Kidsgrove
Harris, John; Merton
Hodgson, Baron Cuthbert; Halifax
Kneale, James Coole; Sparkhill
Lane, Sydney William; St. Leonards-on-Sea
Lee, Arthur; York
Lloyd, Gwilym Henry; Solva
Lord, Walter; Denton
Manning, Frederick William; Fairford
Martin, Edwin George; Ingatestone
Meakins, John James; Dorking
Miner, William Harold; Ryecroft
Morgan, Howell; St. John's Wood
Nursaw, Edward; Plymouth
Owen, William Hibbert; Saltburn-by-the-Sea
Panchaud, Frederick; Cambridge
Pell, Alfred; Bombay
Pratt, Leonard Dudley; Ongar
Roberts, John; Bangor
Robertson, David Coutts; Galashiels
Ruoff, Francis Hermann; Reading
Schneider, Edward Paul; Bischweiler
Sim, William; Paisley
Spilman, John James; Ripley, Yorks
Sutcliffe, William; Manchester
Taylor, George Alan; Brinsley
Thompson, Edgar Joseph; Birmingham
Tilley, Ernest Alfred; Thetford
Trick, Percival William Clement; Stoke Newington
Whitaker, Joseph Edward; Bradford
Widdowson, George William; Aldeburgh
Williams, William Thomas; London
Wilson, Alexander Watson; Aberdeen

ELECTION OF STUDENT-ASSOCIATES.

The following persons having passed the First examination, and tendered their subscriptions for the current year, were elected "Student-Associates" of the Society :—

Barnes, James Hector; Birmingham
Bevis, George Frederick; Portsmouth
Salt, Leonard Thomas; Harrow
Stoneman, John Edey; Dawlish
Tinker, George; Holmfirth
Ward, William John; Manchester
West, Edward Mortimer; Stoke Damerel.

Several persons were restored to their former status in the Society.

Diplomas.

The undermentioned being duly registered as Pharmaceutical Chemists were respectively granted a diploma, stamped with the seal of the Society.

Bennett, Charles Thomas
Bunting, Sydney
Clarke, Frederick Stanley
Evans, John
Fisher, Sidney Ralph P.
Forster, William
Garbett, Charles
Hurst, Frederick Beaumont
Hyde, Charles
Livesey, Henry Ayrton Alexander
Meadeley, George Holmes
Millidge, Philip Henry
Pattison, George
Thackray, Charles Frederick
Vallet, Cyril Edward Franklin
Wheeler, Alice Maud
Wild, Thomas Jabez

The names of the following persons who have severally made the required declarations, and paid a fine of one guinea, were restored to the Register of Chemists and Druggists :—

Richard Jackson, Longtown, Cumberland
Edwin Stovell, 32, Laurel Grove, Penge, S.E.

Finance Committee.

The PRESIDENT, in moving the adoption of the Report of the Finance Committee, said the expenditure during the past month was somewhat large owing to the examinations.

The report was adopted.

Benevolent Fund Committee.

The Report of this Committee included the recommendations of grants amounting to £23 in the following cases :—

The widow of a member and subscriber (54). She is in ill health and has no one to look to for support. Previous grants have been made. (Morecambe.)

The widow (42) of a member who died two years ago. Grant made to aid in supporting one of the children, so that applicant might be at liberty to take a situation. (Coventry.)

One case was deferred for further particulars.

The VICE-PRESIDENT moved the adoption of the report. He said there were only a small number of cases brought up for consideration, two of the applicants had been granted sums of money, and

one other case was deferred for further consideration. In dealing with the latter case the Committee felt that it was desirable to see how far the friends of the applicant could help her, and then if necessary to supplement what the friends did in this respect.

The report was adopted.

Library, Museum, School and House Committee.

The PRESIDENT moved the adoption of the report of this Committee, which stated that the Librarian had presented his usual report, including the following particulars regarding attendance at the Library :—

Attendance.	Total.	Highest.	Lowest.	Average.
June.....	502	29	8	19

Circulation of Books.	Total.	Town.	Country.	Carriage Paid.
June	144	75	69	15s. 2½d.

Several donations to the Library and Museum had been received (see *Ph. J.*, July 15, page 59), and the Committee had directed the usual letters of thanks be sent to the respective donors.

The Committee recommended that the undermentioned books be purchased for the Library in London :—

Tilden, History of Chemistry, 1899.
Green, Ferments, 1899.

The Curator's report had also been received, and included the following particulars :—

Attendance.	Total.	Highest.	Lowest.	Average.
June.....	795	65	19	30

The Curator had presented a report on the meeting of the Museums' Association at Brighton, July 6-8.

The Committee recommended that the Librarian be authorised to attend the meeting of the Library Association in Manchester in September.

Certain work in connection with the Society's premises, including electric lighting of the lecture theatre, library, etc., was recommended to be carried out under the superintendence of the President.

The admission of Mr. Tickle to the Research Laboratory was approved, and the Committee recommend the appointment of Mr. T. E. Wallis as a junior demonstrator in the Chemical Laboratory.

The Committee, on the recommendation of Professor Collie, had nominated Mr. E. M. Chapman for appointment as the Salters Research Fellow.

The PRESIDENT said he had also received a report from Professor Collie as to the work done in the Research Laboratory. He stated that good work had been done by Mr. Tickle, the Salters' Fellow, and Mr. Chapman, the Burroughs Scholar. The results of some of the investigations had been published in the *Transactions of the Chemical Society*, and he appended a list of the papers which had been published. He was still engaged, with Mr. Tickle, in an investigation on the salts of chelidonic and meconic acid.

The following report was then read :—

PROFESSOR COLLIE'S REPORT ON THE RESEARCH LABORATORY.

In the Research Laboratory good work has been done by Mr. T. Tickle (Salters Fellow) and Mr. E. M. Chapman (Burroughs Scholar). The result of two investigations by Mr. Tickle and myself has been published in the *Journal of the Chemical Society*, whilst Dr. Lapworth and Mr. Chapman have also finished and published in the same Journal an investigation on the derivation of camphor. The actual number of publications from the Research Laboratory I give below :—

1. N. Collie and T. Tickle.—Production of some nitro and amido-oxy-lutidines.

2. N. Collie and T. Tickle.—The salts of di-methyl pyrone, and the quadrivalence of oxygen.

3. A. Lapworth and E. M. Chapman.—Homocamphoronic and camphoronic acids.

4. A. Lapworth.—Hydroxy di-bromo camphor sulphonic acid.

5. A. Lapworth.—Note on nitration substitution in nitro compounds.

6. A. Lapworth.—Sulphonation of benzo-phenone and of di-phenyl methane.

7. A. Lapworth.—A possible basis of generalisation of intra-molecular change in organic compounds.

8. A. Lapworth.—Action of silver compounds on di-bromo camphor.

Besides these I have completed, in conjunction with Mr. C. Frye, but not yet published, an investigation of the salts of chelidonic and meconic acids. Also the chief piece of work by Mr. Tickle and myself on meconic acid and its derivations has not yet been finished, but I hope that shortly it may be brought to a satisfactory conclusion.

Mr. CARTEIGHE remarked that these investigations had not cost the Society anything extra. He was sorry there were not more workers in the laboratory, but he thought the work done was very satisfactory.

The PRESIDENT said the investigation now being pursued was interesting to pharmacists, being concerned with some derivatives of opium.

Mr. GLYN-JONES said before the report was adopted he wished to ask two questions. He noticed reported in the *Pharmaceutical Journal* that some action had been taken by the Society with regard to the sale of benzene in connection with the County Council. He did not know the scope of the Library, etc., Committee, and whether it would deal with that matter? His other question was whether a suggestion which he would respectfully make was at all feasible, and that was that reports of committees, where possible, might be circulated with the agenda calling the Council Meeting together. That course was adopted by other bodies, such as the General Medical Council, for whose methods of procedure they had the very greatest respect. The reason he made the suggestion was that it was somewhat difficult for members of Council who knew nothing at all about the subjects dealt with by the Committee, to follow the report read at that meeting. If it were at all possible that the reports could be sent out with the agenda it would certainly help him, at all events, in taking an enlightened interest in what was going on. Some of the committees only met the day before the Council, and no doubt there would be a difficulty with regard to them; but when committees met earlier in the month he thought a printed copy of the reports which they were asked to adopt might be circulated.

The PRESIDENT said with regard to benzene (petroleum) the action referred to had been taken by Mr. R. A. Robinson, who he thought had got the matter so carried out as to meet the wishes of retail chemists. With regard to printing the reports of committees, he thought the matter had better be considered by the House Committee. It would certainly not be possible in the case of committees which met the day before the Council meeting.

Mr. CARTEIGHE said the spirit of Mr. Glyn-Jones's suggestion had been carried out for many years. The details of the reports were printed in the Journal, and the practice had been that when there was anything to refer to that was out of the general routine, that was printed and sent round to the members.

The Jacob Bell and Manchester Scholarships.

The report of the Committee appointed to award the Jacob Bell and Manchester Pharmaceutical Association Scholarships was read

JACOB BELL MEMORIAL SCHOLARSHIPS.

The Examiners appointed to conduct the examination for the Jacob Bell Scholarships had reported that twenty-seven candidates had competed for the scholarships at the following centres :—

Brighton 1		Liverpool 2
Canterbury 1		London 11
Carlisle 1		Manchester 1
Edinburgh 3		Newcastle 1
Exeter 2		Plymouth 3
	Shrewsbury 1.	

The envelopes bearing the mottoes of the successful candidates having been opened by the Committee appointed to make the award had been found to contain the following names:—

Harold Deane,

Charles W. B. Heslop.

The Committee had awarded the scholarships to Mr. Deane and Mr. Heslop, subject to the approval of the Council.

The competitors who adopted the following mottoes had obtained upwards of two-thirds of the total number of marks obtainable (which is the minimum for the award of a Bell Scholarship). The arrangement is in order of merit:—

3. *Virtute, non verbis.*
4. *Galen.*
5. *Nec vi nec Virtute.*
6. { *Labor omnia vincit.*
   { *Ne quid nimis.*
7. *Rursus.*
8. *Aquilo.*

Manchester Pharmaceutical Association Scholarship.

The Committee reported that four candidates had competed, but that not one of them had obtained a sufficient number of marks to entitle him to the award of a scholarship.

The President moved that the report be received and adopted, and that Mr. Harold Deane, Clapham, and Mr. Chas. W. B. Heslop, Newcastle-on-Tyne, be appointed Bell scholars for the ensuing session. He mentioned that the senior Bell scholar was a grandson of Mr. Deane, of Clapham, a former President of the Society, and he had no doubt, would do credit to his lineage. Twenty-seven candidates sat for the examination, and he was glad to find that nine of the number obtained sufficient marks to warrant an award of the scholarship. He regretted that none of the candidates for the Manchester Scholarship obtained sufficient marks to justify an award.

The report was adopted, and a vote of thanks was passed to Messrs. Pinches and Lucas for conducting the examination.

The Hanbury Gold Medal.

The President announced that the Daniel Hanbury Gold Medal had been awarded to

Professor Ladenburg, Ph.D., of Breslau,

who was specially distinguished for his work on the solanaceous alkaloids. He would be in England in September attending the meeting of the British Association, and it was hoped that he might be able to stay until October 2 and receive the medal personally, on the occasion of the opening of the School of Pharmacy.

Correspondence.

The President announced that a memorial had been received from Preston in favour of the course taken by the Council with regard to their opposition to the Lord Chancellor's Bills as brought forward in the House of Lords.

Mr. Harrison moved that the memorial be referred to the Law and Parliamentary Committee.

The resolution was carried unanimously.

The Herbarium Competition.

The President moved the adoption of Professor Green's report on the Herbarium Competition, awarding the Silver Medal to

Reginald Robert Bennett.

The resolution was carried unanimously.

The President moved that the best thanks of the Council be given to Professor Green for his report on the Herbarium Competition.

The resolution was carried unanimously.

The President said that concluded the public business, but he might make a remark with regard to the position of matters in Parliament. It was generally understood that the Companies Bill would be brought forward next session in the House of Commons, and would in all probability be pushed forward. It would, therefore, be necessary to watch the matter carefully, and possibly to formulate a clause which the Council should endeavour to get inserted. The Bill brought in by the Lord Chancellor had not been advanced, and he thought, therefore, the policy adopted of not taking any active steps in regard to it until it reached the House of Commons had been justified. Certainly, Members of Parliament would be just as well pleased not to have been worried by pharmacists on this matter. He had been down to the House several times for the purpose of seeing members he knew, and being introduced to others and feeling their pulse a little, as they would probably take a broader view than was sometimes taken by pharmacists themselves of these questions. The whole matter would have to be carefully considered before the autumn.

Mr. Glyn-Jones said as far as he could make out the only thing the Society was pledged to was the resolution passed in June by which the Watch Committee was given instructions to deal with the Lord Chancellor's Bill, to wait until it reached the House of Commons and then to oppose Clause 2 and to endeavour to secure the inclusion of pharmaceutical chemists and chemists and druggists in Clause 3. He believed the idea was that if this were done it would put a stop to companies—as the term was generally understood—carrying on business as chemists There were different opinions as to the chance of this being accomplished, but he thought it would be more satisfactory to the members if the President assured them that before October the Law and Parliamentary Committee or the General Purposes Committee would take the whole subject into consideration, and be prepared with a definite policy, which at present seemed to be wanting.

Mr. Carteighe said it was not usual to have a discussion on observations made from the chair with a view to giving information, but he could not allow Mr. Glyn-Jones' statement that the Council had no policy to pass uncontradicted It had a most definite policy, which was, if the Lord Chancellor's Bill reached the House of Commons, to endeavour to amend it in a definite direction. The Bill was not dead, and if it were introduced again next session it might or might not be expedient to adopt the same policy, but he could not allow the statement to be made that the Council had not a definite policy, because it was not true. It had a policy, and that policy remained until the Bill of the Lord Chancellor was dead. What might come afterwards was a question to be considered in due course.

The President said he thoroughly agreed with what Mr. Carteighe had said. The policy of the Council had been consistent throughout, and had been under consideration long before Mr. Glyn-Jones joined the Council. Their policy was to keep a watchful eye on any legislation affecting pharmacy, and to meet difficulties as they arose. He saw no cause as yet for deviating from that policy.

The Council then went into committee to hear and consider the legal portion of the report of the General Purposes Committee. On resuming, the report, and recommendations were unanimously adopted, and a special resolution passed authorising the Registrar to take proceedings against the persons named.

Report of Examinations.

July, 1899.

	Candidates.		
	Examined.	Passed.	Failed.
England and Wales:—			
Major	32	17	15
Minor	449	132	317
Modified	1	1	0
Scotland:—			
Major	1	0	1
Minor	167	57	110

First Examination.

Certificates were received in lieu of the Society's Examination.

"FIRST" EXAMINATION RESULTS.

A meeting of the Board of Examiners for England and Wales was held on Tuesday, August 1.

A certificate presented by James Casketter Williams, of London, was accepted in lieu of the Society's examination.

The report of the College of Preceptors on the examination held on July 11 was received. **453** candidates had presented themselves for examination, of whom **244** had failed.

The following **209** passed, and the Registrar was authorised to place their names upon the Register of Apprentices or Students:—

Ainsworth, Charles; Preston
Allan, George; Scarborough
Anderberg, Axel: Peckham
Archer, Bertram Fred; Ipswich
Arkell, John; Swindon
Arnold, Charles; Bourne
Ascroft, Jane: Hindley
Ashworth, Albert Edward; Blackburn
Barltrop, Georgina E.; Walthamstow
Barraclough, James; Falkirk
Benjamin, Leopold; Edinburgh
Bennett, Sampson Taylor; Burslem
Berriman, Francis J.; Upper Brighton
Bird, Eustace Osborne; Penzance
Bollen, Clement Roderick; Bromley
Booker, George; Boston
Bosworth, S. McGregor; Bedworth
Boyle, Nicholas W. E.; Birmingham
Braid, John Andrew; Cambridge
Breen, Bernard Martin; Manchester
Bridges, John; Portobello
Briggs, Henry Hall; Todmorden
Brooke, Rupert Woolby; Sudbury
Brown, Benjamin John; Leamington
Brown, Peter Kinninmonth; Leith
Buckner, Harry; Whitstable
Burwell, James Arthur; Colwyn Bay
Calvert, Ernest Dixon; Hull
Campbell, Alexander; Paisley
Campbell, Collin; Ardrishaig
Carruthers, Charles J. M.; Hawick
Chislett, Charles Game; Lanark
Clarke, Alfred John; Northampton
Clarke, Stanley; East Dulwich
Cohen, Emanuel; Merthyr Tydvil
Compton, Charles Britt; Cirencester
Cooper, Geoffrey; Sandbach
Coultman, Matthew Robert; Malton
Court, Alexander; Bolton
Craine, George Lloyd; Douglas
Crawford, David; Thornton
Creal, George Lionel D.; Poplar
Cross, John William; Guildford
Crossley, Percival Charnock: Allerton
Curric, John; Glasgow
Currie, John Forbes; Glasgow
Davidson, Andrew; Stroud
Davies, Thomas Price; Fishguard
Dean, Edward E.: Newcastle-on-Tyne
Dennis, Henry Haywood: Atherstone
Dewar, Katherine; Dundee
Dey, Adam Dempster; Aberdeen
Dingle, Sampson P.; Southampton
Dobie, Robert Flint; Glasgow
Dobson, Arthur S.; Heckmondwike
Donaldson, Charles G.; Stenhousemuir
Doughty, John; Dalkeith
Dow, Robert; Perth
Dunn, Frederick George; London
Ellis, William George; New Brompton
Eslick, John James R; Redruth
Evans, Charles Henry; Holborn
Farquhar, William Alan Kemp; Insch
Fenton, Peter; Coatbridge
Ferris, Robert Henry; Kingsbridge
Fettes, David; Dundee
Ford, Alfred; Newtown
Fowler, Richard William, Oxford
Galbraith, Sarah A.; Wolverhampton
Gallop, Frank; Poole
Gaman, Stanley George: Swansea
Gates, Wilfrid; Rochester
Geddes, George; Thurso
Geddes, William; Cullen
Giddings, David: Morecambe
Gordon, John Lewis Stewart; Crieff
Gray, Horace G.; Glasgow
Green, Thomas Stevenson; Halifax
Greig, John; Stirling
Hall, Lilian; Morton
Hall, William Thomas; Redruth
Hammond, Garnet Oliver; London
Hanna, Frederic; Ashton-under-Lyne
Harbordt, Paul Harold; London
Hardy, John; Maryport
Harley, John Rogers; Crieff
Harold, George; Macduff
Hartley, Fred Arthur; Burnley
Henderson, Harold Eugene; Keswick
Heuchan, William; Castle Douglas
Heywood, John R.; Southend-on-Sea
Higgins, Frederick Samuel; London
Hill, Alfred John; Sutton Coldfield
Hill, Edward; Leven
Hilton, Norman Rushbourne; Coventry
Hitchen, Robert, jun.; Burnley
Hodgkiss, Thomas William; Ilkeston
Hope, Alexander Thomas; Kelso
Hopkins, Sherriff Bassett; Birmingham
Hudson, John William; Douglas
Isherwood, Joseph Ernest; Blackburn
James, David John; Llanelly
Jones, David John M.; Ammanford
Kaighin, William H.; St. John's Wood
Kenway, Bertha Anne; Bristol
Kingston, Thomas Edward; Bath
Knight, Alfred W. Percival; Wincanton
Laing, Thomas; Kirkcaldy
Laws, Karl A.; Newcastle-on-Tyne
Lee, Cecil Smith Bovelle; Strichen
Leslie, Thomas Spence; Stromness
Levi, Caleb; Manchester
Lewis, Benjamin Reymond; Fishguard
Lewis, E. M. E.; Newington Causeway
Lewis, Frank Edwin; Holt
Lindley, James Alhert; Prescot
Lindsay, George John; Dundee
Lister, George Harry; Stalybridge
Lloyd, Norman Lindsay; Wrexham
Locke, Olive Marshall; Hawick
Lowndes, Ernest Alhert; Birmingham
MacBride, Walter; Liverpool
McKay, David Edward; Ayr
McKenzie, Donald; Aherfeldy
McKerrow, Ethel; Wilmslow
McKinlay, William; Stirling
McLaren, Donald Livingston; Dollar
McRae, Ninian Finlayson; Blackburn
Mair, Robert; Edinburgh
Maries, Joseph Davenport; Waterloo
Marsden, Herbert Harold; Darwen
Mayor, Fred Arthur; Heaton Chapel
Mercer, Ralph; St. Helens
Milburn, Thomas Reginald; Hull
Millar, Annie Bell; Coupar Angus
Mitchell, Alexander Bruce; Aberdeen
Mitchell, Jessie; Edinburgh
Moffatt, Irving A. C.: Kirtlebridge
Monk, John Edwin W. H.; Plymouth
Moore, Thomas; Wardley
Morris, Skone Rees; Haverfordwest
Morrison, George; Stenhousemuir
Nash, Frederick John; Whitchurch
Nelson, Eveline; Wolverhampton
Nicholson, George; Kirkby Stephen
O'Hara, Thomas; Nottingham
Orr, George; East Kilbride
Parker, Bernard Latham; Glossop
Pearn, Archibald; Plymouth
Pearson, John Wade; Littleborough
Perry, Sydney Beecher; St. Austell
Phillips, William; Escombe
Portlock Harry; Sydenham
Preston, John Hushand; Croydon
Proctor, Ernest Jones; Alderley Edge
Proctor, Samuel Hugh; Halifax
Rayner, Archihald Walter; Lincoln
Reid, William; Leven
Rich, Edward Thomas; Llanelly
Richards, Charles; Camborne
Richardson, G.; Bishop Auckland
Richardson, John W.; Wrexham
Roberts, Samuel H.; Kidderminster
Robertson, Archibald H. McC.; Ohan
Robinson, Arthur; Baildon
Rohinson, George Keightley; Barnsley
Rohinson, William Goulder; Grimsby
Rowlatt, William; Manchester
Royston, Charles S.; Accrington
Salisbury, Frank; Garstang
Scott, Robert John; Edinburgh
Scott, Walter; Radford
Shepherd, Ernest F. G.; Lancaster
Skipsey, Alfred; East Ham
Slight, Harold; Nottingham
Sluman, William F.; Leominster
Smith, James; Gainshorough
Smyth, George H.; Birkenhead
Stables, John; Doncaster
Steedman, William; Coupar Angus
Stevenson, Leonard; Leicester
Strickland, Herbert Clifford; York
Strickland, Joseph; Northampton
Swales, John Tayler; Hull
Tait, John; Dundee
Tester, George; Liverpool
Thornewell, Albert R.; Birmingham
Treacher, Allen Samuel J.; Tonbridge
Trestrail, Herbert; Redruth
Tucker, Trevor Thomas; Tenby
Turner, Joseph Fish; Blackburn
Veitch, Andrew Y.; Castle Douglas
Walker, Alexander; Edinburgh
Walker, Astley James; Grangemouth
Ward, Bertrand; Leicester
Watson, Joseph; Edinburgh
Watson, William Reid; Shetland
Welch, James; Edinburgh
Whelahan, Patrick John; Edinburgh
Whyte, Charles Latto; Dunfermline
Wilkinson, Harry; Bradford
Williams, Owen Thomas; Penygroes
Wilmshurst, Thomas Ernest; Hove
Wilyman, William Edward; Louth
Winton, Henry Michael; Kelso
Woodhead, John Ezra; Wyke
Wright, Charles Henry; Liverpool
Yeats, John; Grangemouth
Yorke, Frederic Ernest; Tunstall

The questions set at this examination were published in the *Pharmaceutical Journal* for July 15, p. 59.

The following is a list of the centres at which the examination was held, showing the number of candidates at each centre, and the result:—

	Candidates.				Candidates.		
	Examined.	Passed.	Failed.		Examined.	Passed.	Failed.
Aberdeen	16	8	8	Kirkwall	3	2	1
Birmingham	17	12	5	Lancaster	10	5	5
Brighton	4	1	3	Leeds	28	9	19
Bristol	9	4	5	Lincoln	7	4	3
Cambridge	5	3	2	Liverpool	23	11	12
Canterbury	5	1	4	London	49	19	30
Cardiff	6	1	5	Manchester	40	21	19
Carlisle	6	4	2	Newcastle-on-Tyne	11	3	8
Carmarthen	14	8	6	Northampton	2	2	0
Carnarvon	5	2	3	Norwich	4	1	3
Cheltenham	4	2	2	Nottingham	21	7	14
Darlington	8	3	5	Oxford	5	1	4
Douglas	5	2	3	Penzance	4	4	0
Dundee	7	6	1	Peterborough	5	2	3
Edinburgh	47	31	16	Plymouth	7	4	3
Exeter	5	0	5	Sheffield	7	1	6
Glasgow	40	12	28	Shrewsbury	5	4	1
Hull	7	4	3	Southampton	7	3	4
Inverness	1	0	1	York	3	2	1
Jersey	1	0	1				

SHELLAC IN PHOTOGRAPHIC TECHNICS.

For some reason unexplained, if indeed, explainable, this substance, one of most extensive employment in the arts generally, and in photography in particular, is the subject of such misrepresentation, such erroneous description, such misleading instructions, as almost to approach the mysterious. Let us, for example, turn to that monumental example of patience, industry, and, usually, of scientific precision, Watts' *Dictionary of Chemistry*, under the heading of "lac" (incidentally we may observe that the word lac itself has a specific application to the dye-stuff, while the resin is commonly known with a qualifying addition—thus, shellac, stick lac, seed lac, button lac, white lac, the former again being described, according to its colour, as orange lac, garnet lac, etc.).

We read, referring to stick lac: "These twigs are called stick lac. The lac is removed by melting and squeezing through canvas, when the hardened drops are known as seed lac. After bleaching by chlorine or charcoal, and making into sticks, it is known as shellac or shellac." As a matter of fact, shellac means lac in the form of shells or scales, not sticks; it does not require to be bleached to earn the name; it is not bleached by charcoal; seed lac is not the melted drops of lac exuded from the canvas. This, it will be admitted, is a fair crop of errors to be found in half-a-dozen lines of scientific description; but that work is by no means the only one that sins in this connection. One of the cherished fables of photographic recipes is, that if we dissolve shellac in spirit, and shake it up with charcoal, it becomes decolorised. We can only say that

we have tried the plan with many samples of shellac, using both vegetable charcoal and freshly burned animal charcoal, and the result has been just the same as if we had read a page of Bradshaw to it. Again, we are told in many places that, if we expose it to sunlight, decolorisation takes place. We have placed narrow phials full of varnish, for six months, in a window with a south light, and we have been unable to detect the slightest alteration of colour. Possibly if we had employed a spectroscope we might have detected a change, but the colour of a varnish is not usually tested in that manner for commercial purposes.

Dealing now with the practical aspects of our subject, we meet at the outset one particular disadvantage in the manufacture of shellac varnish, the staple basis of all the best photographic varnishes; we refer to the great wastefulness that cannot be avoided when the lac is dissolved in methylated spirit. A very large volume of the liquid becomes useless, owing to the presence of a flocculent precipitate that never dissolves, and, even after months of standing, will not settle into a small bulk, and, moreover, will not satisfactorily filter out. It soon clogs a filter, and, consequently, very little of the thick part of the varnish can be saved that way. This thickened liquid may, however, be used with advantage, with a further quantity of shellac added, as a varnish for woodwork—printing frames, dishes for holding liquids, and so on. It has often been stated that the liquid can be cleared and the precipitate compacted by adding such substances as plaster of Paris, etc. We may say that our own experience has been quite unsatisfactory with all or any of these methods. We consider there is most promise in a suggestion of Mr. Watmough Webster, that the precipitate might be reduced in bulk by placing the crude lac solution in a centrifugal machine.

Ordinary white lac is especially liable to this waste; but the fresher the lac the smaller the waste. If used when too old, we have seen the solution remain without any perceptible clearing for months after the soluble portion has been taken up.

Aqueous solutions of shellac subserve a variety of uses; they are used for varnishing negatives by simple immersion while the film is still wet; when put up to dry and drain, they dry as soon as under ordinary conditions, and are then ready-varnished. Aqueous lac solution has been used for rendering paper impervious to water for the autotype process, but it has the defect of becoming discoloured by age. The modes of making aqueous solutions are many and various. The plan adopted in some trades the hatter's, for instance, of dissolving in a boiling solution of borax, is not suitable for photographic purposes. When small quantities only are needed, the best plan is to add a few drops of strong ammonia solution to, say, an ounce of varnish; the varnish so treated will mix with water in any proportion without precipitation. When required in quantity, the shellac may be soaked for some time in a solution of carbonate of soda or carbonate of ammonia; it is then soluble in boiling water. For a useful, strong, hard light-coloured varnish, a mixture of two parts of best orange shellac and one of fresh white lac makes a varnish difficult to surpass. The addition of gum sandarac or benzoin is often recommended; the addition heightens the brilliant glossiness of the surface, but renders the varnish less tough and less able to resist ordinary wear and tear.

There is still room for the publication of a really good method of making shellac varnish, or a way of treating shellac that will render it soluble, or at any rate do away with waste in its making. As an aid in experimenting, it may be useful to know the chemical composition of lac, and we will conclude our remarks by quoting from a paper by Herren Schirch and Farmer, which gives it as follows: Wax, 6; colouring matter, 6·5; purified resin, 74·5; (of which sixty-five per cent. is soluble, the remainder insoluble in ether); residue, 9; and water, etc., 3·5 per cent.—*British Journal of Photography.*

THE ASSAY OF BELLADONNA PLASTER.*

BY F. C. J. BIRD.

The determination of the alkaloidal value of samples of the belladonna plaster of the Pharmacopœia is an operation which has presented some difficulty on account of the interference of the soap, resin, and other ingredients which enter into its composition. Belladonna plaster (B.P.) should contain 0·5 per cent. of the alkaloids of belladonna root (atropine and hyoscyamine), and there are present in addition lead plaster, resin, and hard soap, together with the evaporated residue of the liquid extract, consisting of fatty and resinous bodies, colouring and extractive matters. During the process of manufacture a certain amount of evaporation takes place, so that the alkaloidal content of the plaster should really be a trifle over 0·5 per cent.

Solvents such as petroleum spirit, chloroform, etc., were at first tried, but they failed to completely dissolve the plaster, and the attempt to wash out the alkaloids merely resulted in hopeless emulsification. Finally a mixture of glacial acetic acid and chloroform was found to be the most satisfactory solvent, only a small and negligiable quantity of colouring and extractive matter remaining undissolved. On addition of dilute sulphuric acid the lead oleate, stearate and soap are decomposed, lead sulphate being precipitated, and the liberated fatty acids and resin going into solution in the chloroform. The alkaloids as sulphates are taken up by the aqueous liquid, and if the whole be thrown on a Buchner's vacuum filter the lead sulphate can be removed as a solid cake whilst the chloroform and aqueous layer pass through in a clear and easily separable condition.

The following is the process in detail:—

Belladonna plaster (B.P.)	15 Gm.
Chloroform	35 C.c.
Glacial acetic acid	5 C.c.

Warm gently to dissolve, and add

Water	40 C.c.
Dilute sulphuric acid (1 in 12)	35 C.c.

Again warm and pour on a 4-inch Buchner's filter connected with a vacuum of 8 to 10 inches of mercury. Remove the nearly dry cake of lead sulphate, break it up, and warm with

Chloroform	10 C.c.
Dilute sulphuric acid	5 C.c.
Water	10 C.c.

Again filter, and transfer the mixed filtrates to a separator. Run off the chloroform (aiding its separation, if necessary, by warming), wash twice with

Dilute sulphuric acid	1 C.c.
Hot water	4 C.c.

and return the washings to the aqueous portion.

To the mixed aqueous liquids add

Chloroform	20 C.c.
Solution of ammonia	A decided excess.

Warm gently, and agitate. Continue the process according to the directions given in the Pharmacopœia, as follows, assisting the separation of the chloroformic layer, whenever necessary, by the application of a gentle heat: "Separate the chloroformic solution, and twice repeat the agitation with 10 C.c. of chloroform and the separation. Shake the mixed chloroformic solutions with 5 C.c. of diluted sulphuric acid (1 in 12), mixed with twice its volume of warm water; separate the chloroformic liquid, and repeat the agitation with acidulated water. Wash the mixed acid liquids with 3 C.c. of chloroform; then agitate with 10 C.c. of chloroform and an excess of solution of ammonia. Separate the chloroformic solution; twice repeat the agitation with chloroform and the separation; wash the mixed chloroformic solutions with 5 C.c. of water containing one drop of solution of ammonia; draw off the chloroformic layer into a counterpoised dish, evaporate on a water-bath, dry the residue below 100° C., and weigh. Dissolve

* Read before the Society of Public Analysts, and reprinted from the *Analyst*.

the residue in 10 C.c. of a decinormal solution of hydrochloric acid, and add centinormal solution of soda, free from carbonate, until the liquid is neutral, using tincture of cochineal as indicator. Deduct the measure of the soda solution thus required from 100 C.c., and multiply the remainder by 0·00287; the product will be the weight in grammes of alkaloids present in the 15 grammes of plaster operated upon." The figures obtained by weighing and by titration should agree within about 5 milligrammes.

This method has been in use, with satisfactory results, during the past three months, and its accuracy has been verified by the analysis of samples of known composition.

SELECTED PRACTICAL FORMULÆ.

Fly Powder.

Eucalyptol, 5; talcum, 10; starch, 85. Powder the head and hands several times per diem.—*Pharm. Zeit.*, **44**, 350.

Fly Essence.

Eucalyptol, 10; oil of bergamot, 3; acetic ether, 10; eau de Cologne, 5; alcohol (90 per cent.), 100. Mix with ten times the volume of water, and spray over the rooms several times a day.—*Pharm. Zeit.*, **44**, 350.

Fly Ointment.

Hard paraffin, 50, and liquid paraffin, 45, are melted; then add eucalyptol, 4, and anise oil, 1. The exposed portions of the body are rubbed with this mixture.—*Pharm. Zeit.*, **44**, 350.

For Moths.

An experienced fur merchant says there is absolutely no preventative for moths, except constant airing and absolute cleanliness. The articles should be stored in an air-tight box, and kept in a cool and dark place. Every four to six weeks turn the furs on a dry cloudy day, and comb out the fur carefully with a metal or horn comb; exposure to sunlight is absolutely injurious to all furs.—*Pharm. Ztg.*, **44**, 350.

Remedies for Insect Bites.

(1) Moisten the affected parts with alcoholic solution of ammonia, 7; collodion, 3; salicylic acid, 0·3. (2) A preventative is said to consist of a saturated solution of napthalin in liquid paraffin applied every two or three hours to the face and hands. (3) Liquid carbolic acid, 5; spirit of soap, 100. *Insect Cream.*—Corrosive sublimate, 1 centigramme; distilled water, 0·5 Gm.; menthol, 0·3 Gm.; cold cream, 10 Gm.—*Pharm. Zeit.*, **44**, 350.

Fumigating Pastilles for Insects.

(1) Powdered charcoal, 500; potassium nitrate, 60; carbolic acid, 40; insect powder, 250, are massed with mucilage of tragacanth. (2) Powdered charcoal, 500; potassium nitrate, 50; insect powder, 150; benzoin, 100; tolu balsam, 100, are massed with mucilage of tragacanth, shaped into pastilles, and dried. (3) Insect powder, 240, are moistened with potassium nitrate, 25, dissolved in a little water and dried at a gentle heat. The dry powder is massed with tragacanth and formed into truncated cones, each weighing 2½ Gm. when dry. (4) Saltpetre, 10, are mixed with tragacanth, 10; then finely powdered insect powder, 10; fine marshmallow root powder, 1·5; fine tragacanth powder, 1·5, are mixed separately The two powders are massed with mucilage of tragacanth containing potassium nitrate, and are formed into pastilles. While fresh the pastilles are painted over with fine red or yellow bronze powder and dried at 40-50 C.—*Pharm. Zeit.*, **44**, 349.

To Keep Away Moths.

Naphthalin, 20; carbolic acid, 20; camphor, 50; are covered in a flask with oil of turpentine, 50, and alcohol (90 per cent.), 800. Dissolve the ingredients and add patchouli, 5; oil of mirbane, 5. Spray the solution in the room drawers, cupboards, etc.—*Pharm. Zeit.*, **44**, 350.

Fruit Juices for Aerated Beverages.

Strawberry Juice.—(1) Cover strawberries in a wide glass with fine sugar, draw off the fluid and strain. Then boil the juice with the addition of 1 Gm. salicylic acid dissolved in cognac for each kilo. Mix the syrup with a little rum or arrack and store in small bottles. *Natural Strawberry Essence.*—Ripe fresh berries are pulped, macerated with the equal weight of alcohol for fourteen days, pressed slightly and filtered. *Artificial Strawberry Essence.*—Natural strawberry, 2·5 kilos; amyl acetate, 500 Gm.; raspberry wine, 1 kilo; cherry laurel oil, 2 drops; rose oil, 1 drop; sugar, 40 kilos; water, 60 litres; alcohol, 25 litres; red vegetable colouring matter, q.s. *Essence of Lemon.*—(1) Macerate the fresh peel of forty lemons and thirty oranges with alcohol, 8 litres, and water, 2 litres, for 2 to 3 days, then distil off 8 litres. Dissolve in every 100 Gm. of this distillate, citric acid, 75 Gm., and add water, 200 Gm.; colour with a trace of orange and filter after shaking with talcam. Mix 100 Gm. of the filtrate with simple syrup, 2 kilos. (2) Lemon oil, 11·25, rose oil, 0·03, are dissolved in alcohol 80 per cent., 200·0, tincture of orange peel, 9 tincture of lemon, 9, prepared from fresh peel, and tincture of vanilla, 1·5, are added. Of this essence 3 parts are sufficient to flavour 1,000 of simple syrup. *Lemon Juice* is best prepared from freshly pressed and filtered juice; 10 parts are boiled in a porcelain dish with sugar, 18 parts, or citric acid, 1 to 2 parts, may be mixed in an equal volume of water mixed with simple syrup, 100 parts, and flavoured with 1 to 2 parts of a tincture prepared from fresh lemon peel and alcohol. *Artificial Lemon Juice.*—Citric acid, 4, tartaric acid, 4, are dissolved in alcohol, 12, and water, 25, lemon essence, 40, simple syrup, 1,000, are added. Lemon essence is composed of lemon oil, 7·5 Gm.; alcohol, 5 litres. *Lemon Juice for Drinks.*—Sugar, 100; distilled water, 50; citric acid, 7·5; tincture from fresh lemon peel (1-5) 5 to 8, and orange-flower water, 15 to 20. *Essence of Raspberry.*—Raspberry syrup Ph. G. may be used with the addition of citric acid dissolved in water and red colour. (2) Raspberry juice, 1,000; sacch. alb., 1,600; acid tartaric, 35 to 40; alcohol, 30; red colour, q.s. The syrup is prepared in the cold; the acid being dissolved in a little warm water.—*Pharm. Zeit.*, **44**, 348.

Cold Cream.

Skinner recommends the following formula for cold cream:—Benzoated lard, 4 oz.; white wax, ½ oz.; spermaceti, 1 drachm; borax, 30 grains; eau de Cologne, 2½ fluid ounces.—*Brit. Journ. Derm.*, **14**, 237.

Essence of Rennet.

A calf's rennet is well washed, cut up small with a scissors, then add salt, 100; distilled water, 500; alcohol, 150; black peppercorns, cloves, bayberries, of each 5. Macerate for twelve days and filter. Keep in brown glass bottles.—*Pharm. Zeit.*, **44**, 348.

Floor Waxes.

(1) Yellow wax, 1 kilo., water, 1 litre, are heated to boiling; potash, 63 Gm., are added, dissolved in a little water; the mixture is boiled for a few minutes, removed from the fire, and oil of turpentine, 50 Gm. added, boiling water, 1 litre, and annatto, 15 Gm. Stir continually until cold, and apply on a rag. (2) Yellow wax, 100, are dissolved on the water bath with oil of turpentine, 200. (3) Yellow wax, 40 parts, are boiled with water, 160 parts, and potash, 5 parts. Oil of turpentine, 4 parts, are now added, and the whole diluted to 200 parts, with continual stirring until cold. (4) Potash, 32 parts, are dissolved in water, 314 parts, and the solution brought to boiling point. Yellow wax, 32 parts, are then added, and the whole coloured with annatto, 8 parts.—*Pharm. Zeit*, **44**, 349.

THE COMPANIES ACTS AMENDMENT BILL.

In the *British Medical Journal* for July 29 appear some interesting editorial comments on the article "In What Direction is Pharmaceutical Legislation to be Attempted," which was published in the *Pharmaceutical Journal* of the previous week. That article is considered by our medical contemporary to sound "rather a despairing note upon the subject of future pharmaceutical legislation. It appears that unanimity has not yet been attained. Many chemists are very reluctant to give up the so-called Widows' Clause, which permits a business to be carried on by the executors of a deceased chemist; that is to say, by unqualified masters. The abandonment of this clause must be a necessary antecedent to the imposition of further restrictions. Opinion seems to be becoming more favourable to the Lord Chancellor's proposition, namely, that a company might conduct the business so long as it employs qualified assistants, though it may be presumed that the chemist will as strenuously as ever contest the unjust assumption of title. The article goes so far as to say that, although there is ample opportunity for seeking amended legislation, 'with many others disinclination to accept the other consequences of such an amendment has prevailed to such an extent as to prove an insuperable obstacle,' and 'the prospect of obtaining practically unanimous support from all registered persons seems to be at least as remote as that of securing the equally indispensable support from the Government.' These remarks are obviously intended to have a wider application than to the pharmacy clause of the Companies Bill. Without straining their meaning, they may be fairly read as bearing upon this, and as marking a material change of front so far as practical action is concerned. The Companies Bill has passed the stage of committee in the House of Lords without amendment, and we may confidently look forward to its being introduced into the House of Commons at an early period of the next session. If the pharmaceutical chemists will let the medical clause alone—and the opinion of the *Pharmaceutical Journal* appears to be tending in that direction—then and only then can we cordially promise them all the support we are able to offer in enabling them to get passed such a pharmacy clause as shall be found acceptable. This is the position we have taken all along, and it is gratifying to see that some who were at first inclined to deny that any difficulties existed in their case from which the proposed medical legislation was free, have now modified their views upon this question."

CHLORAL-TANNIN.

BY HAROLD WILSON.

Pharmacist to University College Hospital.

Some little time ago one of our leading physicians asked me to try and prepare for him some condensation product of tannin and chloral. This I succeeded in doing, and the preparation, which may conveniently be called chloral-tannin, is now frequently used in this hospital.

As this substance will probably be prescribed in private practice its characters and mode of preparation are here given:—Chloral hydrate and tannin are mixed in a porcelain dish and then heated on a water-bath; as the temperature rises the mass becomes fused, and between 60° and 70° C. a brown resinous-looking substance separates out; this substance can be made to aggregate by stirring, and is then easily removed from the brown liquid with which it is mixed; it is allowed to cool in a desiccator, and may be powdered for convenience in dispensing.

Chloral-tannin yields about 38 per cent. of chloroform when its solution is treated with potassium hydroxide: it is soluble in water and in alcohol.

THE STUDENTS' COLUMN.

FLORAL CALENDAR FOR AUGUST.

Araliaceæ.—*Panax quinquefolium.* B.G.

Aristolochiaceæ.—*Aristolochia sipho.* B.G.

Asclepiadaceæ.—*Asclepias incarnata.* B.G. *A. tuberosa.* B.G.

Bignoniaceæ.—*Bignonia radicans.* F.

Cactaceæ.—*Cereus grandiflorus.* B.G.

Campanulaceæ.—*Lobelia inflata.* B.G.

Caprifoliaceæ.—*Sambucus ebulus.*

Caryophyllaceæ.—*Lychnis Githago, Saponaria officinalis.* (*P.J.* [3], **9**, 161.)

Compositæ or **Asteraceæ.**—*Achillea millefolium.* (*P.J.* [3], **8**, 142.) *Anacyclus officinarum*, B.G., and *A. pyrethrum*, B.G. *Anthemis nobilis.* (*P.J.* [3], **8**, 141.) *Artemisia absinthium.* (*P.J.* [3], **8**, 141.) *Arctium majus.* (*P.J.* [3], **8**, 142.) *Calendula officinalis.* F. (*P.J.* [3], **8**, 142.) *Erigeron canadense.* B.G. (*P.J.* [3], **8**, 142.) *Tanacetum vulgare.* (*P.J.* [3], **8**, 141.)

Convolvulaceæ.—*Cuscuta europaea, Convolvulus arvensis.*

Cruciferæ or **Brassicaceæ.**—*Brassica sinapioides.*

Dipsacaceæ.—*Dipsacus sylvestris, Knautia arvensis.*

Ericaceæ.—*Calluna vulgaris, Erica tetralix*, etc. *Pyrola arenaria*, etc.

Euphorbiaceæ.—*Ricinus communis.* B.G.

Geraniaceæ.—*Impatiens balsamina.* B.G. *Tropæolum speciosum.* F.

Hypericaceæ.—*Hypericum androsaemum.* (*P.J.* [3], **8**, 142.) *H. perforatum.*

Illecebraceæ.—*Herniaria glabra.* F.

Iridaceæ.—*Iris kæmpferi.* F. *Tigridia pavonia.* F.

Labiatæ or **Lamiaceæ.**—*Ajuga chamaepitys. Collomia coccinea.* F. *Lavandula vera* (*P. J.* [3], **8**, 142). *Lycopus europæus. Mentha piperita, M. pulegium, M. viridis. Monarda didyma.* B.G. *Salvia officinalis.* F., *S. sclarea.* B.G., *S. verbenaca* (*P.J.* [3], **11**, 109). *Thymus serpyllum* (*P.J.* [3] **10**, 161).

Leguminosæ or **Fabaceæ.** — *Adenanthera pavonina.* B.G. *Cassia marilandica.* B.G. *Ornithopus perpusillus. Medicago maculata. Ulex nanus.*

Liliaceæ.—*Urginea scilla.* B.G.

Linaceæ.—*Linum catharticum.* L. *perenne. Radiola millegrana.*

Lythraceæ.—*Lythrum salicaria.*

Malvaceæ.—*Althæa rosea.* F. *Lavatera arborea. L. sylvestris.*

Nyctaginaceæ.—*Mirabilis jalapa.* F.

Oleaceæ.—*Ligustrum vulgare.*

Orchidaceæ.—*Spiranthes autumnalis* (*P.J.* [3], **9**, 242.)

Orobanchaceæ.—*Orobanche elatior, O. minor.*

Papaveraceæ.—*Glaucium luteum.*

Passifloraceæ.—*Passiflora cærulea.* F.

Phytolaccaceæ.—*Phytolacca decandra.* B.G.

Plantaginaceæ.—*Plantago ispaghula.* B.G. *P. psyllium.* B.G. *Littorella lacustris.*

Polygonaceæ.—*Rumex crispus, R. obtusifolius*, etc.

Primulaceæ.—*Centunculus minimus.*

Ranunculaceæ.—*Aconitum ferox.* B.G. *Delphinium consolida.* F. *Clematis flammula.* F. *Ranunculus repens.*

Rosaceæ.—*Agrimonia eupatoria, Alchemilla vulgaris, Potentilla tormentilla, Poterium sanguisorba, Sanguisorba officinalis, Spiræa ulmaria.*

Rutaceæ.—*Ruta graveolens.* B.G. (*P.J.* [3], **8**, 142.)

Scrophulariaceæ.—*Veronica virginica.* B.G. (*P.J.* [3], **10**, 161). *Verbascum thapsus* (*P.J.* [3], **10**, 161).

Solanaceæ.—*Hyoscyamus niger* (*P.J.* [3], **8**, 142). *Lycium barbarum.* F.

Typhaceæ.—*Typha latifolia, Sparganium ramosum.*

Umbelliferæ or Apiaceæ.—*Cicuta virosa, Œnanthe crocata, Scandix pecten-veneris.*

Urticaceæ.—*Cannabis sativa, Humulus lupulus* (*P.J.* [3], **8**, 141). *Urtica pilulifera* (*P.J.* [3], **8**, 142).

Valerianaceæ.—*Nardostachys jatamansi.* B.G. (*P.J.* [3], **10**, 161). *Valeriana officinalis* (*P.J.* [3], **11**, 109).

Verbenaceæ.—*Verbena officinalis, Aloysia citriodora.* F.

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THE COUNCIL MEETING.

At the opening of the meeting the President announced that a letter had been received from the Privy Council Office acknowledging receipt of the resolution again recommending the addition of carbolic acid to the Poison Schedule, in pursuance of the intimation recently given by the Home Secretary that the previously existing objections to scheduling carbolic acid as a poison in England having now been lessened, the Privy Council was prepared to consider the matter if called upon to do so (see *ante* p. 12*a*).

Mr. Atkins and Mr. Cross then spoke of the great satisfaction they had experienced in attending the meeting of the British Pharmaceutical Conference as delegates from the Council, both agreeing in their high appreciation of the hearty hospitality of the West Country chemists, and the excellence of the arrangements made for the entertainment of visitors. The business proceedings of the Conference were also spoken of as having been exceptionally good, though the abundance of papers necessitated curtailment of their full discussion.

The additions to the Society comprised 54 members, 7 associates, and a considerable number of restorations.

The report of the Finance Committee was adopted, on the motion of the President, without comment.

On the recommendation of the Benevolent Fund Committee two grants amounting to twenty-three pounds were ordered to be paid.

The report of the Library, etc., Committee referred to several details connected with the introduction of electric light in the lecture theatre, library, and other parts of the Society's premises, the admission of Mr. Tickle to the Research Laboratory, the appointment of Mr. T. E. Wallis as junior demonstrator in the School laboratory, and the recommendation of Mr. E. M. Chapman for the Salters Scholarship, besides mentioning the work that has been done in the Research Laboratory during the past session.

Before the motion to adopt the report was put, Mr. Glyn-Jones asked a question as to the action recently taken in approaching the County Council with regard to petroleum, and also whether printed reports of committees could not be supplied to members of the Council together with the agenda paper, so as to afford greater opportunity for considering those reports before they are read at the Council meeting.

In reply, the President said that the petroleum matter had been carried out so as to meet the wishes of retail chemists through the aid of Mr. Robinson. The question of printing reports of committees should, he thought, be considered by the House Committee, and Mr. Carteighe added that the spirit of Mr. Glyn-Jones' suggestion had been acted upon for many years, partly by printing in the Journal the details of reports and also by sending printed copies of any reports that were of an unusual nature.

On the recommendation of the House Committee and of the examiners appointed to award the Jacob Bell and Manchester Scholarships, Mr. Harold Deane, of Clapham, and Mr. C. W. B. Heslop, of Newcastle-on-Tyne, were respectively appointed Bell scholars. The candidates for the Manchester Scholarships did not obtain sufficient marks for an award. Professor Green's report, awarding the Herbarium prize to Mr. R. R. Bennett, was adopted, and resolutions were passed expressing the thanks of the Council to Messrs. Pinches and Lucas, and to Professor Green for conducting the examinations.

The President announced that the Hanbury Medal has been awarded to Professor Ladenburg, of Breslau, and a hope was expressed that he might be able to receive the medal personally on the occasion of the opening of the School session in October next.

Mention was made of the receipt of a memorial from Preston chemists, expressing approval of the course taken by the Council in reference to the Lord Chancellor's Bills now before the House of Lords, and on the motion of Mr. Harrison, it was referred to the Law and Parliamentary Committee.

Speaking of the present position of these Bills in Parliament, the President referred to the probability of the Companies Bill being brought forward in the House of Commons next Session, and the necessity of watching its progress carefully.

Mr. Glyn-Jones spoke of the idea that companies would be prevented from carrying on business as chemists if Clause 2 could be opposed and chemists included in Clause 3, as having given rise to differences of opinion concerning the chance of that being accomplished, and he thought the more satisfactory course would be for the President to assure members of the Society and the trade generally, that the Law and Parliamentary Committee would take the whole subject into consideration before October, and be prepared with a definite policy, which at present seemed to be wanting.

Mr. Carteighe protested against Mr. Glyn-Jones' assumption that the Council has no policy, pointing out that the Lord Chancellor's Bill was not dead, and that the policy of the Council was to amend that Bill in a definite direction if it reached the House of Commons. If the Bill were introduced again next Session, the same policy might or might not be expedient, and that position would have to be maintained until the Lord Chancellor's Bill was dead. What might follow after that event would have to be considered in due course.

The President expressed perfect concurrence with Mr. Carteighe's remarks, and saw no reason for deviating from the consistent policy on which the Council had acted throughout.

After consideration of the legal part of the report of the General Purposes Committee, a special resolution was passed authorising the registrar to take proceedings in various cases of infringement of the Pharmacy Act.

ANNOTATIONS.

The CONFERENCE PAPERS communicated at last week's meeting of the British Pharmaceutical Conference proved, as usual, to be much too numerous. There were thirty altogether, and the whole time available for the business meetings was only ten hours. Deducting only two and a half hours for the introductory and concluding business, the time left allows no more than fifteen minutes for the reading and discussion of each paper. The obvious remedy is to take another day for business purposes, but there are serious difficulties in the way of adopting that plan, and something less drastic must therefore be considered. It is a question worth consideration whether authors should ever read more than abstracts of their papers. If thought desirable, advance proofs of all papers might be in the hands of members of the Conference for reference, and, if that were done, the reading of abstracts would serve every purpose. Another point has more especial regard to the order in which the papers were read. It seems distinctly unfair that authors who are present at the meeting should have their communications crowded into the last few minutes, and taken as read or not discussed, whilst papers by absent authors are read and discussed at length at an earlier period. The relative importance of papers must, of course, be considered to some extent, and papers on similar topics should, as far as possible, be considered together. But apart from those considerations, there should be a definite rule that papers by authors who attend in person should take priority over the rest. If then any general slaughter of unread papers became inevitable the chief and probably the only sufferers would be the absent authors.

THE STANDARDS OF PURITY FOR FOODS AND DRUGS suggested by Messrs. Moor and Cribb in the paper communicated by them to the Conference at Plymouth were not discussed at the meeting, but it is hoped that the matter may be freely debated in our correspondence columns. At all events, space will be available for that purpose, and, on the whole, it seems desirable to face the difficulty—caused by the lack of statutory standards—boldly rather than to shirk it because of the assumed danger of compelling chemists and druggists to supply drugs, etc., of definite strength and quality. If the retailer is to give a personal guarantee with regard to such points, it is better to have a reasonable than an unreasonable standard. And as strong attempts are being made to secure the recognition of the British Pharmacopœia as a statutory standard generally, though that would be distinctly unreasonable in some instances, registered chemists should seriously consider the suggestion that they and other parties interested should endeavour to agree upon factors which may result in the adoption of a provisional standard for certain substances. As was announced last week, a paper on the subject is to he communicated to the Society of Public Analysts in October next, and any figures which our readers can furnish on the subject should be sent to Mr. C. G. Moor, M.A., 4, Dane's Inn, Strand, London. W.C.

SHERIFF MAIR OF AIRDRIE has been amusing himself again by venting his spleen upon the Pharmacy Act of 1868. Some time ago a woman died from the effects of laudanum which had been sold to a child without any inquiry being made by an unqualified person employed by a medical man at Airdrie. The seller was proceeded against for breach of the Pharmacy Act, and the case came before Sheriff Mair. That sapient individual, however, thought the offence was a purely technical one and imposed a fine of half-a-crown only. The reason he gave for this display of leniency was that it is quite impossible always to have such sales made by qualified persons. Apparently, the safety of the public does not count for much in Airdrie, and the fact that a woman has lost her life owing to an unqualified person assuming a duty for which he was not fitted is of no weight with Sheriff Mair. Costs were refused in the case because the Sheriff does "not approve of the Pharmacy Act," and a suggestion by the Pharmaceutical Society's solicitor that such disapproval does not constitute a proper reason for refusing to carry out the provisions of the Statute met with no other response than that the Sheriff had no sympathy with the Pharmacy Act. Under the circumstances, it would not be unseemly if some Scottish member of Parliament were instigated by his pharmaceutical constituents to ask a question in the House on the subject of Sheriff Mair's dispensation of justice (?).

EVERY MERE LAYMAN can see the utter absurdity of the position taken up by Sheriff Mair, for the editor of the *Dundee Evening Telegraph*, commenting on the matter, remarks that the Sheriff may have been very well satisfied that a non-qualified assistant employed by a qualified person, who sells a fatal dose of laudanum to a young girl, commits only a technical offence, and should only suffer a nominal penalty, but he hardly thinks he took sufficient cognisance of the public interest, and he surely overlooked the plain purpose of the Pharmacy Act, under which the prosecution was instituted. Children, it is stated, should not be served with poisons at all, and no unqualified assistant should be permitted to sell them under any circumstances. "So much is required for public safety, and so much was supposed to be safeguarded by the Act. But f half-crown penalties are to be the punishment—unless something serious happens—then it might as well be a dead letter. It should be noted that the prosecution was brought by the Pharmaceutical Society, who were allowed no expenses for their trouble. To put it mildly, Sheriff Mair's decision is not an encouragement to do right."

MR. G. C. DRUCE, OF OXFORD, had prepared for inclusion in his paper on the salient features of the Flora of Devonshire (see *ante*, p. 98) a tabular statement showing the distribution of certain types, but, unfortunately, it was received too late for publication last week. Since, however, it possesses considerable interest, it is given below:—

Types.	British Species.	Irish Species.	Oxfordshire Species.	Devonshire Species.
English.....	961	785	737	761
Germanic.....	127	18	39	29
Atlantic	70	41	3	58
Scottish	117	66	3	14
Highland	120	40	—	1
Total	1,395	950	782	863

THE OCTOBER MINOR AND MAJOR EXAMINATIONS, which, it will be remembered, will be conducted under the new Schedule, will commence about September 22. The Major written work—in botany, materia medica, chemistry, and physics—will be taken on Tuesday and Wednesday, October 3 and 4, in London and in Edinburgh.

INSTRUCTION IN PHARMACY must be received by candidates for medical qualification at the Royal University of Ireland, and it has been customary for the University authorities to accept certificates of having compounded medicines under the supervision of a pharmaceutical chemist; but at last month's meeting of the Council of the Pharmaceutical Society of Ireland, a letter was read in which the secretaries of the University stated that such certificates would no longer be accepted. The future requirements were specified as including, in practical pharmacy, attendance during a three months,

course, with lectures on at least two days a week, given in a recognised school in a properly equipped laboratory, by a duly appointed lecturer in pharmacy. Naturally, the Council of the Irish Society strongly disapproved of the change thus intimated, and it was decided that the President should write to the Senate of the University on the subject. Commenting on the decision not to recognise instruction in pharmaceutical establishments in future, the *Medical Press* remarks that it has no confidence whatever in courses of instruction in pharmacy conducted at the colleges as proof of pharmaceutical education. It does not believe in the possibility of communicating a sufficiency of the required knowledge in a few prelections in a lecture theatre, and the suggestion is offered that the medical licensing bodies should surmount the difficulty "by abolishing the pharmacy certificate altogether and leaving the candidate to 'get up' the subject for examination any way he can."

Education for its Own Sake is a beautiful theory, but experience shows that an occasional stimulus in the shape of concrete encouragement counts for a good deal in educational as in other matters. The Edinburgh Chemists', Assistants', and Apprentices' Association appears to have wisely realised this fact, and has determined that the acquisition of useful knowledge in pharmaceutical subjects by the youth of Edinburgh and district shall not languish for want of prize competitions. In the syllabus forwarded by the secretary, Mr. James Lennox, of 139, Princes Street, particulars are given of five competitions, namely, The McLaren Prize of two guineas (which is to be expended in the payment of school fees); The Ewing Pharmacy Prize of one guinea (in books); The Pottage Herbarium Prize, value two guineas; The Bowman Botanical Prize, value one guinea, and the Dott Physics Prize, value one guinea—a very respectable list for a small association, the objects of which are not primarily educational, but rather of the social order. Lest it might be imagined that the foregoing prizes are given whether they are earned or not, it should be mentioned that the conditions governing all the awards insist upon a certain standard of excellence being attained by successful competitors. Local associations desirous of inaugurating a similar system of practical promotion of pharmaceutical education would do well to write to Mr. J. Lennox for a copy of the Edinburgh Prize Scheme for 1899-1900.

The University of London is henceforth to be housed in the Imperial Institute buildings, a Treasury Minute dealing with the necessary arrangements being described by *Truth* as a sort of official announcement of "the death and burial of the ill-starred Imperial monument of the Queen's first Jubilee." The ground lease of the whole premises is to be transferred to the Commissioner of Works, as representing the Crown. The main portion of the building will be handed over to the University, and the rest is to be assigned for the use of the Institute, assuming as *Truth* suggests that the Institute has any use for it. The problem in connection with the affair which worries our contemporary is why the University need be ejected from Burlington House, which does not appear to be required for any other purpose, and set down at South Kensington on an undesirable site. The Institute buildings are also alleged to be utterly unsuited for the purpose to which they are now assigned, and it is asserted that considerable sums will have to be spent before the business of the University can possibly be carried on in them.

Schemes for Hastening the Millennium are produced with pleasing frequency in these advanced days, and it is astounding what a number of highly moral measures are born and die in the course of a single Parliamentary Session. This year the private members have been particularly prolific in suggestions for the purification of public manners, and the removal of that small residuum of the "Old Adam" which is still to be found in nineteenth-century human nature. One is led to these observations by the introduction on Tuesday of a Bill to amend the Indecent Advertisements Act of ten years ago. The promoters of the Bill are Mr. Channing, Sir J. Kennaway, and Mr. Samuel Smith—gentlemen who are well known in connection with various reform movements usually promoted by societies which prefix "anti" to their titles. Perhaps they are unduly sensitive, but, at any rate, these gentlemen deserve praise for having the courage to deal with what they deem to be a public scandal. The proposal in effect is to extend the Statute of 1889 to all printed or written matter offering to provide drugs, instruments or surgical or other means for the purpose of procuring, or of enabling others to procure, the miscarriage of any woman *whether she be with child or not*. The concluding words are so rich as to be well worthy of italics. The penalty for the insertion of such a notice in a newspaper is to involve the person inserting it in liability to a fine of ten pounds or three months' imprisonment, and the same punishment awaits the sender of indecent printed matter through the post. The Courts will have to define what is or is not a print of an indecent nature.

The Classification of Weighing Instruments was instructively dealt with by Mr. Allan Granger, hon. secretary of the Incorporated Society of Weights and Measures Inspectors, at the recent Congress of the Federation of Grocers' Association. He explained that there are three classes of weighing instruments, and the inspector's test for sensitiveness varies according to the class which is marked upon the instrument. For compound lever machines, which comprise platform machines and weighbridges, there is a special table of allowances, and they do not fall within the classification mentioned. A scale marked "Class I." is put to a more severe test than a "Class II." scale, which in its turn is tested more severely than a scale marked "Class III." For instance, a beam-scale of 56 lbs. capacity "Class I." when presented for verification would not be passed by an inspector unless it turned with one drachm when loaded up to its full capacity. A similar instrument, but marked "Class II.," would be passed if it turned with four drachms; and six drachms would be allowed if it were marked "Class III." It will thus be seen that the degree of sensitiveness required of "Class II." scales is one-fourth, and of "Class III." scales one-sixth of that of "Class I." scales. The model regulations issued by the Board of Trade for the guidance of inspectors in the discharge of their duties state that weighing instruments such as those used for bread and meat should be marked "Class II." when submitted for verification, and those which are used by itinerant vendors or for weighing coals, vegetables, wood, and metal should be marked "Class III."

The Arrangement Described is considered by Mr. Granger to be hardly satisfactory. A manufacturer classifies the scales he makes as he thinks fit, and if they are submitted by him for verification, as is often the case, the inspector is not in a position to know to what purpose they are likely to be put. As soon as the official stamp is affixed to a scale it becomes a legal instrument, and may certainly be applied to what use the owner thinks fit. But here the user and the inspector sometimes clash. The latter finding, say, a "Class III." scale used for what is considered a "Class II." purpose, takes objection to it, and perhaps he defaces the stamp. It is thought that this cause of trouble might be avoided by classifying scales according to their construction, and not according to the purpose for which they are to be used. Particular tests should be laid down for beam-scales, counter machines, compound lever machines, steelyards, and spring balances, and such a classification would, it is thought, be more satisfactory and more logical than the existing one. At the

present time the beam-scale is practically the only one which meet the requirements of "Class I.," and the largest possible use of that scale was strongly urged. "The beam-scale, whilst it is the most ancient, is the simplest and most sensitive form of weighing instrument. It should be employed to the fullest extent in trade, as it undoubtedly gives the best results. The shopkeeper buys wholesale and sells retail. The loss occasioned by a sluggish scale will sometimes make all the difference between a profit and a loss."

AT THE PASTEUR INSTITUTE during the year 1898, 1,465 persons underwent treatment, of whom four only died, and one of those succumbed ten days after the treatment ceased, experiments made on dogs indicating that when death occurs within a fortnight the poison has got into the blood before the cure can take effect. That leaves only three deaths out of 1,465 cases. The table quoted below from the *Annales de l'Institut Pasteur* shows the result as compared with previous years since the treatment was commenced:—

Year.	Number of patients.	Number of deaths.	Rate of Mortality.
1886	2,671	25	0·94
1887	1,770	14	0·79
1888	1,622	9	0·55
1889	1,830	7	0·38
1890	1,540	5	0·32
1891	1,559	4	0·25
1892	1,790	4	0·22
1893	1,648	6	0·36
1894	1,387	7	0·50
1895	1,520	5	0·33
1896	1,308	4	0·30
1897	1,521	6	0·39
1898	1,465	3	0·20

Of the 1,465 persons inoculated 141 had been bitten by persons experimentally proved to be mad, 855 by animals declared to be mad, and 469 by animals suspected of being so; while 132 had been bitten on the head, 914 on the hands, and 419 on other parts of the body.

THE DUTIES OF PROVINCIAL PROFESSORS constitute the subject of an article in *Nature*, which may be commended to all who are interested in the improvement of university education. During the past twenty years, it is pointed out, numerous centres of university education have grown up all over the country, and much public money has been spent in their endowment, Some of these colleges have already risen to the rank of universities with the power of conferring degrees; others are eagerly pressing forward in the same direction in the hope of competing with their more fortunate rivals. It is urged that if this multiplication of universities is not to result in lowering the prestige of British university degrees, but to enable us to compete in the matter of scientfic education with foreign countries, it is of the utmost importance that the professorial staffs of our younger colleges should be placed under the most favourable positions for establishing the reputations of both themselves and of their colleges in the matter of higher study and research. "The time appears to have come when we must face much more boldly than hitherto the question whether the conditions attaching to provincial professorships and lectureships, even in some of our most successful university colleges, are conducive or inimical to progress in such respects." The manner of improvement which is favoured by the writer of the article is the shortening of the hours during which professors may lecture, and the devotion of the rest of their time to research, on the lines of what is done in Germany and America. Our modern centres of university education are said to be largely bound down to the policy of attracting the greatest number of students, not by the reputations of their professors, but by the attractions they offer in small bursaries and in facilities for cheaply acquiring pass degrees. Under this system a professor may give fifteen lectures a week or more, and spend most of the rest of the day in the laboratory; but there is no limit to the extraneous work required of him by his Council or Governing Board, beyond that research work forms no part whatever of his obligations.

THE ALLEGED PRACTICAL RESULT of the system described above is that our modern university centres, whether chartered or not, are devoting their endowments to competing for cheap pass degrees with one another, and with private institutions and tutors who prepare for London University and similar examinations. The students spend the whole day in class-rooms and in laboratories, and when they have done the exercise work required by their teachers the day is gone, and they are too tired to think over what they have learnt. Their professors are thus required to do the thinking for them. In conclusion, the following are suggested as directions where reform is most needed:—(1) Discontinuance of matriculation preparation—work which naturally belongs to the province of schools and crammers; (2) recognition of research work rather than tutorial instruction of pass candidates as the main duty of a professor outside his class-room; (3) reduction of the hours of class work, both of teachers and students; (4) revision of the now precarious conditions under which provincial appointments are tenable; (5) attraction of public attention to the importance of providing facilities for professorial research; (6) the appointment of more and better paid assistant-lecturers and demonstrators; (7) a more judicious expenditure of scholarship money, which should be restricted to honours students.

A CURIOUS ARCHÆOLOGICAL DISCOVERY is reported from Paris, where the excavations in progress in connection with the widening of the Rue du Plâtre have resulted in bringing to light an apothecary's laboratory dating from the seventeenth century. The objects discovered include apparatus employed by the chemists of the period in the manufacture of drugs. Information as to the nature of these drugs has also been found in the laboratory, as the jars and other recipients in which they were kept have been unearthed with their inscriptions intact. Among the substances sold to confiding patients by this bygone chemist were tincture of pebbles, oil of bricks, viper's oil, and toad salt.

BEECH TREES INJURED BY LIGHTNING AND FUNGI at Belvoir Castle and Harlaxton Manor form the subject of an instructive report by the consulting botanist to the Royal Agricultural Society, a summary of which appears in the *Times*. The greater number of the injured trees presented the appearance of dead tracts of bark and wood from eight to twelve inches wide, running for a long way down the stem of the tree. The bark had begun to crack and fall off. The wood exposed below was hard and dead, and cracked with numerous shallow fissures. It was not injured by fungi. Along the edges of the injured tract the uninjured bark and stem were developing a healthy and vigorous callus, which was gradually covering the dead wood, and repairing the injury. This thickening callus assisted in pushing off the dead bark. In the early stages of the injury water obtained access to the space between the dead bark and the wood. The water gradually found its way through cracks and small openings in the bark lower down the stem. In oozing slowly out, the water supplied food for the growth of *Nostoc* and other more minute Algæ, which formed dark patches on the bark. The injury to these trees seems to have been caused by lightning, the active tissues between the bark and the wood having been killed. A smaller number of trees were being destroyed by a parasitic fungus. The mycelium of the fungus was penetrating the wood in every direction, and two or three specimens of the fungus were observed, which exhibited the beginnings of fructification. The fungus was a *Polyporus*, most probably *P. fomentarius*, but the specimens were too young to permit the species being determined with certainty.

NOTES ON THE PLYMOUTH CONFERENCE.

The Plymouth Meeting of the B.P.C. is now an event of the past, but pleasant recollections of it are likely to be ever-present with a large number of British pharmacists and their friends. Specially favoured in every possible way—with superb weather, boundless hospitality, and well thought-out arrangements that worked without the least hitch—the visitors to the West Country during the past week have spent a most enjoyable holiday and combined an unusual amount of business with much unalloyed pleasure. The only drawback was the fact that each day contained only twenty-four hours, whereas the most tempting opportunities were afforded for occupying a much longer time during each revolution of the earth upon its axis. Everything, in fact, conspired to tempt the visitors to expend more energy than they could well spare during the time available, and it speaks well for the skill with which the exceptionally heavy programme was devised and carried out that so many persons should have been induced to miss nothing and to persevere to the very end of the week's alternation of work and play. The Sessions of Conference were probably never better attended during recent years, and the various social gatherings were all extremely well supported, so that interest appears to have been equally well sustained all round.

The Reception at the Assembly Rooms on Monday evening was an exceptionally brilliant affair. The President and Mrs. Payne, assisted by Miss Turney, welcomed some three hundred persons who were, for the time being, solely on pleasure bent, Mrs. Payne holding a magnificent bouquet presented to her by the chairman of the Local Committee. The elaborate programme of music prepared for the occasion was thoroughly appreciated. Major Rendle, V.D., an old friend of the pharmacists in Plymouth, had charge of the musical arrangements, and, thanks to his great experience in matters of this kind, they worked like a charm, the numerous items being most expeditiously got through, without too great a tax on the patience of those who wished to converse with their many friends. Everything was good, the overture and selections by the members of the band of the Royal Marines, the recitation by Mr. J. Kinton Bond, the violin solos by Miss Lily Dyke, the cornet solo by Sergeant Ough, the 'cello solo by Mr. Pike, and the songs by Miss Maud Stephens, Mr. J. Skelton, Mr. T. W. Balhatchet, and Major Rendle. The reception and concert were held in a convenient and artistically-decorated room, refreshments were served in another capacious apartment, and in a side room were the scientific exhibits. Mr. R. Hansford Worth had a fine show of local Foraminifera, together with a calculating machine; Mr. T. V. Hodgson exhibited some interesting marine biological specimens, and Mr. J. D. Turney had on view the lantern slides which he had prepared to illustrate his recent lecture on the life history of *Ranunculus acris*. Regarded as a whole, no reception of late years has approached the Plymouth one in point of interest, and its success gave the note to all the subsequent proceedings.

The Opening of the Sessions of Conference on Tuesday morning was remarkable for the crowded audience, for the number of ladies seated on the official bench, and, above all, for the interest taken in the meeting by the local authorities, as evidenced by the attendance of the Mayors of Plymouth and Devonport, and the Chairman of the Stonehouse District Council, all these being resplendent in their chains of office. Each one seemed to feel it incumbent upon him to attempt to outvie the others by the heartiness of his greeting, and Dr. May, the Vice-President of the Plymouth Medical Society, gave the finishing touch in that respect, whilst also gratifying his audience by the expression of opinion that all drugs and medicines should be dispensed by scientifically educated and duly qualified persons. The start being thus happily given, the President found the audience in a fitting condition of receptivity when he rose to deliver his address, and, owing to the commendable brevity of his remarks on the history of pharmacy in Ireland, those who left the Law Courts before the reading of papers was proceeded with were not too exhausted to take a short stroll around the town before lunch. Some paid a visit of inspection to the fine exhibition of oil paintings and water-colour drawings, thrown open freely to the members of the Conference at Messrs. Harris and Sons' galleries, and others spent the interval in securing formal election, as honorary members, of the local Conservative and Liberal Clubs, both of which institutions kindly and freely admitted the members of the Conference to all the advantages at their command.

The Luncheons on Tuesday and Wednesday were better served than any others within the memory of persons who regularly attend the annual meetings. Possibly this was in great measure due to the fact that no tickets were supplied after Monday, July 17, the date fixed by the local committee as the latest for receiving applications. So widely and clearly had it been made known that this restriction would be rigidly enforced, that no applications were received after the appointed day, but the Hon. Local Secretary was almost overwhelmed by the crowd of telegrams which reached him on July 17. As a result of this early closing of the lists, a clear week was left to conclude all the arrangements and, as the event proved, nothing was left incomplete. More than two hundred sets of tickets were disposed of, and yet every individual who sat down to luncheon on any of the three days found ample accommodation, was promptly served, and went away without any sense of grievance. So much for perfect organisation and the maintenance of rules. But praise must also be accorded to the caterers who performed their duties so well, whilst the comfort of the party was materially conduced to by the excellent ventilation of the Corn Exchange, where the luncheons were served. After luncheon on Tuesday came more business for some, and more pleasure for most, personally conducted parties visiting various places of interest, and so occupying the interval until 4.30 p.m.

The Excursion to Looe on one of the Great Western Railway Company's tenders then attracted all but a few faint-hearted ones. Starting from the Millbay Docks, the s.s. "Sir Richard Grenville" passed Drake's Island and Mount Edgcumbe and so proceeded out of Plymouth Sound on its westward path, close in by the wonderful Cornish coast, and passing various points of interest *en route*. Tea and other refreshments were served on board to such as were not disinclined to take the risk of feeding the fishes, and when Looe had been reached without any casualty, boats were found to be in waiting to convey the visitors ashore or up the beautiful rivers from which the picturesque village takes its name. The time thus spent were well repaid, and regrets were freely expressed when the signal was given for return. The voyage to Plymouth was as unclouded by disaster as the outward trip, except that one or two individuals were overcome by the terrors of the deep and gave freely of that which they had, without thought of return, though not without qualms. Landing at 9 p.m. the party broke up to spend the evening in such ways as seemed best to its individual components, and from private information to hand those ways were in many instances merry ones.

The Concerts and Dancing on Wednesday, filled the day's cup to the brim. Those who attended the Sessions of Conference—perspiring freely and hoping for the end—met their cooler pleasure-seeking companions at luncheon and again during the last hour of the serious business of the meeting, when the selection of London as the place of meeting for 1900 was vigorously applauded, and the

election of Mr. E. M. Holmes as President for the year 1899-1900 no less appreciated. An excursion to the Barbican and up the river Plym had occupied the ladies during the morning, and the ramparts of the Citadel were visited during the early afternoon. At the close of the final business meeting, tea was served in the Assembly Rooms, and there was then an adjournment until 8 p.m., the time at which the concerts were announced to begin. A quite unusual feature of the concerts was the large number of men who had summoned up energy to don evening dress, and so were in fit condition to attend the ladies' drawing-room concert and to take part in the dances which followed. Mr. C. J. Park, the popular president of the local association, was the chairman of the smoking concert, and Major Rendle again distinguished himself by the extremely capable manner in which he conducted the musical part of the programme. Mrs. Theodore Wright, with her marvellous recitations, was undoubtedly the great attraction of the evening, but special reference must also be made to Mr. J. Pardew's perfect accompaniments, to the special glees by the St. Andrew's Quartette, and to Mr. Richards' rendering of the "Death of Nelson," and "The Queen of the Air." Mrs. J. F. Harrington, of London, was in excellent voice, Miss Elsie Harrington's violin solo gave great pleasure, Mr. Glyn-Jones sang a hunting song, Mr. J. D. Turney gave a recitation—"The Revenge," and the solos by Mr. Pike on the 'cello and Sergeant Ough on the cornet were also amongst the performances to be recalled with a sense of satisfaction. Brock's band discoursed exquisite music for the benefit of the dancers and, despite the high temperature indicated by the thermometer, dancing was kept up till after midnight. Rumour has it, by the way, that long after "God Save the Queen" had been played, sleepers in neighbouring hotels were awakened by an extremely hearty rendering of "Auld Lang Syne," but that performance no more constituted part of the official programme than did the nightly engine whistling competition near Farley's Hotel, a treat specially reserved for those who stayed at that establishment.

The Excursion on Thursday started in glorious weather, and it was not long before all the visitors were disporting themselves in Mount Edgcumbe Park and Gardens, which were thrown open for the day by kind permission of the Earl of Mount Edgcumbe. From the beautifully wooded heights magnificent views were obtained of the Three Towns, the Sound, and the open sea, and subsequently a merry company assembled on Cremyll Beach to await the return of the steamer to Plymouth and imbibe modest liquid refreshment at the neighbouring inn meanwhile. Returning to the Promenade Pier, luncheon was found waiting in the Pavilion, and at the conclusion of that repast there was the usual round of toasts and responses. The retiring president, the local committee, the Earl of Mount Edgcumbe, and the ladies were the subjects of the toasts, all of which were happily responded to. But in no case was the applause heartier than when a lovely bouquet of flowers was presented to Mrs. Theodore Wright by Mr. Park, acting on behalf of the local committee, as a slight acknowledgment of the assistance given by her at the concerts on the previous evening. After a brief interval, the steamer was boarded once more, and the party was away for a cruise round the Sound and up the beautiful river Tamar. Tea was served on board by the willing hands of the members of the local committee, and everyone was satisfied on deck without any confusion. To quote the effusion of a local scribe, it was afternoon tea of the kind ladies love to dawdle over, "especially when, as in this case, they were waited on like princesses, and the mere men were useful for once in a while." Subsequently the boat stopped at Pentillie, permission having been secured to visit the beautiful grounds, and afterwards the party proceeded to Calstock, where the natives did a brisk trade in baskets of fresh fruit. The boat was then turned for home again, and during the return trip a portion of the Royal Marine Band made the proceedings cheery, a vocal concert being also started and kept up with much spirit. The performers were Mr. J. Richards, Mr. Balhatchet, Mr. Glyn-Jones, Mr. Silson, and others, the choruses being such that all could assist. Mr. J. Kinton Bond added a disquisition on "physic," which was highly diverting, and "as the shadows of the evening crept o'er the sky" further refreshments were supplied in abundance. Altogether a most enjoyable day was spent, everyone having a most delightful time. Arrived at Plymouth once more, hearty cheers were given for the local committee and others who had been instrumental in providing entertainment for the visitors, after which a general dispersal took place, and the official programme of proceedings was at an end.

The Mayor's Garden Party on Friday, however, had proved to be a sufficient inducement for a large number of members and friends to spend another day in the West Country. The morning was spent in visiting the dockyards at Devonport and the Marine Biological Laboratory, or in sailing around the Sound, and after an early lunch the visitors hastened by train or coach to Yelverton. A large party took part in the coaching excursion organised by Mr. Park, leaving the Guildhall Square shortly after 1 p.m., and proceeding direct to Yelverton by way of Roborough Down. Alighting near Roborough Rock, the visitors wended their way on foot across the moor for the remaining distance, a few leading lights of pharmacy narrowly escaping being run over by the reckless driver of a conveyance. Mr. George Breeze, Secretary of the Plymouth Association, was actually knocked down and run over, but, although badly shaken and obliged to return home at once, he was, fortunately, not seriously injured. The garden party was a dream of loveliness. Some eight hundred guests attended during the afternoon, and the surrounding moors and tors served as a fine setting to the brilliant array of picturesque finery, flashing in the bright sunshine. Surely there never was a more successful garden party. The ladies present were all dressed in their daintiest and best; the gentlemen had for once agreed to adopt a common-sense view and dress in accordance with the place and the weather. As a result, everyone was content, and Alderman Pethick must have felt well satisfied with the success of his attractive outdoor entertainment.

The Return Drive of the Coaching Party, after leaving the garden party, was by way of Burrator, Sheepstor, Cadover Bridge, and Plympton. There were some half-dozen coaches, each holding twenty-two persons, and a few smaller conveyances, the occupants of which took advantage of the arrangements which had been especially made on behalf of those who had engaged seats in the coaches. Soon after leaving Yelverton the beautiful wooded valley in which the new Burrator Reservoir is situated came in sight, and the coaches then crossed the dam, skirted Sheepstor, and proceeded by narrow and circuitous downward paths to Cadover Bridge, where tea was served to invited and non-invited alike. After rest and refreshment, the new President of the Conference ascended to the summit of a grassy slope, and there proceeded to expatiate upon the undoubted virtues of the members of the Local Committee, and particularly of the Ladies' Committee and Mrs. W. H. Woods, their Hon. Secretary. All persuasion having failed to induce Mrs. Woods to respond in person, Mr. Park took up the tale and told a wondrous story of a draft Pharmacy Acts Amendment Bill, the effect of which, if it became law, would be to render unqualified company pharmacy illegal, abolish chemists and druggists, prohibit branch shops, and limit the sale of all drugs, etc., to pharmaceutical chemists. To say that the welkin rang as the provisions of this proposed measure were gradually unfolded would be to describe the effects but mildly. Cheer after cheer startled the few living creatures within earshot of the erstwhile deserted spot, now so abruptly invaded by the representatives of British pharmacy, and the ever-popular member of Council for Plymouth and the West Country became transformed for the time being into a demi-god. But all things must end, so the

coaches were loaded up once more, and the visitors prepared to leave Dartmoor and its manifold beauties. As the evening wore on a most magnificent sunset was witnessed, then Plymouth Sound and the Eddystone Light hove in sight, and as the darkness descended the Guildhall Square was reached for the last time prior to the departure of the Conference visitors from Plymouth.

LEGAL INTELLIGENCE.

Proceedings under the Pharmacy Acts.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN *v.* THOMSON.

At Airdrie Sheriff Court, before Sheriff-Substitute Mair, on July 27, John Thomson, in the employment of Dr. J. Martin Thomson, Graham Street, Airdrie, and residing at 113, Hallcraig Street, Airdrie, was charged, at the instance of Richard Bremridge, 17, Bloomsbury Square, London, W.C., Registrar under the Pharmacy Acts, 1852 and 1868, with concurrence of the Procurator Fiscal for the Airdrie district, with an offence against the 1st and 15th sections of "The Pharmacy Act, 1868," in respect that the said John Thomson, not being a duly registered pharmaceutical chemist or a chemist and druggist within the meaning of the Pharmacy Act, 1868, sold on May 22 last within Dr. Thomson's premises, No. 141, Graham Street, Airdrie, a quantity of laudanum or tincture of opium to Maggie Waddell, residing at 70, Clerk Street, Airdrie.

Mr. Peter Morison, jun., S.S.C., of Messrs. P. Morison and Son, S.C.C., Edinburgh, the solicitors in Scotland for the Pharmaceutical Society, appeared for the prosecutor.

Mr. Morison: This is merely a pleading diet, my lord. If there is any defence, I must ask that the case be adjourned for proof.

Sheriff Mair: He is going to plead guilty.

The accused having pleaded guilty, Sheriff Mair asked him if there were any special circumstances regarding the sale about which he wished to give an explanation, The accused remarked that there were none.

Mr. Morison: On behalf of the prosecutor, I have to ask the Court in this case to impose a substantial penalty. The facts are that on the date libelled in the complaint and at an early hour in the morning the accused sold the laudanum to the child Maggie Waddell without making any inquiry whatever. The quantity sold was a lethal dose, and the child's mother died in consequence of having taken the laudanum in question.

Sheriff Mair: I think this a purely technical offence. Everyone knows that there is a properly qualified man in the premises. It is quite impossible always to have such sales made by qualified persons. If that were so there would be no end to these prosecutions. I fine accused one half-crown.

Mr. Morison: I ask your lordship to find the accused liable in costs.

Sheriff Mair: There can be no costs awarded under the Act.

Mr. Morison: That is not so. By the statutes under which the complaint is brought, it is competent for the Court to award costs against the accused up to the sum of £2.

Sheriff Mair: I refuse costs here. I do not approve of the Pharmacy Act, and I will not award expenses.

Mr. Morison: With deference, my lord, I submit that that is no proper reason for refusing to carry out the provisions of the Statute and for refusing the prosecutor costs, although I admit that the question of costs is always one within the discretion of the Court.

Sheriff Mair: I am not going to give expenses. I have no sympathy with the Pharmacy Act, and that is also the reason why I have made the penalty so small.

The Supply of Methylated Spirit to Chemists.

IMPORTANT CASE AT EXETER.

At the Exeter Police Court last week Mr. Charles Edward Rowe, of the firm of Messrs. E. James Rowe and Company, oil and colour merchants, 192, High Street, was summoned by the Excise authorities for selling between March 12 and April 26 more than one gallon of methylated spirit at a time, to wit, thirty gallons, in contravention of the Spirits Act.

Mr. G. H. Dennis, barrister, of Somerset House, prosecuted on behalf of the Excise authorities, and Mr. G. H. Harris (Messrs. Ford, Harris, and Ford, Exeter) appeared for the defence, and pleaded not guilty to the charge.

Mr. Dennis, in laying before the Bench the facts of the case, said that the Act under which these proceedings were taken stated that if more than one gallon of methylated spirit was sold by the retailer at one time, the retailer incurred a penalty of £50. The licence to sell methylated spirit as a retailer cost 10s., but a methylator's licence, which entitled one to supply the spirit, cost £10 10s. If Mr. Rowe wished to sell more than one gallon at a time, he could take out a methylator's licence. The facts in this case showed that a list sent round by this firm to its customers and the public included methylated spirit. On March 13 last Messrs. Rowe received a requisition from Mr. F. Cutmore, chemist, of St. Marychurch, Torquay, for thirty gallons of methylated spirit. He sent the usual order, signed by the supervisor of the district, which showed that he was duly licensed to receive the goods. Messrs. Rowe received this order, and they sent a communication thanking him for the same, and intimating that they had ordered it to go forward to Messrs. Preston, of Liverpool. They also asked Mr. Cutmore to alter the name of the methylator on the counterfoil of the order; they had already done so on the order itself. The goods were duly supplied by Messrs. Preston and Co., and on April 11, the defendant sent the account, amounting to £4 11s. 3d., excluding discount, to Mr. Cutmore. This showed that a contract had previously been entered into with the defendant to sell. Messrs. Preston and Co. also sent an invoice to Mr. Cutmore. He (Mr. Dennis) submitted that the defendants clearly accepted the order and entered into the contract to sell. The law was distinct on the question of supply and sale.

The Chairman (Mr. J. W. Petherick): Are the facts admitted?

Mr. Harris: With one exception and that is that the invoice referred to from Messrs. Preston and Co. was sent off at the same time as the spirit, and, of course, arrived before.

Mr. Harris, in defence, said that the sole question in the case depended mainly in what order the facts occurred. His friend argued that there was an acceptance of the order; and he would say distinctly that a careful examination of the facts showed that there was no acceptance of the order from Mr. Cutmore, but that the defendants assisted in making a contract between a third party. If they looked at the letter sent to Mr. Cutmore they would notice that he said he was "obliged for the order for the spirit, and had ordered the same to go forward at once." And then the communication went on, "Will you please alter the name of the methylator in your book to Messrs. Preston, Liverpool; we have already altered your request note." What was the intention in the alteration of the order? Why, the defendant wished to imply that he had no intention to supply the spirit. In the first place he had not got it, and in the second place he had no right to under the Act. On the receipt of the letter what did Mr. Cutmore do? He probably thought, "Oh! yes. I made a mistake, I should not have ordered from Rowe, but from Preston and Co. I'll alter it in my book." Whether Messrs. Rowe had a right to pass on Mr. Cutmore's order to Messrs. Preston and Co. had nothing to do with the Excise authorities. He would also draw the magistrates' attention to the fact that the first words on the invoice sent by Preston and Co. were "Bought of Messrs. Preston and Co." His friend had tried to convince the Bench that there was a contract before the order was sent on to Liverpool, but he (Mr. Harris), said that it was exactly the reverse. Messrs. Rowe's letter to Mr. Cutmore was to the effect: "No, we cannot execute the order, but we will send it on for you to Messrs. Preston and Co., and we will alter the order." Supposing the order was originally made out to Messrs. Preston and Co., what could the Excise authorities have done then? Surely Messrs. Rowe would not have had anything to do with it. The summons might in that case be just as well taken out against the Postmaster-General for forwarding the order. With regard to the sending of the bill to Mr. Cutmore by the defendants, he (Mr. Harris) said that had nothing whatever to do with the contract. Mr. Dennis had said that the contract had been entered into when the defendants received the order and had dealt mainly on that fact. The magistrates had simply to consider the case as set before them by the prosecution, and if the contract was entered into as Mr. Dennis had alleged, then what came afterwards did not bear upon it.

Mr. Dennis submitted that the alteration in the permit was made in order that no inquiry should be made by the Inspector, who, if the permit did not correspond with its counterfoil, would naturally investigate.

Mr. Harris said that Mr. Dennis had no right to make such remarks unless he could prove them.

The Bench were of opinion that there had been a sale of spirit, and inflicted a fine of £5 inclusive.

FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

A meeting of delegates of various local associations was held at the Royal Hotel, Plymouth, on Tuesday evening, July 25, 1899, and by adjournment at the same place on the afternoon of Wednesday, July 26, Mr. J. Rutherford Hill, Edinburgh, in the chair. The following gentlemen were present:—

Mr. J. Rutherford Hill, Edinburgh District Chemists' Association.
Mr. Geo. Foggan, Newcastle Chemists' Association.
Mr. H. L. Everson.
Mr. Jas. Cocks, Plymouth, Devonport, Stonehouse and District Association.
Mr. J. M Heaton, Burnley and DistrictChemists' Association.
Mr. R. L. Gifford, North-east LancashireChemists'Association, Blackburn.
Mr. George Breeze, Plymouth.
Mr. R. Shorrocks, Darwen.
Mr. F. H. Ferrier, Forfarshire Chemists' Association.
Mr. P. F. Rowsell, President Exeter Association of Chemists and Druggists.
Mr. A. E. Hobbs, Tunbridge Wells and District Chemists' Association.
Mr. J. Hinton Lake, Exeter Association of Chemists and Druggists.
Mr. R. W. Silson, Bradford and District Chemists' Association.
Mr. R. Brodie, Glasgow and West of Scotland Pharmaceutical Association.
Mr. N. V. Pidd, Manchester Association.
Mr. Chas. G. Gates, Brighton Association of Pharmacy.
Mr. T. H. Wardleworth, Liverpool Chemists' Association.
Mr. E. Saville Peck, Cambridge Pharmaceutical Association.
Mr. John Smith, Liverpool Chemists' Association.
Mr. G. H. Brunt, Midland Chemists' Assistants' Association.
Mr. J. Poole, Midland Chemists' Association.
Mr. J. Park, Plymouth, Devonport, and Stonehouse District Association.

The minutes of the last meeting held in Belfast were read and confirmed.

The Hon. Secretary's report for the session just closed was read by Mr. T. H. Wardleworth, in the unavoidable absence of the Hon. Secretary.

The Hon. Secretary's report showed that during the past year seven communications were addressed to the secretaries of local associations, and same received varying amounts of attention from the associations interested, the details of which have been fully reported in the trade papers from time to time. Some of the questions brought before the trade were very highly approved in some instances, and almost every local association of importance, whether affiliated with the Federation or not, had discussed the programme fully.

The company question naturally occupied a great deal of attention during the year, and in response to the point raised by the Federation the individual opinion expressed by many of those connected with historic firms is that they are quite prepared to modify the title of their businesses, provided the majority of chemists consider it to the advantage of the calling generally.

The additions to the Federation during the year have been very gratifying, and many associations are still coming in.

Considerable satisfaction was expressed with the action of the Pharmaceutical Society in reference to the regulations regarding the storage of poisons.

The Secretary attributes the increased support to the excellent programme laid out by the Federation in Belfast.

In conclusion, the report pointed out that the general weakness of the Federation was the want of official recognition; the want of a permanent executive, as the Chairman and Secretary cannot always represent the voices of the various local bodies, and the necessity for arrangements being made for more frequent meetings.

It was resolved that the gratifying and excellent report as read be adopted, and that an abstract of the proceedings be sent to the various trade papers.

The Treasurer's report, showing a balance in hand of £1 7s. 11d., was passed, and it was resolved that the associations who had not yet paid should be pressed to pay their contributions at once.

It was resolved that:—

It is desirable that nominations of local secretaries of the Pharmaceutical Society should proceed from local associations and local organisations. That the objects of the Federation would be more effectually served if local secretaries were appointed by the associations to represent them on the Federation, and that the rules of the Federation be altered wherever it may be necessary to effect a closer co-operation between local associations and the Pharmaceutical Society's local secretaries in promoting the interests of these associations and of the Pharmaceutical Society.

It was resolved that the undermentioned rules be altered as follows:—

Rule 2.—That it shall consist of representatives from each properly constituted and subscribing local Pharmaceutical or Chemists' Association, or other organisations of chemists in England, Scotland, and Wales. That each association shall have the right to appoint one delegate for each twenty-five members. An association having under twenty-five members shall send one delegate; from twenty-five to fifty members, two delegates; from fifty to seventy-five, three delegates; above that number, four delegates.

Rule 3.—That the objects of the Federation are:—

1. To establish more intimate communication and co-operation between local associations and between the Pharmaceutical Society's local secretaries.
2. To advise and assist in the promotion of local associations and local organisations.
3. To assist the Council in securing a sufficient number of efficient local secretaries.
4. To promote the interests of the Pharmaceutical Society and of local associations in every possible way.

Rule 4.—That a chairman, secretary, and executive committee, consisting of chairman, secretary, and three other members shall be appointed annually.

Rule 5.—That every local association of fifty members and upwards shall pay an annual subscription of £1 1s., excepting associations and committees whose membership is less than fifty; these shall pay an annual subscription of 10s. 6d.; or, less than ten members, 5s.

Rule 6.—That the annual meeting, subject to the approval of the Executive Committee, be held in the same town and during the same week as the annual meetings of the British Pharmaceutical Conference. Representatives of five associations shall form a quorum.

Rule 7 to be made Rule 8, and an additional rule to become Rule 7, viz.:—

That all local secretaries to the Pharmaceutical Society be admitted to the annual meetings, but that only those representing subscribing associations and committees be empowered to vote in the appointment of officers and Executive Committee.

It was further resolved that the following resolutions should be sent to the various organisations comprising the Federation for consideration and discussion:—

1.—That it is the urgent business of the Federation to bring about:—
(1.) The earliest possible settlement of the question of chemists' titles.
(2.) A large extension of Part II. of the Schedule.

2.—That all the associations affiliated shall be so arranged as to form sectional groups or districts, each association to have its own representative. These to meet at the most convenient centre whenever occasion requires. The country to be divided into five sections, namely:—

SCOTLAND.
Forfarshire Chemists' Association, Dundee.
Glasgow and West of Scotland Chemists' Association.
Inverness Chemists' Associatio.
Aberdeen Chemists' Association.

ENGLAND—NORTH EASTERN.
Newcastle and District Chemists' Association.
Hull Chemists' Association.
Sheffield Chemists' Association.
Bradford and District Chemists' Association.
Halifax Chemists' Association.
Dewsbury Chemists' Association.
Grimsby and District Chemists' Association.

NORTH WESTERN.
North-East Lancashire Chemists' Association.
Burnley and District Chemists' Association.
Bury Chemists' Association.
Liverpool Chemists' Association.
Manchester Chemists' Association.

MIDLAND.
Midland Chemists' Assistants' Association, Birmingham.
Midland Pharmaceutical Association, Birmingham.
Nottingham and Notts Chemists' Association.

SOUTHERN.
Cambridge Pharmaceutical Association.
Tunbridge Wells Chemists' Association.
Brighton Chemists' Association.
Plymouth Chemists' Association.

The representatives of each section shall constitute the Executive Committee of the Federation.

3.—That a meeting of the whole of these representatives may be called at any time during the year, providing representatives from three sections send in a request to the secretary for such meeting to be called.

4. That the Secretary of the Federation send out circulars to all local associations that have not joined the Federation, explaining its object and work.

5. That a definite programme of the proceedings at the annual meeting of the Federation be sent to the secretaries of the various local associations, at least ten days before the date of that meeting; also that more explicit instructions as to the time and place of the meeting be given.

It was resolved that the heartiest vote of thanks be accorded to Mr. W. L. Currie for his efficient and painstaking work in connection with the presidency during the past year; and the meeting wished it to be placed on record that they deeply sympathised with Mr. Currie in the cause of his absence from the meeting. In view of his emphatic statement that he could not again occupy the chair of the Association, it was resolved to appoint Mr. J. Smith, of Liverpool, to the position of President.

It was resolved that the best thanks of the meeting be conveyed to Mr. R. C. Cowley for the indefatigable and highly successful work he had carried out on behalf of the Federation during the past year. As Mr. Cowley had definitely declined to again hold the post of Secretary, in consequence of the pressure of other work, it was unanimously resolved to appoint Mr. J. Cocks, of Plymouth, as Secretary and Treasurer of the Federation.

Members of the following five associations were unanimously appointed to constitute the Executive Committee for the ensuing year:—Glasgow, Cambridge, Liverpool, Midland and Plymouth.

EXTRACTS FROM CONSULAR REPORTS.

The Quantity of Borate of Lime exported from Arequipa (Peru) in 1898 was 154,939 quintals, or 7,127,194 kilos., worth about £5 per ton of 2,240lb, o.b. Mollendo. The previous year 277,790 quintals (12,777,340 kilos.) were exported, and in 1896 146,451 quintals (6,735,090 kilos.). The lake from which the borate is extracted is said to have been sold to an English company for £100,000. The area is set down as 1,294 estacas of 40,000 square smetres each.

The Ruling Price for Persian Opium in some of the Persian markets is frequently higher than the price quoted for the same article at Hong Kong. This is accounted for by the fact that at Yezd, which takes most of the drug in its unprepared state, it is adulterated with Sarcocolla gum or resin (*Penaea mucronata*) and other ingredients, the proportions being ten of opium to six of the ingredients. It is then made up and sent to China, where it is said that opium so prepared finds a ready sale. According to a recent report, the merchants of Yezd tried very hard to keep the secret of this adulteration in their own hands, but their competitors in Ispahan found it out, and are now hard at work in the same line; for it is stated that the Chinese authorities do not analyse the opium for the morphine contained it; as long as it complies with certain conditions they are content, and this adulterated opium appears to fulfil the conditions.

Various Effects are Produced by the adulteration of Persian opium referred to in the previous paragraph. In the first place the Yezd merchants engaged in the trade, as indicated above, can afford to pay much higher prices for the opium than those engaged in the legitimate business. Then, too, the demand for the Yezd and Ispahan markets has caused a rise in the price of Sarcocolla resin, which now costs about 40 krans per mân, whereas formerly it cost only 8 to 10 krans per mân. Also, as Consul Preece points out, by this wholesale adulteration a very grave injustice is being done to British traders in the East. Opium was one of the few means by which they were able to remit home at a fairly remunerative rate. Now, by reason of the adulteration, the market is closed to them. And, again, if this trade is largely extended, and there appears to be no reason why it should not be, it may compete with and affect the Indian opium trade.

Another Disadvantage under which the European merchant in Persia labours is that while he has to pay 5 per cent. export duty on opium, the Persian only pays something under 2½ per cent. This just makes the difference enabling the Persian to export to the home market, while the European is debarred from it.

The People of Kermanshah (Persia) and its villages, after the grain harvest is garnered, distribute themselves all over the districts in search of gum tragacanth (Katira), which, when collected, they send into the town, where it is sorted and exported. The prices realised are said to be fairly remunerative, and the trade to be extending.

The Olive Oil Crop of the Ionian Islands (Greece) last year is reported once again to have been a failure, estimated not to exceed 2,000 tons. Consequently prices ranged too high to compete with other exporting markets. Only about 80 tuns of white oil were exported, and cost about £29 per tun of 256 imperial gallons, f.o.b. The greater part is sold for local consumption for the supply of markets on the mainland opposite, and also for soap-making. Pyrene, or green oil, extracted from the stone of the olive, is also produced, and used principally in soap boiling, its cost, according to the season of the year, and quality varying from about £24 to £30 per tun, f.o.b.

A Large Chemical Mill is reported to be under construction at Katfos (Norway). The production of chemical and mechanical pulp during 1898 at Drammen was about the same as the year before, but prices, especially of mechanical pulp, were lower.

A Project is Under Consideration to manufacture caustic soda in the Iea district (Peru), where large deposits of the necessary raw material are reported to be found.

LETTERS TO THE EDITOR.

The Company Trading Question.

Sir,—I am sorry to find the *P.J.* giving currency to the views of an Edinburgh correspondent who proposes, in reference to the company question, nothing short of compounding a felony. In the issue for July 29 he says, companies "have stolen our titles and usurped our functions," but, nevertheless, he coolly proposes that we should be prepared to receive them "into our fold." I should like to know who would be party to such a precious bargain, and the price to be given and received. I, for one, say no, for if companies have the same rights as we have, what need is there for fresh legislation to give them? If not, let us defend our rights, tooth and claw. The only means by which companies carry on their nefarious business is the assistance of blacklegs in "our fold." They are few, and that they may speedily become fewer is the earnest aspiration of the writer. The policy of masterly inaction hitherto pursued in regard to this matter is admirably hit off in an old couplet written about a certain stage in the Peninsular War:—

> "Earl Chatham, with his sabre drawn,
> Stood waiting for Sir Richard Strachan,
> Sir Richard, longing to be at 'em,
> Stood waiting for the Earl of Chatham."

In regard to the flagrant breach of Sec. 17 of the Pharmacy Act exposed in the Spalding case, the Council seems to say that the police should prosecute, while the police doubtless say the Pharmacy Act is the business of the Pharmaceutical Society, and so, perhaps, the offender may escape scot free. Such a chance of putting into force Sec. 26 may not occur again between this and the end of the world. Were the Privy Council urged to use the power conferred by that section it could not for shame's sake avoid doing so, otherwise that section would evidently be a dead letter. There seems to be a vast amount of *vis inertia* in the Council of the Pharmaceutical Society, which seems only capable of pettifogging attacks on village hucksters, like Mr. Winkle's valiant onslaughts on small boys.

London, July 29, 1899. E. Warrell.

Sir,—The *British Medical Journal*, April 8, 1899, says, "Experience has shown that it is practically impossible to secure a conviction, either against a company or its employees, for infringement of the Medical Acts," but it does not propose to remedy that mischief by registering Medical Companies. To see the lack of grip of the question at issue in our own case makes one almost despair of seeing that essential desideratum, a unanimous opinion; though we must presume that qualified chemists desire unanimity. How can we arrive at our desire by registering drug companies? Every other suggested remedy is subject to equally fatal objection, except the one embodied in the Council's suggestions. Why should chemists draw such preposterous conclusions from those suggestions? Why not look for and be satisfied with a reasonable definition—take this—(1) The chemist's title should be his alone; (2) On acquiring that title he should have work to do. Such a definition is made up of two just and elementary principles, which cover everything. The Council's suggestions—if clearly defined—are likely to get acceptance, because they are the least that an impartial tribunal can give. There cannot be a single argument brought against them, for the very sufficient reason that there is none. And as to the supposed contempt of the Lord Chancellor—fudge!—a mere figment of the imagination. He merely says your requirements are contentious; therefore, help yourselves—which is exactly what the *B. M. J.* says this week (*see p.* 148). Further, the Council's remedy tackles *the cause* of the mischief, whereas every other suggestion deals only with effects. The Council's suggestions—reasonably interpreted—give a common ground for uniting in the fight everyone who has passed the examinations of the Pharmaceutical Society; because they embody two principles which are fundamental, essential, and necessary for dignified existence—two questions of principle which must never be compromised, however accommodative we may be with details. Chemists, in following the Council's lead, are not asking for the moon (they who say so know it to be false). They are asking for the least they should take, they are asking for what can be got, but when that can be obtained it is to be decided only by thorough com-

bination amongst qualified chemists. I respectfully ask from fellow chemists a more than superficial consideration of these views,

Blackburn, August 1, 1899. R. LORD GIFFORD.

Standards for Drugs.

Sir,—It was a matter of regret to many that lack of time prevented adequate discussion of the paper on this subject communicated to the British Pharmaceutical Conference by Messrs. Moor and Cribb. The question is of vital importance to the drug trade, wholesale and retail alike. Whether the Pharmacopœia is a legal standard under the Food and Drugs Act may be left to lawyers to decide; but to the unsophisticated lay mind it would seem that a book which is the official standard under the Pharmacy Act must at least be good evidence in prosecutions under another Act framed by the same Legislature. However that may be, most of us are willing that our products should be tried by the Pharmacopœia, interpreted by the light of common-sense, and with an intelligent appreciation of the exigences of commerce with regard to storage, deterioration, and the effect of variations of temperature. In some cases the official processes for assay need slight modification, but alternative methods cannot be indiscriminately used, unless the results obtainable are directly comparable with those obtained by the pharmacopœial methods. For instance, in the standardisation of the preparations of ipecacuanha, it has been shown that there is undoubtedly waste of alkaloid in the B.P. process, but although in the interests of exact chemical and medical science it is highly desirable that the improved methods which have been suggested should be adopted in future editions of the Pharmacopœia, for the present commercial samples must stand or fall, according as they conform to the official tests or not. For supposing a manufacturer adjusts the strength of his preparations by the official process, and the public analyst judges them by (say) Naylor's method, the preparations will be found by the latter to be over strength, and in pharmacy it is as criminal to make things too strong as too weak. The case of the liquid extract of nux vomica is different. Here it is directed that the impure precipitate of ferrocyanide of strychnine shall be washed until free from bitterness, which direction, if followed conscientiously, may result in almost the whole of the strychnine being lost and the extract condemned. There are other details which require modification to ensure success with this somewhat difficult process, and I trust all analysts have studied or will study the valuable paper on this subject, by Harvey, which appeared in the *Chemist and Druggist* in January of this year (vol. liv., p. 61). A third class of official preparations are those for the analysis of which no directions are given, for example, Gregory's powder. Some extraordinary results have been obtained in the analysis of this powder, samples which have been prepared in exact conformity with the Pharmacopœia having been reported adulterated with magnesium carbonate to a considerable extent. For a full discussion of this subject, I would refer those interested to a paper by J. C. Umney (*C. and D.*, **53**, 515, Sept., 1898). With regard to the Conference paper, it was admittedly rather suggestive than decisive, and it is not my intention to criticise it in detail. One point may, however, be noted. Under malt extract it is stated that "the sample must be capable of converting its own weight of starch in ten minutes." No temperature at which this is to be tried is given, nor is the kind of starch specified, although Cripps showed, nearly ten years ago, that this has a very material bearing on the results. In conclusion, I would express a hope that the whole subject may be thoroughly discussed in your Journal during the next few weeks. Standards for foods may be left for others to determine. The use and abuse of preservatives is essentially a medical question, but in fixing standards for drugs the druggist should be consulted.

Exeter, August 1, 1899. H. WIPPELL GADD.

Conference Photographs.

Sir,—Doubtless many who attended the recent B.P. Conference meeting at Plymouth secured interesting snapshots during their visit to the West Country. I venture, therefore, as president of the local association, to ask any of your readers who may have obtained good negatives to favour me with two or three prints from each, as mementoes of one of the chief events in the history of the Association.

23, *Mutley Plain, Plymouth, August* 1, 1899.

C. J. PARK,
President.
Plymouth, Devonport, Stonehouse and District Chemists' Association.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Botanical (J. S. W.—31/28).—*Vicia villosa*, Roth.

Apprenticeship (H. J. H.—32/26).—The conditions vary greatly in different parts of the country, and even in the same town, but the tendency is to abolish premiums.

Hand Camera (R. H. R.—32/2).—Refer to our "Photographic Supplement" of April 15 last for particulars of suitable cameras. Several are described there, and all are equally good.

Dental and Medical Examinations (E. A. T.—32/4).—Write to the Registrar, General Medical Council, 299, Oxford Street, London, W.

Books for the Major (W. C. S.—31/29).—The books mentioned in your list should amply suffice for your purpose. See the article on the subject in the Students' Number of the Journal, published September 10 last. Messrs. Watson and Sons, 313, High Holborn, London, W.C., will furnish you with a suitable microscope (1 in. and $\frac{1}{6}$ in. objectives) from five guineas upwards.

Recent Works on Diet (A. B.—28/23).—Yeo's 'Food in Health and Disease,' revised in 1897, 10s. 6d. Dobell's 'Diet and Regimen in Health and Disease,' 5s. Mrs. E. Hart's 'Diet in Sickness and Health,' 3s. 6d These are all standard works.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Abel, Addison, Andrews, Ashford, Ayrton, Boot, Bramley, Bulwer, Carr, Chase, Cummings, Devereux, Dodge, Eastwood, Ferreira, Fleming, Hall, Hubbard, Jowett, King, Mack, Porter, Rowell Stanford, Tichborne, Tilley, Warden, Wardleworth, Watson, White.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

CELLULOSE ENZYMES. Professor F. C. Newcombe has made a series of experiments on those enzymes which have the capacity of dissolving reserve cellulose or starch (cytases or diastases). He finds that the enzyme extracted from *Aspergillus oryzæ* attacks reserve cellulose with greater intensity than it attacks starch. The enzyme from the cotyledons of seedlings of *Lupinus albus* is very strongly cyto-hydrolytic, but very feebly amylo-hydrolytic. The same is the case with the enzyme from the cotyledons of seedlings and from the endosperm of *Phœnix dactylifera*. These enzymes act so feebly on starch, and so energetically on reserve cellulose, that they may be regarded as cytases, as distinguished from diastases. The very dilute enzyme of the malt of barley attacks reserve cellulose. With all the enzymes examined, those of *Aspergillus oryzæ*, *Phœnix dactylifera*, *Fagopyrum esculentum*, *Pisum sativum*, and *Lupinus albus*, the walls of the cells attacked become at first hyaline and gradually more and more transparent, and finally are altogether dissolved.—*Ann. of Botany*, 1899, p. 49.

PRODUCTION OF ALCOHOL IN PLANTS. From observations made on wheat and hazel, M. Berthelot finds (*Comptes rendus*, **128**, 1899, p. 1366) that under normal conditions of respiration and assimilation, minute quantities of alcohol are produced, probably formed from the decomposition of carbohydrates, in a similar way to that in which methyl-alcohol is produced in many plants. M. P. Mazé (*Tom. cit.* p. 1608) corroborates these results, and believes that the alcohol is formed in the living cells at the expense of the glucoses by a normal diastatic process.

VARIATION IN THE GRAFT AND INHERITANCE OF ACQUIRED CHARACTERS. M. L. Daniel publishes the results of a large number of experiments on the grafting of woody and herbaceous plants. The phenomena of grafting afford no exception to the general rules of the influence exerted on the development of a plant by its external conditions, and especially by those connected with the supply of nutriment; but this influence is not invariably exerted. These acquired characters of a graft may be exhibited only in the seed and embryo, and the author sums up strongly in favour of their perpetuation by heredity. The effects of grafting may be either the fixing and perpetuation of varieties or races already in existence, or it may be the direct production of new varieties, and hence the actual improvement of the race. This latter is especially the case with herbaceous plants.—*Ann. des Sciences Naturelles* (*Bot.*), **8**, 1-126.

CONDUCTING TISSUE OF VANILLA FRUIT. A. Tschirch has made a careful study of the so-called *tela conductrix* of the fruit of the vanilla, and decides that it is a true conducting tissue, through which the pollen-tubes penetrate. Not only the outer, but also the lateral walls of the epidermal cells which face the ovary are converted into mucilage, the pollen-tubes passing through the gelified cell-walls.—*Schweizerische Wochenschr. f. Chemie u. Pharmacie*, 1899, p. 105.

ABSORPTION OF NITROGEN BY PLANTS. From experiments on *Pisum sativum*, *Polygonum Fagopyrum*, *Avena sativa*, and *Sinapis alba*, L. Richter concludes that of these plants the pea only, and not mustard, oat, or buckwheat has the power of making direct use of the free nitrogen of the air; and that this power is independent of the tubercles. Combination with nitrogen in the soil takes place when there is otherwise a deficiency of assimilable nitrogen.—*Landwirthsch. Vers.-Stat.*, 1898, p. 221.

DIASTATIC FUNCTION OF INDIGOFEROUS PLANTS. From experiments made on *Isatis sativa* M. L. Bréaudat concludes that in those species of *Indigofera* and *Isatis* which yield indigo, the presence of alkaline bases or those of the alkaline earths, or their soluble or insoluble carbonates, is necessary for the formation of indigo, while the presence of acids or neutral salts is inhibitory. The oxidising power of the soluble oxydase contained in the sap is but feeble; but this power is increased by the presence of alkalies or alkaline carbonates.—*Comptes rendus Acad. Sci., Paris*, **128**, 1478.

REFRACTIVE INDICES OF SOLUTIONS. In a paper on determinations of the refractive indices of solutions, communicated to the Isis Society of Dresden, W. Hallwach gives an account of a differential method with grazing incidence, for which a double-trough refractometer has been used. The process described has been applied to solutions of brome-cadmium, sugar, di- and tri-chloracetic acid and their potassium salts; and the author investigates the relation between the refractive index and the degree of concentration, with a view of determining whether it is influenced to any extent by dissociation. The experiments show that such an influence, if it exists, is too small to be measurable with exactitude. This result is at variance, in the case of brome-cadmium, with those obtained by Le Blanc and Rohland, but the discrepancy is attributed to an error.—*Nature*, **60**, 329.

PURIFICATION OF ACETYLENE. P. Wolff states that the method of purifying acetylene proposed by Frank gives good results. It consists in the use of acid solutions of certain metallic salts, particularly copper chloride, and results in the transformation of part of the acetylene into aldehyde. It is claimed that 1 litre of the solution employed will purify 14 cubic metres of acetylene, and that the liquid can be regenerated by boiling, followed by aëration. As an alternative process the use of chlorinated lime containing a small quantity of an alkaline chromate is proposed. In this method the free chlorine is absorbed, and the acetylene does not undergo any decomposition.—*Journ. f. Gasbeleuchtung*, through *Chem. News*, **80**, 40.

CRYSTALLISATION OF EGG ALBUMIN. T. B. Osborne finds that the crystallisation of egg albumin is promoted on adding acetic acid to the half-saturated ammonium sulphate solution, as pointed out by Hopkins (*Journ. Physiology*, **23**, 131), because the crystallised egg albumin is a compound of the protein substance with acid. When the albumin is first mixed with the ammonium sulphate solution an alkaline reaction towards litmus can be detected, and a decided odour of free ammonia develops. After this solution has stood for some hours all evidence of free ammonia disappears, and the solution is then perfectly neutral to litmus, continuing so during the gradual separation of the albumin. The deposited substance, whether in the form of spheroids or crystals, reacts distinctly with litmus and with phenolphthalein, when filtered out and dissolved in water. By the addition of acetic acid, as directed by Hopkins, the albumin is obtained completely crystallised by a single precipitation, and without any concentration by evaporation. But Osborne finds that the substitution of a molecularly equivalent quantity of hydrochloric acid for the acetic acid causes the separation to take place even more quickly.—*Journ. Am. Chem. Soc.*, **21**, 477.

ON A SUPPOSED NEW GENUS OF THE N.O. MYRTACEÆ.*

BY R. T. BAKER, F.L.S.
Curator, Technological Museum, Sydney.

The plant which forms the subject of this paper was obtained on one of the high spurs radiating from Mount Corricudgy and forming the watershed between the Red Water and an unnamed stream; these waters eventually join and then enter the Widdin Brook which flows north into the Goulburn River—a feeder of the Hunter River.

Mt. Corricudgy is the culminating peak of the main dividing range which forms the watershed between the Hunter and Capertee or Colo Rivers, and reaches a height of over 3,000 feet. The spurs running north towards the Red Water are very rugged and precipitous, and it is only with the very greatest difficulty they can be ascended or descended. It is doubtful if they had ever been visited by white men previous to this trip, which was only possible through the courtesy of Mr. J. Dawson, L.S. for the District, who had been authorised by the Government to "traverse" this hitherto unsurveyed portion of N.S. Wales.

Mr. Dawson admitted it was the roughest piece of field work he had performed during his twenty-four years' experience of surveying.

As this district had never before been botanically "worked," and is almost inaccessible, one naturally expected to find some undescribed plants, and I cannot say I was disappointed. From my collection I now describe what I believe is an unrecorded plant. It was found on the extreme end of a bold headland facing Nulla Mountain, Widdin Brook meandering at the foot of the ranges.

RYLSTONEA, gen. nov.

A delicate, slender, upright plant, rarely with more than one or two stems, under 3 feet high. Leaves small, decussate, terete or laterally compressed. Flowers axillary near the ends of the branches, pedicellate in pairs, borne on a common peduncle. Bracteoles scarious only on the edges, concave, enclosing the bud, not very deciduous, not keeled. Calyx-tube cylindrical, adnate part prominently 5-ribbed; lobes 5, divided into digitate lobes about twice as long as petals. Petals 5, entire, on a constricted base. Stamens 10, alternating with staminodia shortly united at the base in a single ring; anthers globular, opening in two minute pores, connective prominent. Ovary 1-celled, about 8 ovules on a peltate placenta, with two processes at the summit; style exserted, longer and thicker than in the cognate genera, bearded towards the end; stigma terminal, small. Fruits unknown.

Species one.

RYLSTONEA CERNUA, sp.nov.

An erect, glabrous, rather slender shrub, from 1 to 2 feet high. Leaves decussate, crowded, terete or laterally compressed and then channelled above, narrowing below the middle, with a recurved point shortly petiolate, articulate on the decurrent portion of the stem, 4 to 6 lines long, the floral ones almost of equal length.

Flowers cream-coloured with a pinkish base, 4 to 6 lines long, pedunculate near the ends of the branches, peduncles filiform, recurved, 4 to 6 lines long, nodding, on pedicels of 1 to 1½ lines long, *consistently in pairs*. A single bract of about 1½ lines long between the two pedicels.

Bracteoles forming a hood over the corolla and folded over each other on the flower bud, and not falling off till the petals expand, scarious on the edges, *not keeled*, pinkish at the base and toning off to a cream colour at the hood or free end. Calyx-tube cylindrical, 5 to 6 lines long, prominently 5-ribbed (as in *Darwinia*) in the adnate part, lobes simply divided into about 5-10 divisions, except outer lobes which have accessory lobes. Petals entire, imbricate, obtuse, semi-circular, contracted at the base. Stamens 10, in a ring at the base of the petals, filaments inclined to vary in length, being alternately long or short. Staminodia alternating with the stamens, ligulate, rather shorter than the stamens. Anthers globular, with two parallel cells opening by minute pores at the summit, or in centre of cells. Connective prominent, forming a central column to which the anthers are adnate for their entire length. Ovary 1-celled. Ovules about 8, attached to a peltate placenta connected with the base of the ovary by a filiform attachment, the top of the placenta bifurcating into two horn-like processes. Style well exserted, twice the length of the calyx-tube, thick at the base and tapering upwards.

* From the Proceedings of the Linnean Society of New South Wales.

Analysis of cognate genera.

Calyx cylindrical, *lobes broad, entire* or shortly ciliate, flowers in heads. DARWINIA, Rudge.

Calyx cylindrical, *lobes* 5, *subulate, entire*, flowers in heads. HOMORANTHUS, A. Cunn.

Calyx, cylindrical, lobes 5-10 digitately, *divided*, flowers nodding *not in heads*. RYLSTONEA, g.n.

Calyx *hemispherical*, lobes 5 or 10 *deeply divided into subulate plumose or hair-like processes, flowers in corymbose heads*. VERTICORDIA, DC.

In Bentham and Hooker's 'Genera Plantarum,' vol. iii., p. 692, the three genera *Darwinia*, *Homoranthus*, and *Verticordia*, of Rudge, Cunningham, and De Candolle respectively, are kept distinct, as in Bentham's 'Flora Australiensis,' although Baron von Mueller, in his 'Second Census of Australian Plants,' has synonymised *Homoranthus* under *Darwinia*.

Speaking generally, *Darwinia* is distinguished from *Homoranthus* by its broad, entire calyx-lobes, the latter genus having subulate entire lobes. There are of course some minor differences, but the two genera, a though closely allied, are distinct, and I think the systematist is justified in separating them. The gradation of generic characters between the former genus and the latter is much more marked than between the latter and the genus *Verticordia*. One of the characters wanting in this hiatus will be found, I think, in the new genus.

The most constant character of this plant is its nodding, pedunculate cluster of two flowers. A sub-section of *Darwinia* has some of the flowers nodding, but the calyx-lobes and pedicels differ from those of the species now described.

Another character which distinguishes it from the three genera above mentioned is that the flowers are not crowded in heads as in *Darwinia* and *Homoranthus*, nor in corymbs as in *Verticordia*.

It is allied to *Darwinia* and *Homoranthus* by its calyx and anthers, but differs from them in its calyx-lobes as above mentioned, and also by its few pedicellate flowers.

It differs from the two sections of *Verticordia* mentioned by Bentham ('B. Fl.' vol. iii.) principally in the shape of its anthers, as well as in other minor points.

The bracteoles are not thick or scarious as in its congeners, nor are they keeled as in *Darwinia;* they are folded well over each other and are rather persistent.

The lobes of the calyx are fewer than generally pertain to *Verticordia*, and thus the gradation from the single lobe of *Homoranthus* to the extreme, subulate, plumose lobes of *Verticordia* is apparently complete.

It is only the calyx-lobes and peltate placenta that connect it with *Verticordia*, and therefore I do not think I am justified in placing it under that genus.

The anthers and staminodia are identical with those of *Darwinia* and *Homoranthus*, but differ in shape from both the porose and the longitudinally opening anthers of *Verticordia*.

The inflorescence of *Verticordia*, which is mostly corymbose, is quite different from that of *Rylstonea*. Through the kindness of Mr. J. G. Luehmann, F.L.S., Curator, National Herbarium of Melbourne, I have had the opportunity of comparing the latter with a large number of species of the former, and the difference is quite marked.

The pedunculate, pedicellate inflorescence is very characteristic, and the two pedicellate flowers have, I believe, no parallel amongst the species of the cognate genera.

Homoranthus has rarely, if ever, only two flowers, and then these are not pedicellate nor pedunculate.

The distinct exsertion of the style is a character which allies it more with *Darwinia* than with the other two genera.

Of all the Verticordias it is perhaps more closely related to *V. wilhelmi*, F.v.M., than any of the others, and this is the first species of that genus, so that *Rylstonea*, having calyx and anthers similar to those of *Darwinia* and *Homoranthus*, and calyx-lobes and placenta of *Verticordia*, I place it in botanical sequence between this latter genus and *Homoranthus*.

FORMULÆ, METHODS, AND REACTIONS,

KNOWN BY THE NAMES OF THEIR AUTHORS.

(Supplementary List.)*

Magnanini-Ciamician (Skatol).—See Ciamician-Magnanini.

Mayrhofer-Donath (Glycerin).—See Donath-Mayrhofer.

Millard (Podophyllum Resin).—(1) The resin of Indian podophyllum (*P. emodi*) gives an orange to red colour when a minute quantity is sprinkled on a few drops of strong sulphuric acid placed on a white surface. Under similar conditions the resin of American podophyllum (*P. peltatum*) gives a yellow to brown coloration, according to the quantity used. (2) Add 3 C.c. of diluted alcohol (s.g. 0·920) and 0·5 C.c. of solution of potash, B.P., to 0·4 Gm. of podophyllum resin in a test-tube, and shake by gently rotating the tube. In the case of Indian resin, the mixture forms a semi-solid gelatinous mass in a few seconds. It may be necessary to heat the mixture to boiling-point and then cool before gelatinisation takes place. The American resin shows no signs of gelatinising when similarly treated, even after some days. See *Pharm. Journal* [4], **6**, 304.

Monsel (Solution).—This is a solution of persulphate of iron.

Nadler (Morphine).—(1) A greenish-blue colour is produced on making the liquid containing morphine strongly alkaline, and boiling with barely sufficient solution of copper ammonio-sulphate to colour it light blue. (2) A rose-red colour is produced on heating morphine with a few drops of sulphuric acid diluted with half its bulk of water, cooling, adding ammonia water in excess, again cooling and shaking with chloroform.

Napier (Water in Ether).—Paper impregnated with cobalt chloride is changed from blue to rose-red.

Naylor-Braithwaite (Arsenious Acid).—Dissolve (1) copper sulphate, 200 Gm., in water, 50 C.c., and (2) sodium tartrate, 0·5 Gm., and sodium hydroxide, 5 Gm., in water, 50 C.c. The two solutions are mixed when required, and arsenious acid causes a reduction.

Nencki (Indol).—With nitric acid containing nitrous acid indol gives a red reaction or red precipitate. The reaction does not occur with scatol. Compare Baeyer's reaction.

Nessler (Citric Acid).—Citric acid in wine, the presence of which points to probable adulteration with raspberry juice, is separated as calcium citrate.

Nessler (Sulphuric Acid in Vinegar).—Add 2 to 3 per cent. of cane sugar to the vinegar, and dip a strip of filter paper in it. The paper becomes brown to black when dried.

Nessler (Tartaric Acid in Wine).—A crystalline precipitate is formed on evaporating the wine to a syrupy consistence, extracting with alcohol, and adding solution of sodium or potassium acetate.

Neubauer (Phenol).—A blue colour appears on adding phenol to an aqueous solution of ammonia, then adding chlorinated soda solution and heating.

Neukomm (Biliary Matter).—A violet colour is produced on extracting with alcohol, evaporating to a small bulk, placing one drop in a porcelain capsule, adding one drop of diluted sulphuric acid and a trace of sugar solution, and finally heating gently.

Nicholson (Nitric Acid).—A red colour is produced on evaporating a solution containing nitric acid to dryness, moistening with one or two drops of sulphuric acid, and adding a slight trace of brucine.

Nicklés (Fixed Oils).—These oils are distinguished according as they are or are not emulsified by means of hydrated lime. For particulars see *Am. Journ. Pharm.*, **38**, 299.

Nobel (Copaiba or Gurjun Oil in Urine).—A red colour is produced on adding hydrochloric acid to urine containing copaiba or gurjun oil.

Noel (Biliary Matter).—A drop of nitric acid is applied to filter paper which has been dipped in the liquid and dried. The colour changes from violet to red and yellow.

Nowak-Kratschmer (Alkaloids). — Note the colour reactions produced with syrupy phosphoric acid.

Obermayer (Indican in Urine).—The urine is mixed with concentrated hydrochloric acid containing ferric chloride and shaken out with chloroform. In the presence of indican the chloroform turns blue in consequence of the formation of indigo. An excess of the reagent does not affect the test. Compare Hammarsten's reaction.

Obermueller (Cholesterin).—If cholesterin is carefully melted over a naked flame with a few drops of propionic anhydride, the melted mass, on cooling, turns violet, then blue, green, orange, carmine, and finally copper red.

Otto (Strychnine).—The sample (for instance, evaporation residue of an ethereal or alcoholic extract), is mixed with a few drops of diluted potassium bichromate solution. A glass rod is brought into contact with the mixture and then drawn through a basin of concentrated sulphuric acid. The presence of strychnine is indicated by blue streaks.

Overbeck (Woollen Fibre).—If the fibre is saturated with 10 per cent. aqueous alloxanthin solution and treated, after drying, with ammonia gas, it is coloured carmine.

Pasteur (Culture Medium).—The culture for bacteria consists of sugar candy, 10 Gm., yeast ash, 0·075 Gm., dissolved in water, 100 Gm.; or else sugar candy, 10 Gm.; ammonium carbonate, 1 Gm., dissolved in water, 100 Gm.

Pavy (Albumin).—The test is performed with tablets of citric acid and tablets of potassium ferrocyanide. The urine is acidulated with the former, and the usual white yellowish precipitate indicative of the presence of albumin results on the addition of the potassium ferrocyanide tablets. See Oliver's reaction paper.

Peltier (Silk and Woollen Fibres).—A mixture of equal parts concentrated sulphuric acid and nitric acid. Silk is dissolved in this mixture while wool is coloured yellow.

Penot (Oils).—The oils are mixed with chromic acid and identified by the distinctive colour reactions obtained.

Penzoldt and Fischer (Phenol).—The test is carried out with Ehrlich's reagent (diazobenzol-sulphonic acid). A deep red colour is produced with an alkaline phenol solution.

Pesci (Alkaloids).—The reagent is prepared by mixing solutions of copper sulphate and sodium hyposulphite, and acidulating the mixture with diluted sulphuric acid.

Petermann (Corn Cockle Seeds in Flour).—The test is based on the isolation of the saponin contained in the corn cockle seeds. 500 Gm. of flour is heated with 1 litre of alcohol (85 per cent.). The extract is filtered off while hot, concentrated, and the saponin precipitated by the addition of pure alcohol and a little ether. The saponin is collected after 22 to 24 hours dried at a 100°, dissolved in a little water, and again precipitated with alcoholic ether. It is characterised by an acrid taste, frothing of the aqueous solution, and its reducing action on silver solution, and on Fehling's solution (especially after hydrolising with hydrochloric acid).

Petri (Proteids).—The reaction consists of an adaptation of Ehrlich's reagent (diazobenzol-sulphonic acid). Proteid or peptone solutions furnish a light yellow coloration with the reagent, which changes on the addition of alkali from orange yellow to brown, and on shaking gives a red froth.

Pfeiffer (Serum Reaction for Cholera).—A trace of blood serum of a cholera-immune guinea-pig destroys the vitality of true cholera bacilli, contained in the serum of a normal guinea-pig and a little bouillon. Vibrios similar to those of cholera are not killed by the serum; other tests such as that for typhoid bacilli may be carried out in the same manner. Gruber states that the

* After Wilder, Schneider, Altschul, etc. Concluded from page 82.

reaction may be conducted in a test tube. Compare Widal's reaction.

Picard (AMMONIACUM).—This is a modification of Plugge's reagent for ammoniacum with the substitution of sodium hypobromite for sodium hypochlorite.

Piffard (SUGAR IN URINE).—A paste is prepared by mixing in the mortar copper sulphate, 1; sodium-potassium tartrate, 5; caustic soda, 2. See Fehling's solution.

Pinerna (ORGANIC ACIDS).—A solution of β-naphthol, 0·02 Gm. in concentrated sulphuric acid, 1·83, 1 C.c. If 0·05 Gm. of the organic acid is carefully tested with 10 to 15 drops of the reagent, distinctive colour reactions are obtained; tartaric acid gives a blue then green colour, on dilution, a reddish-yellow tint. Citric acid reacts with a blue colour, on dilution colourless, to light yellow: malic acid greenish yellow, then light yellow, and orange on dilution.

Piotrowski (PROTEIDS).—This consists of the biuret reaction. Compare with Rose, Bruecke, and Posner.

Pohl (PRECIPITANT FOR GLOBULIN).—This is ammonium sulphate. The solution is half saturated with the salt.

Pollet (REAGENT) is Kopp's reagent.

Rabuteau (HYDROCHLORIC ACID IN GASTRIC JUICE).—The reagent for gastric juice is a mixture of starch solution, 50 C.c.; potassium iodate, 1 Gm.; and potassium iodide, 0·5 Gm. The reagent turns blue with free hydrochloric acid,

Ranvier (FIXING LIQUID).—Potassium gold chloride solution with lemon juice.

Raulin (CULTURE MEDIUM FOR BACTERIOLOGICAL CULTURES).—Contains sugar candy, 0·7 Gm.; tartaric acid, 0·04 Gm.; ammonium nitrate, 0·04 Gm.; ammonium phosphate, 0·6 Gm.; potassium carbonate, 0·6 Gm.; magnesium carbonate, 0·4 Gm.; ammonium sulphate, 0 25 Gm.; zinc sulphate, 0·07 Gm.; ferrous sulpbate, 0·07 Gm.; potassium silicate, 0·07 Gm.; dissolved in water, 1,500 Gm.

Ree (PRECIPITANT FOR ALBUMIN).—Alcoholic tannin solution.

Reichl-Mikosch (ALBUMIN).—If 2 to 3 drops of alcoholic benzaldehyde solution are added to the solution to be examined, then a larger volume of dilute sulphuric acid (1 : 1), and finally a few drops of ferric chloride, a deep blue colour reaction results in the presence of albumin. The reaction is hastened on warming.

Remsen (SACCHARIN IN PRESENCE OF SALICYLIC ACID).—The ethereal extract is evaporated, the residue dissolved in water, neutralised with soda, and mercuric nitrate added in slight excess. The precipitate is tested for saccharin, after drying, by Boernstein's method.

Reoch (OXALIC ACID IN URINE).—Calcium oxalate is precipitated on the addition of alcohol.

Richardson (SERUM PAPER).—Paper saturated with the serum of typhoid patients, and dried, may be used for Widal's reaction instead of fresh serum.

Richmond and Boseley (FORMALDEHYDE).—If fluids containing formaldehyde are boiled with a solution of diphenylamine in water and the necessary volume of sulphuric acid, a white flaky precipitate results. The presence of nitric acid or nitrates is indicated by the resulting green colour. See Hehner's reaction.

Riegler (ALBUMIN).—Asaprol, 8; citric acid, 8, are dissolved n distilled water, 200; 10 C.c. of urine is mixed with 10 to 20 drops of the reagent. Traces of albumin are indicated by a turbidity, larger volumes by a precipitate. Quantitative determination may be made with an albuminimeter.

Riegler (ALBUMIN, ALBUMOSES, AND PEPTONES).—10 Gm. β-naphthalin-sulphonic acid is well shaken with 200 C.c. water and filtered. The production of a turbidity or precipitate on adding 20 to 30 drops of the reagent to 5 to 6 C.c. of the fluid is indicative of the presence of albunim. Sensitiveness 1:40,000. Albumoses and peptones react in a similar manner, but the precipitate disappears on warming, and reappears on cooling.

Riegler (NITRITES).—A mixture is made of equal parts naphthionic acid and pure β-naphthol. 15 C.c. of the fluid to be examined is mixed in a test tube with 0·02 to 0·03 Gm. of the naphthol reagent and 2 to 3 drops concentrated hydrochloric acid, shaken, and 1 C.c. strong ammonia added down the side of the tube, while held in a slanting position. The presence of nitrites is indicated by the appearance of a red circle, and on shaking the whole solution turns red.

Riegler (URIC ACID).—p.-Nitraniline 0·5 Gm., water 10 C.c., pure concentrated sulphuric acid 15 drops, are put into a glass flask of 150 C.c. capacity, and heated with agitation until dissolved. Water 20 C.c. is now added, the mixture is cooled quickly, sodium nitrite solution, 2·5 per cent., 10 C.c. is added, and diluted, after 15 minutes, with water 60 C.c. The mixture is shaken up repeatedly and filtered. The production of a blue or green reaction on the addition of the reagent and 10 per cent. caustic soda solution, is indicative of the presence of uric acid.

Roberts (ALBUMIN IN URINE).—The urine is poured upon a saturated solution of salt containing 5 per cent. of hydrochloric acid sp. g. 1·052 or on a mixture of 5 parts saturated magnesium sulphate solution, and 1 part of strong nitric acid; in both cases the presence of albumin is detected by the formation of a white zone between the two liquids.

Robbert - Hammersten (THYMOL).—See Hammersten-Robbert.

Roch (ALBUMINOIDS).—Also known as MacWilliam's reagent. Bourreau modifies this by employing a solution of oxyphenylsulphonic acid 3, and salicylic-sulphonic acid 1 part in water 20.

Rupeau (PICRIC ACID IN BEER).—Ferrous sulphate, 5 Gm.; tartaric acid, 5 Gm., are dissolved in water, 200 Gm., and the solution mixed with an equal volume of saturated sodium chloride solution. From 1 to 2 C.c. of the reagent is covered half a C.c. of the beer and 2 drops of solution of ammonia added. The presence of picric acid is shown by a red coloration.

Sachs (NUTRIENT MEDIUM).—Potassium nitrate, 1 Gm.; sodium chloride, 0·5 Gm.; calcium sulphate, 0·5 Gm.: magnesium sulphate, 0·5 Gm.; calcium phosphate in fine powder, 0.5 Gm.; and a few drops of ferric chloride solution are dissolved in 1 litre of water.

Sachsse (GLUCOSE).—Two solutions are made, composed respectively of mercuric iodide 18 Gm., potassium iodide 25 Gm., in 500 C.c. water, and of potassium hydrate 80 Gm. in a similar quantity of water. Before use for titration equal volumes of the two solutions are mixed; as an indicator, paper, saturated in an alkaline solution of stannous chloride is employed. A black spot is produced by a drop of the solution as long as any unreduced mercuric salt is present.

Salkowski (ALBUMOSE).—The author amends his previously recorded test, since he finds that the presence of uribilin may occasion a precipitate and give the biuret reaction similar to albumose; if, therefore, uribilin is present, it must first be removed from the phosphomolybdic precipitate before the biuret reaction is obtained.

Salkowski (CHOLESTERIN AND PHYTOSTERIN).—A few centigrammes of cholesterin or phytosterin are dissolved in 2 C.c of chloroform, 2 C.c. of sulphuric acid, (sp. gr. 1·76) is added and the mixture shaken: the chloroform is coloured blood red.

Salkowski (INDOL).—See Baeyer's reaction.

Savalle (FUSEL OIL IN ALCOHOL).—The alcohol is heated with an equal volume of concentrated sulphuric acid until boiling commences. Fusel oil is indicated by the production of a brown colour; all the aldehydes and even the higher alcohols give this reaction. If the latter are to be tested for, the aldehydes may be removed by heating for half-an-hour with a little meta-phenylenediamine hydrochloride and subsequent distillation; the distillate thusfreed from aldehydes is tested with sulphuric acid. If the

amount of fusel oil is very slight, from 10 to 20 drops of 1 per mille of an aqueous solution of furfurol may be added, in this case a pink coloration is obtained, in the presence of the higher alcohols, on heating with sulphuric acid. The test may be employed quantitatively for the colorimetric determination of fusel oil.

Schiff (Cholesterin).—Cholesterin crystals heated with a mixture of hydrochloric acid, 2, and ferric chloride, 1, gives a red coloration; on evaporating, a violet residue is left; cholesterin crystals evaporated to dryness, with a little nitric acid, leave a residue which is coloured red by a drop of ammonia.

Schiff (Glucose).—Papers saturated with equal volumes of acetic acid and xylidin, with a very little alcohol, are employed for detecting glucose; on heating the substance with sulphuric acid furfurol is formed if glucose be present, the vapours of which colour the test paper red.

Schlen (Solvent for Urinary Deposits). — When testing urine for tubercle bacillus, it is necessary to redissolve any sedimentary matter; this is donc with a solution of borax, 4, and boric acid, 4, in water, 100.

Schneider (Alkaloids).—Concentrated sulphuric acid added to an intimate mixture of cane sugar and certain alkaloids affords characteristic colour reactions; morphine and codeine give from purple red to violet green and then yellow colours. The reaction depends upon the formation of furfurol and may therefore be obtained by the use of furfurol and sulphuric acid.

Schuchardt (Reagent).—This is a saturated solution of tropoeolin (see also Van Der Velden's reagent).

Schuyten (Nitrous Acid).—The reagent is obtained by diluting 10 C.c. of a solution of 1 part of antipyrine in 10 parts of acetic acid, in 100 parts of water. 5 C.c. of the reagent are added to an equal volume of the solution to be tested; the presence of nitrous acid is indicated by a green coloration. This is also known as Curtmann's reagent.

Schweiger-Seidel (Acid Carmine Solution).—This is obtained by saturating ammoniacal carmine solution with acetic acid and filtering. The stain is particularly adapted for colouring cell nuclei; after staining, sections are macerated in glycerin containing one half per cent. of hydrochloric acid, then washed with acetic acid, and finally in water. The preparations are mounted in glycerin; only the nuclei of the cells are stained.

Seliwanoff (Fructose or Levulose).—An aqueous solution of resorcine and fructose becomes red on being heated with hydrochloric acid, and furnishes a precipitate which dissolves in alcohol with a red colour. Cane sugar, invert sugar, and mellitose behave similarly. Compare Conradi's reaction

Sieben (Ketoses and Aldoses).—Boiled for 3 hours with 7·5 per cent. of hydrochloric acid, the ketoses (fructose, sorbose), are decomposed with formation of humic acid, while the aldoses (glycose, mannose, galactose), are not affected.

Smith-Chapman (Tartaric and Citric Acids).—See Chapman-Smith.

Soltsiens (Sesame Oil).—Two to three parts of the fat to be examined are melted in a test tube on a boiling water bath, a solution of stannous chloride in hydrochloric acid 1 part is added and well shaken and replaced on the water bath. The presence of sesame oil is shown by a raspberry or wine red colour in the stannous chloride solution. The reaction will detect 1 per cent. of sesame oil.

Sprengel (Nitric Acid).—Phenol, 1, is dissolved in concentrated sulphuric acid, 4, and water, 2. One to 2 drops of this solution gives, in the presence of nitric acid, a reddish brown coloration, sometimes green, which changes to yellow on the addition of ammonia. Hager recommends the solution of a small volume of the sample in concentrated sulphuric acid the introduction of a crystal of phenol and gentle heating. Hydrochloric acid may be used instead of sulphuric acid, but in this case the heating must be carried to 80° or 90° C. Grandval and Lajoux base a colorimetric test for nitric acid on Sprengel's reaction.

Storch-Morawski (Resin Oil and Resin).—The resin is dissolved out in acetic anhydride, and mixed with sulphuric acid (1·53), when a red coloration results, which may be taken as an indication of the additionof resin to fats and varnishes. Copals give a brown colour reaction with this test.

Szabo (Hydrochloric Acid in Gastric Juice).—The reagent is a mixture of equal volumes of 0·5 per cent. solutions of ammonium rhodanate and sodium ferritartratc. The reagent is coloured brown by free hydrochloric acid. See Mohr's reagent.

Thiersch (Borax Carmine).—A stain for miscroscopical preparations, prepared by mixing carmine 0·5 Gm., with a solution of borax in 2 Gm., water 28 C.c. Absolute alcohol, 60 C.c., is then added, and the mixture filtered. The sections should be soaked in boric acid solution before staining.

Thiersch (Oxalic Acid Carmine). –A carmine solution prepared from carmine, 1 Gm.; ammonia, 1 C.c.; and distilled water, 3 C.c. It is mixed with a solution of oxalic acid, 8 Gm., in distilled water, 175 Gm., then 16 C.c. of absolute alcohol is added, and the mixture filtered.

Thoms (Copper Sulphate).—A solution of potassium iodide is mixed with a little starch. Traces of copper sulphate are shown by the resulting blue coloration.

Thormaehlen (Melanin in Urine).—On the addition of sodium nitro-prusside, potassium hydrate, and acetic acid, the urine is coloured a deep blue in the presence of melanin.

Thudichum (Egg Colouring Matter).—The colouring matter of yolk of egg extracted by ether, alcohol, or chloroform, is coloured blue by nitric acid, and gives characteristic absorption spectra. Commercial products cannot be tested by this reaction as the colouring matter in them is decomposed.

Toepfer (Hydrochloric Acid in Gastric Juice).—A solution of dimethyl-amido-azo-benzol (dimethyl orange), is coloured red by the combination of hydrochloric acid with albuminoids.

Tollen (Pentose).—Pentoses are coloured cherry red on being heated with hydrochloric acid and phloroglucin.

Tucholka (Bisabol-Myrrh).—Six drops of petroleum ether extract of the sample (1:15) are mixed in a test tube with acetic acid, 3 C.c., and covered with 3 C.c. of concentrated sulphuric acid. At the zone of contact a pink line appears immediately, gradually spreading to the acetic layer, and remaining for some time. Herabol myrrh gives only a very slight pink colour, the zone of contact first shows a green colour changing to brown with a green fluorescence after standing for some time.

Udransky (Gallic Acids).—One C.c. of the aqueous or alcoholic solution is mixed with one drop of a 0·1 per cent. aqueous furfurol solution. One C.c. of concentrated sulphuric acid is poured to the bottom of the mixture, in the presence of gallic acid, a violet red reaction appears at the zone of contact.

Uffelmann (Lactic Acid).—Phenol solution, tinted with ferric chloride is coloured yellow by lactic acid. Butyric acid gives a similar reaction.

Unverdorben-Franchimont (Resins and Terpenes).—The reagent is a concentrated aqueous solution of copper acetate. Sections of tissue exposed for several days to the action of the solution have their resinous portions coloured emerald green.

Uschinsky (Culture Solution for Bacteria).—Glycerin, 30 to 40 Gm.; sodium chloride, 5 to 7 Gm.; calcium chloride, 0·1 Gm.; magnesium sulphate, 0·2 to 0·4 Gm.; potassium phosphate, 3 to 2·5 Gm.; ammonium lactate, 6 to 7 Gm.; sodium asparagate, 3 to 4 Gm.

Uslar-Erdmann (Alkaloids).—See Erdmann-Uslar.

Valser (Alkaloids).—A modification for Mayer's reagent prepared by the solution of potassium iodide 49·8 Gm., in water 1 litre. The solution is shaken with mercuric iodide, in excess, and filtered.

Van de Vyvere-Franqui (Glucose).—See Franqui-Van de Vyvere.

Van Ermengen (STAINING CILIA OF BACTERIA).—See Ermengen, Van.

Velden (HYDROCHLORIC ACID IN GASTRIC JUICE).—See Suchard's reagent.

Verven (ALKALOIDS).—See Marmé's reagent.

Vitali (CHLORATES).—If a drop of aqueous aniline sulphate solution be mixed with a few drops concentrated sulphuric acid and added to a solution of a chlorate, a deep blue coloration results, which is intensified on dilution with a few drops of water. This reaction is not given by nitrates.

Vogel (QUININE).—If potassium ferro-cyanide and bromine water be added to a quinine solution until a faint yellow tint results and diluted ammonia be then added a red coloration is produced. Blaise states that the potassium ferro-cyanide is not essential to this reaction, tending only to render the colour more permanent. If strong ammonia be added to the red solution, the colour changes to green. If half saturated bromine water be added to the one-fourth per cent. solution of quinine until the commencement of a yellow reaction and if 1 to 2 per cent. ammonia be dropped in after half a minute a red colour reaction is obtained which changes to green on the addition of strong ammonia.

Vogl (FLOUR).—This is a mixture of alcohol (70 per cent.), 85, and hydrochloric acid, 5. A small sample of the flour is heated to boiling in the test tube, with the reagent after shaking, and is left to subside. If the flour be pure, the fluid is colourless; the presence of gruffs, with bran, is indicated by a straw-coloured tint. Corn-cockle flour is betrayed by an orange yellow, vetches by a pink, ergot by a flesh colour, buck-wheat by a green coloration.

Vrij, De (ALKALOIDS). —The reagent is phospho-molybdic acid. See Sonnenschein's reagent.

Waage (BOMBAY MACE).—Potassium bichromate in 3 to 5 per cent. solution colours the secretion of mace reddish brown. The alcoholic mace extract may either be examined or miscroscopical sections may be warmed with the reagent, and the colorations produced examined. In yellow Bombay mace green bodies are observed as well as brown.

Wallach (SESQUITERPENE).—The ethereal oil to be examined, or a fraction of it, is dissolved in a large volume of acetic acid, and a little concentrated sulphuric acid is gradually added; a green, then a beautiful indigo blue coloration is obtained, which is considered to indicate the presence of a sesquiterpene.

Weber (INDICAN IN URINE).—Is similar to MacMunn's test, but advocating shaking out with ether instead of chloroform. In the presence of indican the ether is coloured red to violet, and forms a blue froth.

Weigert (HÆMATOXYLIN STAIN).—One C.c. of a cold saturated solution of lithium carbonate is added to 100 C.c. of a solution of 0·75 to 1·0 Gm. haematoxylin in 10 Gm. of alcohol and 90 Gm. water. The washing of the stained sections is effected by a borax-potassium ferricyanide solution (borax, 2; potassium ferricyanide, 2·5; water, 100).

Weingaertner (BASIC AND ACID COLOURS).—Tannin, 25 Gm. and sodium acetate, 25 Gm., are dissolved in water, 250 Gm. Basic colours are precipitated by the reagent, but not acid colours.

Wemince (OILS).—Nitric oxide gas is passed into a suspension of the oil with water. The nitric oxide is produced from iron turnings and nitric acid. (Compare Barbot's, Behren's, Boudet's, Cailletet's, Poutet's reagent.

Werther (META-VANADATES).—An acidulated solution of a meta-vanadate shaken with hydrogen peroxide gives a red coloration; if highly diluted a brownish rose-red colour results; when shaken with ether the coloration remains unchanged, and the ether colourless

Wetzel (CARBONIC OXIDE IN BLOOD).—Three volumes of a 1 per cent. tannic acid solution are added to the blood after dilution with 4 volumes of water. Normal blood is gradually coloured grey, but blood containing carbonic oxide remains red.

Widal (TYPHOID).—One drop of the serum of the blood of a patient suspected of typhoid is added to 10 drops of a typhoid bacillus culture, 24 hours old, and stirred together. If the disease is typhoid, small particles will be observed under the microscope consisting of coagulated motionless bacteria. If the case be not typhoid the organisms will be freely motile. The serum of other infectious diseases exhibits the same conduct. As the reaction originally emanated from Gruber, it is latterly described as Gruber-Widal's reaction (compare also Pfeiffer's reaction).

Wittmack (WHEAT AND RYE FLOUR).—One Gm. flour is heated with 50 C.c. of water on the water bath to exactly 61° C., so that the temperature rises to 62·5° after removal from the bath. When settled, the deposit is examined microscopically The starch grains of wheat will not have changed their form, except a slight swelling; those of rye will be nearly all burst and distorted.

Wolfbauer (COTTON SEED OIL).—Ten Gm. of oil are shaken for two minutes with 7·5 Gm. concentrated nitric acid; when separated, 1 Gm. mercury is added and the mixture shaken for four minutes. Olive oil retains its colour, while the presence of 5 per cent. of cotton seed oil occasions a brown coloration.

Zaleski, Yon (CARBONIC OXIDE IN BLOOD).—On the addition of 2 C.c. of water and 2 drops of super-saturated copper sulphate solution to 2 C.c. of blood, a brick-red precipitate results in the presence of carbonic oxide. Normal blood produces a brownish green precipitate.

Zeller (MELANIN IN URINE).—The addition of bromine water to urine containing melanin produces a yellow precipitate, which changes to black on standing.

Zencker (FIXING SOLUTION).—Mercuric chloride, 5 Gm., potassium bichromate, 2·5 Gm.; sodium sulphate, 1 Gm.; water, 100. Before use, a few drops of acetic acid are added.

Zouchlos (ALBUMIN).—A mixture of 10 per cent. potassium rhodanate solution, 100, and acetic acid 20. With albumin it produces a precipitate or turbidity.

Zune (CULTURE SOLUTION).—Gelatin 50 Gm., agar 2·5 Gm., are dissolved in 600 to 700 Gm. sterilised filtered culture-broth. The white of an egg is added, the mixture heated until this is coagulated, then filtered, and the filtrate sterilised at 105° to 110° C.

AUSTRALIAN INDIGENOUS VEGETABLE DRUGS.*

BY J. H. MAIDEN,

Government Botanist and Director of the Botanic Gardens, Sydney.
(Corresponding Member of the Pharmaceutical Society of Great Britain.)

MONIMIACEÆ *(Continued).*

I have for some years now occasionally used a tincture of the bark of *Daphnandra micrantha* in the treatment of heart cases, apparently with good results; my patients expressed themselves as feeling much better, and the sphygmograph showed some improvement in the condition of the pulse. Daphnandra kills frogs by its action upon the heart, and kills warm-blooded animals by its paralysing effect upon the spinal cord. Although I did not anticipate that any good would result from the use of any substance having a paralysing action upon the cord in the treatment of tetanus, yet I tried Daphnandra in a severe case of tetanus in a man. He derived no benefit therefrom, and the last two days of his life he was kept, at his own desire, under the influence of chloroform. Should a remedy ever be discovered for tetanus, I believe it will be a substance having an injurious effect upon the microbes that cause the disease, like the effect of salicine in rheumatic fever, and quinine in ague." (*Trans. Intercol. Med. Congress*, 1890.)

Queensland.

*From the *Agricultural Gazette of New South Wales* (Continued from page 70).

Doryphora sassafras, Endl. "New South Wales Sassafras."

The sassafras-smelling bark is used as a tonic medicine. The odour is rather fugacious. It is taken in the form of an infusion. Dr. T. L. Bancroft informs the writer: "I have tried the bark on frogs, and found it to be inert."

New South Wales.

LAURINEÆ.

Cassytha filiformis, Linn. "Dodder-Laurel."

The whole plant pulverised and mixed with dry ginger and butter, is used in the cleaning of inveterate ulcers in India. The juice of the plant, mixed with sugar, is occasionally applied to inflamed eyes. (Rheede.) It is used in native practice as an alterative in bilious affections and for piles. (Dymock.)

Dr. Thomas Bancroft, of Brisbane, informs me that our *Cassythas* are physiologically inert, or practically so.

Queensland, Northern Australia.

Cinnamomum.

See a paper by R. T. Baker, *Proc. Linn. Soc., N.S.W.* [2], xii., 275. "On the Cinnamomums of New South Wales, with a special research on the oil of *C. oliveri*, Bail."

In this paper a new *Cinnamomum* (*C. virens*) is described, and full account of this and *C. oliveri* given.

Reference may also be given to Dr. J. Lauterer's paper on "The Sassafras-trees of Queensland and the chemistry of *Cinnamomum oliveri*" (*Proc. Roy. Soc., Queensland*, xi., 20). Following is a note by the late Dr. Joseph Bancroft on *Nesodaphne obtusifolia*, Benth. (a synonym of *C. oliveri*), taken from *A Contribution to Pharmacy from Queensland*, p. 11 (1886), published for the Colonial and Indian Exhibition.

"The bark has a strong aromatic odour, and pleasant astringent taste. It is frequently used by bushmen to improve the flavour of their tea, a little bit of bark being infused therewith. The active principles are a volatile oil with an odour like the North American sassafras, and a peculiar tannin. The bark has been used by me as a convenient aromatic astringent in diarrhœa and dysentery, having the properties of cinnamon and catechu in combination. It is most conveniently used in the form of a tincture made with 2 oz. of the bruised bark in a pint of rectified spirit."

New South Wales and Queensland.

Cinnamomum Tamala, Th. Nees. "Cassia Cinnamon."

The leaves are used both as a condiment and as a medicine in India. They are considered to be carminative, stimulant, diuretic, diaphoretic, lactagogue, and deobstruent. (Dymock.) The bark is also used for almost similar purposes.

Queensland.

Cryptocarya australis, Benth. "Laurel," or "Moreton Bay Laurel," and "Grey Sassafras."

The bark has a persistently bitter taste, due to the presence of an alkaloid which crystallises from its solution in stellate masses of acicular crystals. When administered to warm-blooded animals the alkaloid produced difficulty of respiration, ending in asphyxial difficulty and death. (Dr. T. L. Bancroft, in *Proc. R. S. Queensland*, iv., 1887.)

See also the same author, in *Proc. Intercol. Med. Congr.*, 1890, as follows:—

"The genus Cryptocarya contains a curare-acting principle. It is, I believe, an alkaloid closely resembling Curarine. Professor Fraser has promised to experiment with this poison, so before long something definite about it may be known. There are several species of Cryptocarya in South America, and notably one, *C. Guianensis*. It is Guiana where curare is obtained, and it is to the interest of the natives, who collect this substance, to keep its source secret. It seems that to inquirers, the natives always point to a Strychnos (chiefly *Strychnos Guianensis*—see Wittstein's *Organic Constituents of Plants*), as the tree from which they obtain the curare. Some samples of curare contain curarine, brucine, and strychnine; other samples contain only curarine, which fact seems to point to the juice of a Strychnos being added at times to enhance the poisonous nature of curare."

New South Wales and Queensland.

Litsæa.

Many of the Javanese species of Lauraceæ contain, in addition to other not yet clearly-defined bases, a crystalline alkaloid, termed *laurotetanine*, which has a strong tetanic action on animals. It is contained in quantity in the cortex of the stem of *Litsæa chrysocoma*, Bl., and is sparingly soluble in ether, more readily in chloroform. Greshoff, *Ber.* xxiii., 3537; *Journ. Chem. Soc.*, lx., 337.) *See* also *Sohn*, p. 60. It would appear desirable for at least our common *Litsæa* (*L. dealbata*, Nees) to be carefully examined.

PROTEACEÆ.

Grevillea mimosoides, R.Br.

N. Holtze points out that an acid secretion exudes from the seeds of this species. The secretion, which is powerful and acrid enough to produce sores, the scars of which remain for many months after, is thought to be useful in protecting the seeds from the attacks of cockatoos. (*Victorian Naturalist*, March, 1891.) What is the nature of this secretion? It is specially worthy of examination in view of the rarity of irritant principles in this natural order.

Northern Territory.

Isopogon ceratophyllus, R.Br.

The bark of this shrub is used as a bitter tonic in Victoria. (Tenison-Woods, *Proc. Linn. Soc.*, N.S.W., iv., 136.)

All the Colonies, except Western Australia and Queensland.

THYMELACEÆ.

Wikstræmia Indica, C. A. Mey.

Fijian native physicians apply the root-bark externally to sores, and give the leaves and bark of the stem and branches for coughs. (Seemann.) (See my paper on fish poisons of the aborigines in the *Gazette* for July, 1894.)

Coastal New South Wales to Northern Australia.

EUPHORBIACEÆ.

Cleistanthus.

The bark of *C. collinus*, Benth., is recorded as a fish-poison. (See *Pharm. Journ.*, July 23, 1898, p. 74.) Examination should be made of our *C. Cunninghamii*, F.v.M., for active principle.

Croton phebalioides, R.Br. "Native Cascarilla."

The bark contains an agreeable aromatic bitter.

Dr. T. L. Bancroft suggests that *C. insularis*, Bail., may possess medicinal value.

New South Wales and Queensland.

Euphorbia spp.

It is stated that the natives of the Northern Territory use the juice of a species of *Euphorbia* as a specific in smallpox.

Another species affords a juice said to be a remedy in cancer. Without committing oneself to an expression of opinion as to the utility of the *Euphorbias* alluded to, our native species will doubtless well repay a thorough examination of their medical properties.

Throughout the Colonies.

Euphorbia alsinæflora, Baill.

This herb is used in infusion by bushmen in cases of chronic dysentery and low fever. (Bailey.)

Northern Australia.

Euphorbia Drummondii, Boiss., "Caustic Creeper"; "Milk Plant," etc.

In 1887 an alkaloid called drumine was stated to have been extracted in Australia from this plant. It was stated to have the same local action as cocaine. The so-called alkaloid has been examined in England, and found to consist mainly of calcium oxalate. (*Pharm. Journ.*, January 7, 1888.)

In Western New South Wales the aboriginals use an infusion or decoction of the plant in genital diseases, and use rather strong

doses, but it is said that an overdose simply causes headache. Mr. P. A. O'Shanesy observes that this plant is said to be an infallible remedy for dysentery and low fever.

This is a plant that is very well known as a reputed poisoner of stock. It will suffice for me to refer to the *Gazette* for January, 1897, p. 18, for full references to the evidence. Personally, I do not think these *Euphorbias* have established their claim to be drugs of any value. C. T. Musson's paper in *Proc. Linn. Soc. N.S.W.* [2], iv., 389, "On the effects of eating pigeons that have fed on the seeds of *Euphorbia Drummondii*" may be referred to.

Throughout the Colonies.

Euphorbia pilulifera, Linn. "Asthma Herb," or "Queensland Asthma Herb."

This plant having obtained some reputation in Australia in certain pulmonary complaints, has acquired the appellation in the Colonies of "Queensland Asthma Herb." Nevertheless, it is by no means endemic in Australia, for it is a common tropical weed.

It was first introduced to notice by Dr. Carr-Boyd, of Townsville, Queensland, about 1880, as a remedy in asthma, bronchitis, and other diseases of the respiratory organs.

The herb from Fiji is said to be of better quality than that from Queensland, but inasmuch as it is a common weed in many countries, and, moreover, easily cultivated, any demand for it could be readily supplied.

The direction usually given by vendors is to simmer 1 oz. of the dried herb in 2 quarts of water, and to reduce the liquid to 1 quart; a wineglassful of this decoction is to be taken three times a day. If the fame of this drug be maintained, doubtless some enterprising pharmacists will present it to the public in a more elegant form.

The smoke, also, of the herb should be inhaled, either by means of an ordinary tobacco pipe, or by burning it on a slab. In either case care should be taken to get the smoke well into the lungs.

It is said that alcohol fails to extract the medicinal properties of this plant as efficiently as water.

It is reported to be of service in phthisis, relieving the distressing cough in that disease. Nevertheless, it is not an infallible cure, nor does it always even give relief in cases of asthma. I have known cases in which it has apparently utterly failed. Dr. Thomas Dixson, lecturer on Materia Medica at the University, Sydney, says that from his own observations the virtues of the plant have been vastly overrated, and that in reality it is but of little value. From careful and repeated pharmacological investigation he was unable to find any traces of actions of a definite and distinctive nature. From similar results, after investigating *Euphorbia Drummondii*, he suggests that the active principle must be of an unstable nature, and, therefore, to be found with certainty only in fresh specimens. Still, many cases have come under my notice in which it has unequivocally given relief, and I have no doubt that when the drug shall have longer stood the test of experience, members of the medical profession will largely record their experience of its use, and it will be assessed at its proper value. At present, as far as I have learnt the opinion of medical men in Sydney on this plant, it is only to be considered as one of the numerous remedies which give more or less temporary relief, and must on no account be regarded as a specific.

An exhaustive account of the drug, entitled "A contribution to the study of *Euphorbia pilulifera*, Linn., by Dr. A. Marsset, of Paris, will be found in the *Therapeutic Gazette* (Detroit, U.S.A.) for February, 1885.

I notice that Merck offers an *Extractum Euphorbiæ pituliferæ fluidum*. (See *Bericht*, 1892, 67.)

Queensland and Northern Australia.

Excœcaria agallocha, Linn. "River Poisonous Tree"; Milky Mangrove"; "Blind-your-eyes."

It produces, by incision in the bark, an acrid, milky juice, which is so volatile that no one, however careful, can gather a quarter of a pint without being affected by it. The symptoms are an acrid, burning sensation in the throat, sore eyes, and headache. A single drop falling into the eyes will, it is believed, produce loss of sight. The natives of Eastern Australia, as well as those of New Guinea, etc., use this poisonous juice to cure certain ulcerous chronic diseases, *e.g.*, leprosy; but in Fiji the patient is fumigated with the smoke of the burning wood. (*Vide* Seemann, *Flora Vitiensis.*) Mr. C. Hedley (*Prov. R. S. Qd.*, v.) states that the milky juice of this tree was formerly used by the Port Curtis blacks as a poison for their spears. In India the sap of the tree is called "Tiger's Milk," and is said to be applied with good effect to inveterate ulcers. The leaves also are used in decoction for this purpose. A good caoutchouc may be prepared from the milk. (See also *Pharm. indica*, p. 314.)

Northern New South Wales to Northern Australia.

Excœcaria parvifolia, Muell. Arg. The "Gutta Percha" of the Gulf of Carpentaria.

Dr. T. L. Bancroft mentions that people often cut a stick of this tree, and so get some of the juice into their hands and into their eyes; they then become for a time blind. This blindness is only of short duration, leading to no after effects.

"The natives use the bark mashed up in water in a wooden kooliman, and heated with stones from a fire close by. The wash is applied externally to all parts of the body, rubbing it in. Used for pains and sickness." (E. Palmer.)

Queensland and Northern Australia.

Mallotus phillipensis, Muell. Arg. "Kamala" of India.

The reddish powder from the capsules of this plant, called "Kamala" by the Hindoos, is a useful vermifuge, especially adapted for the expulsion of tænia.

Anderson found that a concentrated ethereal solution of "Kamala," allowed to stand for a few days, solidified into a mass of granular crystals, which by repeated solution and crystallisation in ether were obtained in a state of purity. This substance, named by him *Rottlerin*, forms minute, platy, yellow crystals of a fine satiny lustre, readily soluble in ether, sparingly in cold alcohol, more so in hot, and insoluble in water. The mean of four analyses gave its composition as $C_{22}H_{20}O_6$.) (*Pharmacographia.*)

New South Wales and Queensland.

Petalostigma quadriloculare, F.v.M. "Crab Tree"; "Native Quince"; "Emu Apple"; "Bitter Bark"; "Native Cinchona"; "Quinine Tree"; "Muntepen" of some Queensland aborigines.

The bark contains a very powerful bitter, said to have the same properties as cinchona. (Hill.) Tenison-Woods, however, states (*Explorations in Northern Australia*): "It is usually covered with fruit like a small yellow plum, of eminently nasty taste. This is, I believe, its only claim to be called a 'quinine.'"

This surmise is not correct, as the bark is regularly employed as a bitter. I have seen the fruits of the colour of red tomatoes, the tint varying between yellow and red.

Dr. Joseph Bancroft states that its bitterness is due to a peculiar tannin. Dr. Thomas Bancroft informs me that this bark is physiologically inert, or practically so.

Armit (*Proc. Linn. Soc.* [Bot.], xx., 69) states that it is a useful remedy in fever, low or intermittent; 10-grain doses of dried bark three times per diem often producing a favourable result.

"It is one of the best tonics I know of. I use it often, especially the kernels. I believe it is as good as pepsin for giving an appetite. (Mr. McGregor.)

The stem-bark is said to contain, together with the ordinary plant-constituents, a camphoroidal essential oil, and an indifferent bitter principle belonging to the glucosides.

The ash of the bark is 8·3 per cent., and an analysis is given by K. Falco, *Chem. Centralbl.*, 1867 ("Rinde eines Baumes aus Süd-Australien"). See also Wolff, *Aschen-Analysen*, i., 128, and Watts' *Dict.*, vi., 1st *Suppt.*, 904.

Northern New South Wales and Northern Australia.

Phyllanthus.

An intensely bitter, poisonous principle called Phyllanthin has been found in *P. niuri*, from Java, by Ottow. In view of the numbers and abundance of our species of *Phyllanthus* they should be investigated. See Sohn, p. 78.

(*To be continued*).

LEGAL INTELLIGENCE.

Proceedings under the Pharmacy Acts.

Pharmaceutical Society *v.* J. H. White.

At the Worcester County Court, on Tuesday, Sir Richard Harington tried an action by the Council of the Pharmaceutical Society against Joseph Hill White, seedsman and florist, of Broad Street, Worcester, claiming £5 penalty under the Pharmacy Act for "having sold or kept open shop for retailing, dispensing, or compounding of poison," viz., arsenic, contained in and forming part of a compound known as Climax Weed Killer. Mr. T. R. Grey (barrister) appeared for the plaintiffs, and Mr. T. G. Dobbs (solicitor) for the defendant.

The defence was that the defendant was not the seller of the poison within the meaning of the Act, and also that he did not keep open a shop within the meaning of the Act. It was admitted that the weed killer contained poison, and that the defendant was not a person qualified to sell poison.

Mr. Grey, in opening the case, said the question at issue was of very serious public interest and importance; and the facts were not in dispute. The defendant had at his shop handbills holding himself out as a person able to sell certain weed killer. He (Mr. Grey) would call a witness who went to the defendant's shop and asked for two gallons of the weed killer. The defendant himself took the order from him, asked his name, took the money, and finally handed him a receipt. That document bore upon the heading, "Bought of the Boundary Chemical Company, Limited, Railway Arches, Luton Street, Liverpool," and was signed by the defendant as agent for the company. The drum of weed killer was afterwards delivered direct from Liverpool to the witness at Edgbaston. It was analysed and found to contain as much as 6 lbs. of arsenic, which was sufficient to kill 20,000 adults if administered in a certain way. The real question for them to decide was who was the seller within the Act. Section 1 of the Pharmacy Act required the seller to be registered as qualified to sell, and Section 15 imposed a penalty of £5 on any unqualified person keeping open a shop for retailing poison. He quoted the cases of Templeman and Trafford, 8, Q. B., p. 397, Law Reports, and the Pharmaceutical Society and Wheeldon, 24, Q. B., p. 683, in support of the argument that the defendant was the seller.

His Honour pointed out that in those cases the goods were sold over the counter, which was not the case here.

Mr. Grey admitted that there was not a case on all fours with this. He submitted that the defendant was the seller, and that none of the restrictions imposed by Section 17 of the Act in selling could be performed by the company in Liverpool.

William Painter, a former Detective Inspector of the Birmingham Police, said he made the purchase on behalf of the Society at the defendant's shop. When he asked the defendant if he sold weed killer he said "yes." Defendant asked him to pay for the weed killer there and then, and the defendant said to his son "give him (witness) a receipt on the bill-head of the Liverpool firm." Defendant said the killer would be forwarded direct to him. He picked up a handbill from the counter about the weed killer, in which defendant was described as agent. When he received the drum he handed it to Mr. Moon.

Cross-examined: Defendant told him that he did not keep the weed killer in stock, and impressed on him that he was only the agent of the company.

Harry Moon, clerk in the office of the Registrar of the Society, said he instructed the last witness to make the purchase, and he had the authority to sue in this case.

Ernest John Eastes, analyst, said he analysed the contents of the drum and found it contained six pounds of arsenic, sufficient to poison over 20,000 adult "persons."

Joseph Hill White, defendant, said he told Painter that the law did not allow him to keep the weed killer in stock. He told him that he could order the stuff direct, or send his money direct. He (witness) had not the slightest control over the forwarding of the weed killer. He had never kept any in stock, and had never sold any in his shop.

Cross-examined, he added that the company allowed him a commission of 25 per cent. on the amount of his orders. He sold about £16 worth in 1898.

The Judge thought that could only be elicited from the defendant with the view to expose him to further penalties.

Mr. Grey said that was not the motive of the question.

Defendant, in answer to further questions, said the only instruction he knew of was that he was not allowed to keep the weed killer in stock.

Harry Joseph White, son of the defendant, and assistant to him, corroborated, saying he was present in the shop during the transaction. He maintained that his father told Painter he did not keep the weed killer in stock.

Mr. Dobbs submitted that there was no evidence before the Court that there was a sale within the meaning of the Act. The 15th Section seemed to point to the keeping open of a shop and the selling together. There was no case giving a definite decision against a seller having sold such goods where he had not had the means of supplying them. Mr. Justice Grove in Templeton *v.* Trafford laid it down that the seller was the person who actually conducted the sale. He emphasised the fact that Mr. White could not control the sale. He simply took the order and forwarded it for execution by the company, who kept a registered chemist on the premises. The company could have refused, if they had liked, to execute the order. He urged, therefore, that Mr. White could not be regarded as the seller.

Mr. Grey replied that the place of sale within the meaning of the Act was where the essential part of the sale took place, and did not imply necessarily that the material should be in the shop. He submitted, too, that the seller was the person with whom the contract was made, not only within the Pharmacy Act but within the common law and the Sale of Food and Drugs Act.

The learned Judge asked if the goods must not needs be in the shop capable of being delivered.

Mr. Grey submitted that they need not, but that the defendant, the retailer, had control over the sale. Here was a company of four or five people of very small capital, formed in order to prevent the Act of Parliament touching them. The case of the Pharmaceutical Society against the London and Provincial Supply Association held that "person" under Section 15 did not apply to a company or corporation. This company might perhaps have fifty or sixty agents, and if the contention for the defence held good they might manufacture weed killer, laudanum, or any other drug or dangerous poison, and if this was not an evasion of the Act they could supply any quantity of them through the agents without their having passed through the hands of one registered person from beginning to end. And by that means the Act must become in a great many cases a dead letter. He (Mr. Grey) referred to the case, lately heard by the magistrates of Exeter, of Sanders and Morny, 14, *Times* Law Reports, p. 346, and to Stallard and Marks, 3, Q.B., p. 412.

The learned Judge held that the latter case was an authority for the inference that the Boundary Company were liable to any penalty for the conduct of the sale in this case. The agent who was convicted under the Licensing Acts in that case made a bargain at Cheltenham for his principals who had premises at Worcester, and the principals were held responsible.

Mr. Grey said that the inference would be so under any Act but the Pharmacy Act. The defendant must be held to be the servant of the company. Clearly it could not be the person who put the drum on the railway dray.

The learned Judge said that argument was one akin to that if you could not hang the highwayman you must hang the person who saddled his horse.

Mr. Grey contended that the decisions of the cases he had quoted tended to hit the person who set the sale in motion. If the defendant was not the seller the case opened out an easy way of evading a most useful Act of Parliament, because any body of persons could form themselves into a company and would be able to supply dangerous drugs and poisons through their agents, and they could not be touched by the Pharmacy Act.

The learned Judge said the case suggested developments that might bring the Act into ridicule, but it was inconceivable that any mischief could result from the supply of the weed killer in this particular way. The argument that it was unlawful for any unqualified person to sell it would apply equally to anyone who sold paint containing arsenic. If that principle was pushed to its utmost limit it would mean that a drysalter would not be able to sell paint containing arsenic, but that it would have to be sold by a chemist. It was scarcely conceivable that the Legislature intended such a thing. He did not think the case turned upon any technical question as to what the word sell meant. It meant the act of the person who had the conduct of the transaction. Where the evidence varied as to facts he preferred to take the word of Mr. White, a respectable tradesman, and that of his son, to

that of a professional spy. Throughout the transaction Mr. White appeared to have represented himself as the agent of other persons, and whether those persons were acting within the law was not for that Court to inquire. He was not there to decide whether the Boundary Chemical Co. committed any offence by what they did, but whether Mr. White committed any offence. The result of Mr. White's action in taking and forwarding the order might render the company open to a suit for breach of contract if they refused to fulfil the order, but it did not impose any liability on him, as the control of the sale appeared to remain with them. He quite thought that if Mr. White had kept this material in stock, and had handed it over the counter to the customer it would have been no sort of answer to the suit for him to say that he was only selling as agent. If Mr. White had kept the drug in the cellar, and had said to the purchaser, "We will send it by your cart," he would have been just as much the seller as if he had handed it over the counter, because the sale would have been under his control. Accepting an order and sending it on to somebody else for fulfilment did not make a person the seller of the goods and the person responsible. That being so, he thought the goods were not sold in the sense of the Statute by Mr. White. If they were sold in the sense of the Statute it was by the Chemical Company. Whether, notwithstanding the case in the House of Lords, they had exposed themselves to any penalty, was not for him to say. But he did not think that, according to the facts, Mr. White had subjected himself to any penalty, nor did there appear any reason for holding that he had enabled other persons to avoid the law. It was those other persons who had broken the law if anybody had done so. There must be judgment for the defendant.

Mr. Grey asked his Honour to allow an appeal.

The Judge said he would consider the question, and subsequently he gave leave to appeal.

Pharmaceutical Society *v.* Edith Gardner.

This case came on before his Honour Judge Yate Lee, at the Ashton-under-Lyne County Court, on July 27.

The action was brought by the Pharmaceutical Society of Great Britain for the recovery of the amount of one penalty (£5) under Section 15 of the Pharmacy Act, 1868, incurred by the defendant by having sold poison contrary to that Act.

The defendant is an unqualified assistant at the shop 160, Stamford Street, Ashton-under-Lyne, kept by the Thompson Drug Co., Limited, who are also proprietors of another shop at 291, Stamford Street, Ashton-under-Lyne.

Mr. Harold Hyde, Solicitor of Ashton-under-Lyne, instructed by Messrs. Flux, Thompson and Flux, of London, represented the plaintiffs.

Previous to the date for hearing, the defendant had signed a confession of judgment, but had made no proposal under the County Court rules as to payment of the amount of the debt and costs.

Upon the case being called on, Mr. Hyde, after drawing his Honour's attention to the nature of the action and the facts as above mentioned, pointed out the desirability of an order as to payment being made so as to act as a warning and deterrent to others which could only be obtained by the publicity consequent upon the taking of these proceedings under the Pharmacy Act.

The plaintiffs were charged by the Legislature with the administration of the Pharmacy Act, and not only had a public duty to perform, but (as the preamble of the Act stated) they performed same for the "safety of the public."

In the end His Honour gave judgment for the plaintiffs in accordance with the confession, the amount with the costs to be paid by instalments of the nature contended for by the plaintiffs.

Condensation Products of Cotoin and Formaldehyde.—Tasteless and odourless derivatives of cotoin have been obtained by the action of formaldehyde on the base in the presence of an acid corresponding to the equation—$2C_{14}H_{12}O_4 + CH_2OCH_2 (C_{14}H_{11}O_4)_2 + H_2O$. In this way either monomolecular or polymeric methyl-dicotoin are obtained. The first body crystallises from acetone in brittle shining prisms, readily soluble in acetic acid, chloroform, and acetone, dissolving with difficulty in alcohol, ether, and benzene, insoluble in petroleum, ether, and water. The body is readily decomposed by alkalies; it melts at 211° to 213° C. with decomposition. The polymeric compound forms a yellow or brownish amorphous powder, which is much more difficult to dissolve.—*Oest. Zeit. für Pharm.*, **53**, 295.

THE COMPANIES ACTS AMENDMENT BILL.

THIRD READING PASSED.

In the House of Lords on Thursday, August 3, on the motion for the third reading of the Companies Bill, the Lord Chancellor said:—My Lords, there are one or two observations which, I think, it is desirable I should make to your lordships. There were some clauses introduced in the Bill in Committee having relation to questions which, I think, are very interesting to the medical and pharmaceutical professions. I have received a very large number of communications upon the subject, and I am fully alive to the necessity of guarding very carefully the language by which the intentions of the measure, as manifested by the amended form of the Bill, should be carried out. I am still very strongly convinced that a company ought not to be permitted to do what a private person is prohibited from doing, and that the public must be protected against practising of that sort. It is impossible to resist the propriety of subjecting those companies who are at present carrying on business as chemists and druggists to restrictions such as are proposed in the Bill. I daresay your lordships will remember that cases have been decided—in my opinion rightly decided—that the language which calls upon a person to qualify in any of the professions does not in turn apply to companies; and that the word "person" in the Acts which form the code upon that subject must be construed as meaning a natural person and not a company. The idea of an ideal personage such as a company practising and undergoing an examination is absurd, and cannot cohere with the language of the Statute. In my view, the learned judges who came to the conclusion that that was the true construction of the Statute were perfectly right, and that decision left the law that a company could be formed to do the very thing which an individual is not permitted to do without examination as to qualifications. I think I may say that the Committee to whom this matter was referred was unanimously of opinion that the formation of companies to practice any profession and who intended really to take advantage of the company machinery to do that which an individual without qualification may not do, should be stopped. As I have said, I have received a large bulk of correspondence on the subject, and in some of the communications which have been sent to me it is suggested that this is an effort to prevent proper enterprise, and so forth. As a matter of fact, I think the writers were not familiar with the state of the law. It is true to say that although a company can do it, and that at present a company cannot be prosecuted for doing it, and a company cannot undergo an examination to enable them to do it, yet if an individual dispenses without qualification you can catch him and prosecute. And it was in view of that state of the law on the subject that the Committee to which this matter was referred came to their conclusion. I must say that I quite agree that if this matter is to come forward, as it probably will in another session, it is desirable that we should guard very carefully the language used, so as not to interfere with any proper vested interest; but, on the other hand, that we should not allow the public generally to be exposed to the dangers of the practising of unqualified persons as dispensers. What I said on a former occasion, that the Committee were practically unanimous, appears to have given rise to controversy. I say so still. It is true there were certain divisions on matters of detail during the investigations, which lasted three years—some members of the Committee went one way and some the other—but they were not important questions. What I said before, and what I adhere to now, was that on the main lines of the Bill, the important matters under the Bill, the measure as now presented represents the practically unanimous decision of the Committee. I think, my Lords, that it is a subject of congratulation that on such a subject practical unanimity has been attained. At this period of the session I think it is, perhaps, not worth while that I should go through the whole clauses of the Bill. I have said all that is necessary on the report of Amendments to the Bill. I can only add that I believe the Bill will be a very great improvement on the state of the law as it exists at present, and that it will in a great measure check the creation of fraudulent companies, which, I think, is the proper thing to do, and not to enact a penal code against persons engaged in the conduct of such enterprises.

The Earl of Kimberley and the Earl of Dudley expressed approval of the Lord Chancellor's views, and the Bill was read a third time.

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THE COMPANIES BILL AND THE PRACTICE OF PHARMACY.

THE statement made by Lord HALSBURY at the third reading of the Companies Bill in the House of Lords and in explanation of the two clauses introduced into the Bill while in the Committee stage was extremely important on account of the further and. as some may be disposed to think, unexpected disclosure of the views of the Government, and of legal authorities, concerning company legislation as it may affect persons engaged in various occupations of a more or less professional nature and requiring, for their exercise, qualification of the individuals carrying on the business. From the time when the LORD CHANCELLOR first expressed his opinion that the state of the law relating to the business of a chemist and druggist was extremely unsatisfactory, and when he proposed to remedy the consequent anomaly in the Society's Pharmacy Bill of last year, there has been much uncertainty as to the precise direction in which the LORD CHANCELLOR desired amendment of the law and as to the particular influence of such contemplated amendment upon the privileges of persons registered under the Pharmacy Act, 1868, and legally entitled to describe themselves as chemists keeping open shop for retailing. dispensing, and compounding poisons. That uncertainty has now been entirely removed by the LORD CHANCELLOR'S explanation of the reasons for introducing into the Companies Bill provisions having special application to the business of pharmaceutical chemists. Some readers of this journal will probably be surprised to find that the tendency of the LORD CHANCELLOR'S remarks last week was entirely in accord with the principle of the suggestions made by the Council of the Pharmaceutical Society, last February, as to the lines upon which general amendment of pharmacy law is desirable, and was also in accord with the view that company trading should be prevented from interfering with persons qualified under the Pharmacy Acts. But such is actually the case, as will be seen from the report at page 168. Though the decision of the House of Lords as to the natural construction of the word "person" as it stands in the Pharmacy Act, has been accepted by his Lordship as being the only one possible in that case, the acceptance of that construction is coupled with a distinct indication that a company, as such, is to be considered outside the scope of the statute, not only for that reason, but also for the much more cogent reason that a company is as incapable of performing the functions of an individual qualified under the Act, as it is of undergoing the examination essential for obtaining qualification.

That the highest legal authority in the Kingdom gives emphatic expression to that view is of no small importance, for if it does not amount to an admission that the decision in question was technically erroneous, it shows, at least, that the decision, as hitherto understood, is now recognised to have been acted upon in a manner contrary to the spirit of the Pharmacy Acts, and directly opposed to the intention of their promoters. That view of the decision—which has always been maintained by the Pharmaceutical Society—appears, moreover, to have been entertained by the LORD CHANCELLOR from the time when he first attempted to give effect to it, last year, by an addition to the Society's Pharmacy Bill, which could not then be carried out in face of the undertaking that contentious matter should not be introduced into that Bill. The anomaly that a company was not liable to penalty, complicated by the misleading suggestion of the widow's clause, led then to a one-sided view, leaving the reasonable claims of registered chemists out of consideration. Hence the defects of the LORD CHANCELLOR'S earlier proposal, which appears now to have been largely corrected by his adoption of the principle embodied in the Council's suggestions.

Whenever the provisions of the Companies Bill, relating to the business of a chemist and druggist, come before Parliament in definite shape, for the purpose of giving full legal effect to the intention of the Pharmacy Acts, they will probably be treated as contentious matter. The unqualified persons who have, in defiance of the law, kept open shop for retailing, dispensing, and compounding poison, and have assumed the title of chemist in connection with their business, will no doubt be active in their defence. Reference to the report of the LORD CHANCELLOR'S speech will show that such a contingency has been anticipated by his Lordship and that he is fully alive to the necessity of avoiding interference with rights and privileges other than those intended to be conferred by the Pharmacy Acts, or, as he expresses himself, "with any proper vested interests." At the same time it will be seen that Lord HALSBURY is decidedly of opinion that the public should not be exposed to danger by unqualified persons practising as dispensers. In those respects the arguments put forward in this journal during the last few months find complete support in the utterances of the LORD CHANCELLOR. The expectation may also be entertained than when the subject comes to be considered by the Legislature, in regard to the claims of legally qualified persons to enjoy the privileges consequent upon and essential to their qualification, the justice of those claims will be duly recognised. It will be seen that the statutory provisions conferring those privileges have not been enacted for the benefit of chemists and druggists; but in the interests of the public, and that their observance is requisite, for that reason as well as in justice to persons who have complied with the requirements of the law. If some of those who take part in the settlement of this matter, as one of national importance, happen to be shareholders in companies that have exceeded their rights and, either inadvertently or otherwise, trespassed upon those of registered chemists, there need be no fear that claims of a reasonable nature will suffer on that account provided that qualified chemists are united in their efforts to obtain redress for the injury they have suffered.

ANNOTATIONS.

WHATEVER ENCOURAGEMENT MAY BE GIVEN by the proverb that everything comes to those who wait, is perhaps more frequently followed by the effect of hope deferred than by tangible consolation; but, in regard to the long-continued and hitherto fruitless efforts made by the Council of the Pharmaceutical Society to obtain a remedy for the company grievance affecting registered chemists and druggists, the statement made by the Lord Chancellor at the third reading of the Companies Bill in the House of Lords seems to furnish reasonable prospect of speedy compensation for the patience with which a great injustice has been endured. As bread cast upon the waters and found after many days, the labour expended some years ago in bringing to the notice of government departments the mischief resulting from abuse of the Companies Acts, and from the defects of the Pharmacy Act, 1868 seems at length to have had such effect as to give promise of a satisfactory legislative result. Mr. Carteighe and his colleagues, who took part in the work referred to, may first of all be especially congratulated on the ultimate recognition of their claim that evasion of the Pharmacy Act by companies of unregistered persons was a matter to be dealt with in a Companies Bill. That point is now secured by the insertion of a clause for the purpose in the Companies Bill introduced by the Government, and though the terms of that clause will require further amendment than they have already undergone in the transfer of the clause from the Lord Chancellor's Pharmacy Bill, the probable nature of that amendment may be inferred from his Lordship's very emphatic expression of his own strong conviction that a company ought not to be permitted to do what an individual is prohibited from doing, as well as from the further statement that the Committee to which this matter was referred was unanimously of opinion that the formation of companies to practise any profession and to take advantage of the company machinery to do that which an individual without qualification may not do, is contrary to the present state of the law and should be stopped.

THE LEGAL POSITION OF REGISTERED CHEMISTS in regard to the practice of their business is, as stated in the Pharmacy Act, of such a nature as to give them individually the exclusive privileges of carrying on that business and of using the title of chemist in connection with it. Consequently the usurpation of their privileges by unqualified persons incorporated as companies is as inconsistent with the object of the Pharmacy Act as a public measure as it is with a common-sense view of its intention, and in that respect registered chemists are very much more favourably situated than the members of some other professions. For, though the idea of such a company carrying on any practice requiring individual qualification is absurd in itself, as the Lord Chancellor remarked, the business of chemists and druggists is by statute restricted to qualified persons, while the practice of medicine has no such legal limitation. While the right to use the title of physician is matter of dispute, and practice as an apothecary is difficult to define, the actual practice of medicine is open to anyone, and there is very much less legal reason for prohibiting seven persons—who individually have that right in common—from practising medicine as a company, than there is for prohibiting seven persons, individually unqualified, from carrying on, as a company, the business of a chemist and druggist. Though the generosity indicated by the professed disposition of the medical profession to support registered chemists in the defence of their legal privileges is entitled to recognition, the condescending manner in which that disposition has been expressed by our contemporary, the *British Medical Journal*, does not quite suit the relative legal position of the two parties in regard to company legislation. Pharmacists have led the way in impressing governmental departments as to the legal and common-sense claims of persons engaged in occupations for which some kind of qualification is demanded in the public interest, and there is no reason whatever for unequal appropriation of the fruits of their labour.

THE CIRCUMSTANCE THAT PRIVILEGES, lawfully acquired by some fifteen thousand British subjects, are unjustly interfered with by persons who have not satisfied the requirements of the Statute by which the privileges referred to were established, points to a state of affairs which deserves and requires greater attention than it has hitherto received either in connection with the interests of the general public, or in a more limited relation, as a matter prejudicially affecting chemists and druggists registered under the Pharmacy Act, 1868. In both respects there has long been need either of amendment of the law or of such more rational interpretation of it as would obviate the flagrant abuse of the Companies Acts for the purpose of evading the salutary provisions of the Pharmacy Act and filching from legally qualified persons the privileges exclusively belonging to them as a consequence of their qualification. That such a necessity exists was made evident in an unexpected quarter by the opinion expressed last year by Lord Halsbury as to the effect that has been produced by the decision that the word "person" in the Pharmacy Act, 1868, is not to be held applicable to any other than an individual person, capable of being examined and registered as the Act provides. That effect he regarded as an anomaly so serious that it required correction by further legislation, because he held that common-sense demands that an incorporated company should be subject to penalty for any infringement of the Pharmacy Acts, just as much as an individual. The drift of those remarks of the Lord Chancellor does not appear to have been quite clearly apprehended at the time by registered chemists; but it is remarkable that his evident interest in the matter was not taken advantage of by them with a view to remedy a grievance of which they have complained so long and stop misuse of the chemist's title.

THE CASE WAS DIFFERENT WITH THOSE PERSONS who were at that time disregarding the provisions of the Pharmacy Act, and, though unqualified, were carrying on the chemist's business under the assumption that as companies they could not be brought within the penalties imposed on unqualified individuals. They, perhaps naturally, appear to have had a keen perception that they were on dangerous, if not forbidden, ground and became apprehensive. The inference drawn by them from the Lord Chancellor's remarks was that the existence of drug companies was threatened, and that the Lord Chancellor's intention was to remedy the anomaly he had recognised by a legislative measure which would prevent companies from continuing to carry on business as chemists. From that point of view many of the communications which the Lord Chancellor speaks of as having been addressed to him have no doubt suggested that these piratical companies had acquired a vested interest, by defying the law, and that making them subject to its penalties would be an endeavour to prevent proper enterprise. It is satisfactory therefore to find that, in referring to such arguments, his Lordship expresses the opinion that the writers who took that line of argument were not familiar with the state of the law. In that connection his further remarks appear intended to convey the common-sense idea that a company is just as incapable of anything for doing which an individual requires to be qualified, as it is incapable of being prosecuted under the Pharmacy Act, and that consequently registered chemists have a right to claim such interpretation, or, if need be, amendment of the law as may be requisite for giving legal effect to that view of the matter in their own interest as well as for that of the general public.

But if the Fact of Companies constituted of unqualified persons carrying on the business of a chemist without being liable to penalties under the Pharmacy Act, appears to the legal mind an anomaly from a common-sense point of view, there is another aspect of the matter upon which the influence of common-sense may be usefully brought to bear for the purpose of correcting another anomalous result by which legally qualified chemists are especially prejudiced. The use of titles indicative of qualification for retailing, dispensing, and compounding poison is exclusively the privilege of individuals, and the assumption of such titles by companies is still more inconsistent with the object and intention of the Pharmacy Acts than keeping open shop for retailing, dispensing, or compounding by the agency of a legally qualified assistant or manager. Though such an assistant would be entitled to sell or dispense on his own account, nothing can justify the lending of his qualification to a company of unqualified persons, and he could not in any case transfer to the company the right to use the title indicating qualification. If, as some have thought, the objects of the Pharmacy Act may be to some extent secured so far as the interest of the public is concerned, by requiring companies to employ qualified assistants, that plan would not give chemists their due if the use of their titles by companies were allowed. Such improper use of title has not been brought before a court, and though it might be contended that it is really an infringement of the Act, there is a danger of the precedent of of the House of Lords decision—as it has hitherto been understood—being held to extend legal immunity to a company for any act contrary to the provisions of the Pharmacy Act.

The Lord Chancellor when speaking of personal qualification as being a condition essential in the interests of the public, particularly mentioned the business of the pharmaceutical chemist and the dispensing of medicine as occupations in the exercise of which he considers that condition should be secured by statutory provisions which would not allow the public to be exposed to danger by the practice of unqualified persons. Apparently, the inference may be drawn that he makes some distinction between those occupations and the business of a chemist and druggist partaking more of the nature of ordinary trade. While admitting the impossibility of resisting the propriety of subjecting companies to restriction even as regards carrying on business as chemists and druggists, Lord Halsbury also holds that companies should be altogether debarred from carrying on the more professional occupations because of their inability to acquire the necessary personal qualification. That appears also to have been the unanimous conclusion arrived at by the Committee on considering the matter in connection with the present state of the law. That view is quite in harmony with the Council's suggestion that the dispensing of medicine should be carried out only by persons qualified within the meaning of the Pharmacy Acts, and it is in accord with the system obtaining in all countries where the practice of pharmacy is regulated with due regard for the public interest and also for the just claims of pharmacists.

Assuming that the Limitation of liability contemplated by the Companies Acts was intended to relate only to financial matters, and that limitation of liability to penalties for statutory offences is properly outside the intention and scope of those Acts, the introduction, into a Bill for amending the Companies Acts, of provisions as to the mode in which the business of a chemist and druggist should be conducted appears to be somewhat inappropriate. Such abuse of the Companies Acts requires a general prohibition, and that object might be suitably effected by a clause prohibiting companies from the exercise of any professional practice or business requiring a personal qualification. Thus, for example, if Clause 3 of the Companies Bill ran as follows that purpose would be served without depriving qualified persons of any advantage they might derive from incorporation under the Companies Acts, should they find that desirable. It shall be unlawful for a company, or other association of persons, to carry on any professional practice or business requiring for its exercise any kind of personal qualification or to use any title or designation implying such qualification, unless the persons constituting the company or association severally possess a qualification that would entitle them to carry on professional practice or business individually, and if any company contravene this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

Any Further Regulation of the business of a chemist and druggist for which good reason can be shown, or of the practice of pharmacy, might be effected more suitably in a Bill to Amend the Pharmacy Act, 1868, by clauses providing: That it shall be unlawful to sell poison by retail, or to keep open shop for dispensing or compounding medicines, and to assume in connection with such business any title or designation implying qualification for those purposes, unless the proprietor or manager conducting the business in such shop be registered as the Pharmacy Act, 1868, provides, and the name and qualification of each proprietor or manager be conspicuously posted in each shop or other place in which the business is carried on and printed on all labels required to be used in conformity with the provisions of the Pharmacy Act, 1868, and for any infringement of these provisions such proprietor or manager shall be liable to penalty. Any person keeping open shop for retailing poison or dispensing or compounding medicine, and using in connection with that business the title of chemist and druggist or any other designation implying registration under the Pharmacy Act, 1868, who shall fail to conform with any regulations as to the keeping, dispensing, and selling of poisons, made in pursuance of that Act, or who shall compound any medicines of the British Pharmacopœia otherwise than according to the formularies of the said Pharmacopœia, shall for every such offence be liable, etc. Any person retailing, dispensing, or compounding poison, unless registered as a chemist and druggist, or acting under the direction and personal supervision of a person so qualified, shall for every such offence be liable to pay a penalty, etc.

The Conduct of Urine Analysis by Chemists is thought by the *Medical Press* to have much to commend it, but it is suggested that their training is, as yet, hardly such as to fit them for the task. Medical men, it is pointed out, are not likely to have recourse to the services of chemists merely in order to ascertain qualitatively the presence of albumin or sugar in urine, as that much can easily be done within the time at the disposal of the busiest man. What is more likely to be required is an exact quantitative analysis, not only in respect of albumin and sugar, but also in regard to urea, uric acid, and the various abnormal constituents of morbid urine. But ability to furnish trustworthy reports on those lines is said to require special training and experience of a kind not at present within the reach of most retail chemists. It is suggested that, when British universities "awaken to the opportuneness of instituting a degree in pharmacy," urine-testing and the analysis of alimentary substances might well form a conspicuous item of the curriculum. "By the time a chemist reaches this stage of graduation, however, he would probably relinquish counter-prescribing and the sale of toothbrushes and soaps in favour of the more purely scientific departments of his calling, and it is probable that his fees would be on a scale which would indispose the average practitioner from having recourse to his assistance." But, having placed the chemist and druggist in this dilemma, the *Medical Press* concludes with the more comforting prophecy that at some time in the future the medical practitioner "who by that time will have given up dispensing his own medicines," will probably get his

analyses and bacteriological examinations done by the chemist, presumably in spite of the advanced fees.

IN REFERRING TO THE CONFERENCE PAPERS last week it was pointed out that the number communicated at Plymouth was much in excess of what was justified by the limited time available, and the suggestion was offered that a remedy might be found for such a state of affairs by asking authors to read abstracts only, whilst advance proofs of their papers were in the hands of those members of the Conference present at the meeting. If that remedy were to be adopted, however, it would be necessary for the contributors of papers to send their manuscripts to the Hon. Gen. Secretaries much earlier than they have acquired the habit of doing. It is, or ought to be, well known that, in the Blue List issued about the beginning of June each year, containing a list of subjects suggested by the Executive Committee of the B.P.C. for investigation, a request is made that all manuscripts of papers should be sent in to the Hon. Gen. Secretaries at least ten days before the annual meeting. This year, therefore, the manuscripts should all have been delivered to the Secretaries by July 15 at latest, and—in accordance with the arrangement by which the Editor of the *Pharmaceutical Journal* undertook to have the papers put in type as soon as they reached him—they ought to have been in the printer's hands by July 17 or 18. As a matter of fact, only eight out of the thirty papers arrived within the prescribed time, four arrived on July 18, five on July 19, seven on July 20, one on July 21, three on July 22, one on July 24, and the last was not in the printer's hands until July 27. Nevertheless, proofs of all papers received by the Editor up to Friday, July 21, were promptly sent direct to the authors for correction—in most cases on the same day as the papers arrived—and proofs of all the remainder were in Mr. W. A. H. Naylor's possession, at Plymouth, when the meeting opened on Tuesday, July 25. There is, of course, no obligation on the part of the Conference Executive to furnish any proofs to authors prior to the meeting, but, as the above record shows, everyone whose paper was received within four days of the annual meeting had a proof sent to him in advance for correction, and further proofs were awaiting every author—except one who had not sent off his manuscript in time—when the Conference opened.

THE ABOVE DETAILED EXPLANATION of the procedure adopted in connection with the proofs of Conference papers is published in refutation of an erroneous statement to the effect that "the conditions under which the manuscript and prints of papers are placed hamper the spread of the knowledge contained in them." The organ in which this untruthful statement appears is evidently densely ignorant of the conditions under which the manuscript and prints of papers are placed, and has been decidedly ill-advised to go out of its way to attack the Senior Hon. Gen. Secretary, who is alone responsible in the matter. It does not appear to be generally known that no paper is actually accepted until the Executive Committee of the B.P.C. meets at the town selected for the annual meeting, on the day prior to that meeting. Until that date, therefore, the papers are strictly confidential and cannot be distributed broadcast. At the same time, Mr. Naylor has always been prepared to do whatever may lie in his power to facilitate the preparation of abstracts, for publication in the event of the papers being accepted and submitted to the Conference, and it is distinctly unfair to charge him, by implication, with securing an author's manuscript and withholding proofs from him and everybody else as long as possible. Directly Mr. Naylor received a paper he sent it to be put in type, and within twenty-four hours, in most cases, proofs were despatched by the same post to Mr. Naylor and the authors—the only persons entitled to receive them. The manuscripts were also returned to Mr. Naylor, and facilities for preparing abstracts were, we understand, afforded by him to every person who had a right to expect the courtesy and who made proper application for such a privilege to be accorded. Unfortunately, Mr. Naylor's courtesy has not been reciprocated in this one instance, but all who have any acquaintance with the painstaking manner in which he attempts to serve the best interests of the Conference in every possible way, will join in expressing disapproval of this veiled attack, and of the suggestion that difficulties have been interposed which interfere with the efficient working of the Conference business. In no previous year have the arrangements for printing and publishing papers worked more smoothly, and on no other occasion have the efforts to secure full publicity for the doings of the Conference been so successful.

A CASE OF FAR-REACHING IMPORTANCE was heard at Worcester County Court on Tuesday, when a local seedsman was sued for selling arsenical weed-killer, against the provisions of the Pharmacy Act, 1868. The defendant did not make the weed-killer, but he advertised the fact that he was an agent for the manufacturers and took orders for the preparation. Those orders were executed by the manufacturers, who sent the weed-killer direct from their works, and allowed the defendant a commission of 25 per cent. on the amount of his orders. The question raised in the case was who was the seller within the meaning of the Act, and to that question the County Court Judge, Sir Richard Harington, replied that the weed-killer was sold by the manufacturers, and that they had committed the offence, if any had been committed. The control of the sale, he contended, remained with the manufacturers, and the defendant could not be regarded as the seller, inasmuch as he did not keep the weed-killer in stock and hand it over the counter to the customer. Accepting an order and sending it on to somebody else for fulfilment did not, in the Judge's opinion, make a person the seller of the goods and the person responsible. That being so, the seller in this case was not the defendant, but the company which executed the order. Leave to appeal was asked and granted.

THE SALE OF HEADACHE POWDERS is referred to in the *Druggists' Circular*, where it is remarked that headache seems to the laity a very simple ailment, and a dose of something to "cure" it is naturally regarded as an equally simple thing in medicine. As a result, any remedy advertised as a headache cure is unhesitatingly taken by the public, without any thought of danger. Nevertheless, danger does exist in connection with many of the preparations which have sprung into use for the relief of headache during recent years, their therapeutic effect being depressant and sometimes so pronounced as to paralyse the heart's action. Several deaths in America have been caused or hastened by the use of these preparations, and it is stated that the druggists in one locality have decided to attach a special warning label to headache powders. The label reads: "Contents unknown. Not responsible to the user," and is presumably attached to all powders not prepared by the retailer himself. Caution ought to be stimulated by the presence of such a label, but if the ultimate effect is simply to encourage the public to purchase headache powders prepared by the retailer, at the expense of the proprietors of advertised preparations containing the same ingredients, it is difficult to see where any real benefit will accrue. Obviously, druggists attaching to other people's preparations a label of the kind referred to should not continue to sell without a warning similar articles prepared by themselves.

THE EXPERIMENTAL METHOD advocated by Bacon and Harvey has been extremely rich in results, and a writer in the *Edinburgh Review* points out how physiologists and biologists have enriched practical surgery with antiseptic methods and with anæsthesia, with control over hæmorrhage while operating, with a rational and successful treatment of aneurism and of glaucoma, with the power

in not a few cases of removing a tumour even from the brain itself. In medicine proper, again, all that is summed up in the phrase "heart disease," all knowledge of arterial tension and its influence on the whole organism, have been evolved gradually from the basis of Harvey's discovery. All our knowledge of nervous disease is based upon vivisectional experiments, from Charles Bell to Hitzig and Ferrier. Almost all our knowledge of the digestive processes, of angina pectoris and of methods of relieving it, has been gained through experiment. Practical medicine has been enriched, through experimental research with such drugs as digitalis, cocaine, croton-chloral, nitrite of amyl; with the method of auscultation; with a knowledge of the cause of tuberculosis, typhoid fever, cholera; with the life-history of parasites; with the cause of myxœdema and related conditions and how to relieve them, and with a life-saving remedy for diphtheria. It is, in fact, asserted to be no figure of speech, but the simplest of truths, to say that everything of solid value in medicine and surgery is based upon knowledge gained by the experimental method. Quoting from the article referred to, *Nature* expresses the conviction that it will prove of much assistance in the spread of truth and the advancement of science.

The Standardisation Question is considered by a writer in *Merck's Report*, who suggests that the progress of pharmaceutical science seems to be a new source of trouble to laymen. The latter are said to want to know if people were not better off when doctors prescribed old-fashioned decoctions and tinctures, firmly believing in their efficacy, than they are now, when it is asserted that but little dependence can be placed upon such preparations because of their variability. But whilst the existence of such variability affords cause for serious thought, the writer quoted urges the adoption of some plan that will overcome the difficulty rather than a policy of retrogression. The remedy suggested is to standardise every galenical kept in stock, if it contains definite active principles. Nux vomica, cinchona and opium preparations are already so standardised, and it is anticipated that the revisors of the U.S. Pharmacopœia will add materially to the list in the 1900 issue of that work. It is urged that every reason that existed in 1890 for standardising nux vomica, cinchona and opium can be advanced with equal force in the case of belladonna, hyoscyamus, stramonium, coca, veratrum, colchicum, conium, hydrastis, ipecacuanha, physostigma and cantharides. All of these, it is asserted, can be standardised chemically, and many other drugs—including ergot and digitalis—should be standardised by physiological tests. It is thought that the chief galenicals could be brought down to exactness of dose by this method, but the fact appears to have been overlooked that—both from a chemical and a physiological point of view—it is infinitely more advantageous to employ pure principles as remedial agents than to continue the administration of large quantities of more or less inert matter which only serves to hinder and mask the effects of the active constituents of the drugs. The objection that the physiological effects produced by a drug are never exactly the same as those caused by a single constituent of it, or by any combination of constituents that fails to represent the whole drug, possesses but little validity. Exact effects can only be produced by pure principles, and the whole tendency of modern medicine is in the direction of employing substances of definite chemical composition. The adoption of the principle of standardisation in modern pharmacopœias represents a compromise, and the more widely it prevails the more will the pharmacist be called upon to exercise his individual ability, unless he intends to become dependent upon the wholesale druggist and manufacturer of galenicals. A resort to physiological standardisation will prove even worse in that respect than dependence upon chemical standardisation, and on the whole it would appear preferable that, if uniformly standardised medicaments are to become the rule, the sooner pure chemical products come to be exclusively used in medicine the better.

OFFICIAL EXAMINATION OF WOOD NAPHTHAS.

We are enabled, through the courtesy of the officials at the Government Laboratory, to give the following details of the tests for wood naphtha referred to in our issue of July 15 (*ante*, p. 56):—

Bromine Decolorisation.

A standard bromine solution is made by dissolving 12·406 Gm. of potassium bromide and 3·481 Gm. of potassium bromate in a litre of recently boiled distilled water.

50 C.c. of this standard solution (=0·5 Gm. bromine) are placed in a flask of about 200 C.c. capacity, having a well-ground stopper. To this is added 10 C.c. of dilute sulphuric acid (1 in 4) and the whole shaken gently. After standing for a few minutes the wood naphtha is slowly run from a burette into the clear brown solution of bromine until the latter is completely decolorised. Not more than 30 C.c. of the wood naphtha should be required for this purpose.

Methyl Orange Alkalinity Test.

The naphtha should be faintly acid to phenolphthalein, slightly alkaline or neutral, rarely acid to litmus, and always alkaline to methyl orange. 25 C.c. of the wood naphtha is placed in each of two beakers, and titrated with deci-normal acid, using in the one case a few drops of litmus solution, and in the other of a solution of methyl orange as indicator. With litmus usually 0·1 to 0·2 C.c. of deci-normal acid is required to neutralise. With methyl orange the total alkalinity should be greater—at least 5 or 6 C.c. of deci-normal acid being required for neutralisation.

The total alkalinity, less that given with litmus, is the "methyl orange alkalinity," and, for the 25 C.c. of wood spirit, should not be less than is required to neutralise 5 C.c. of deci-normal acid.

Estimation of Methyl Alcohol.

22 Gm. of coarsely powdered iodine and 5 C.c. of distilled water are placed in a small flask and cooled by immersion in ice-cold water. Then 5 C.c. of the wood spirit (60·0 o.p.) is added, the flask corked, the contents gently shaken, and allowed to remain in the ice-cold bath for 10-15 minutes.

When well cooled 2 Gm. of red phosphorus is added to the mixture of spirit and iodine in the flask, and the latter is immediately attached to a reflux condenser.

The reaction soon commences, and must be moderated by dipping the flask into a cold water bath. (Spirit may be lost if the reaction is too violent.) After about 15-20 minutes, when all action appears to have ceased, the water-bath under the flask is gradually heated to a temperature of about 75° C. (167° F.), and the flask being occasionally shaken is allowed to remain at this temperature for 15-20 minutes. The source of heat is then removed and the apparatus left for an hour till it has cooled, when the condenser is reversed, and the methyl iodide slowly distilled off—first at a low temperature—the bath being allowed to boil towards the end of the operation only. The end of the condenser dips into water in a measuring tube, and the iodide is collected under water and measured at a temperature of 15·5° C. (60° F).

The percentage (by volume) is found from the formula:—

$$\frac{\text{C.c. methyl iodide found} \times 0{\cdot}647 \times 100}{\text{C.c. wood spirit taken.}} = \text{Percentage (by volume) of methyl alcohol.}$$

Or when 5 C.c. of spirit is taken:—

C.c. methyl iodide × 12·94 = percentage (by volume).

Esters, acetals, etc., also yield methyl iodide by this process, and from the percentage of methyl alcohol calculated as above an amount equivalent to the percentage of these substances present must be deducted. Practically, however, methyl acetate is the only compound usually found in quantity sufficient to materially affect the result. The Gms of methyl acetate per 100 C.c. of spirit multiplied by 0·5405 give the equivalent of methyl alcohol to be deducted from the total percentage by volume calculated from the methyl iodide found.

The Acetone Reaction.

25 C.c. of normal soda is placed in a flask similar to those used in the bromine reaction. To this is added 0·5 C.c. of the naphtha. The mixture is well shaken, and allowed to stand 5-10 minutes. Into it from a burette n/5 iodine solution is run slowly, drop by drop, vigorously shaking all the time till the upper portion of the solution, on standing a minute, becomes quite clear. A few C.c. more of n/5 iodine solution are added, as to get concordant results an excess of at least 25 per cent. of the iodine required must be added. After shaking, the mixture is allowed to stand for 10-15 minutes, and then 25 C.c. normal sulphuric is added. The excess of iodine is liberated, titrated with n/10 sodium thiosulphate solution and starch, and half the number of C.c. of thiosulphate solution used is deducted from the total number of C.c. of iodine solution used. The difference gives the amount of acetone by weight in the naphtha by the formula :—

C.c. n/5 iodine solution required × 0·3876 = Gms. of acetone per 100 C.c. of wood naphtha.

This includes as acetone any aldehydes, etc., capable of yielding iodoform by this reaction.

If the quantity of "acetone" is excessive, a less quantity of the spirit is taken, or 10 C.c. are diluted with 10 C.c. of methyl alcohol free from acetone, and 0·5 C.c. of the mixture is used.

Estimation of Esters.

5 C.c. of the wood naphtha is run into a silver pressure flask of about 150 C.c. capacity, together with 20 C.c. of recently boiled distilled water. 10 C.c. of normal soda solution is added, the flask securely closed and digested for at least two hours in a water-bath at 100° C. (212° F.). The contents are then washed into a beaker, and titrated with normal acid and phenolphthalein. The difference between the number of C.c. of soda taken and of the acid required for neutralisation may be calculated as methyl acetate (weight in volume) from the formula :—

$$\frac{0{\cdot}074 \times \text{C.c. soda required} \times 100}{\text{C.c. naphtha taken.}} = \text{Gms. per 100 C.c.}$$

Or if 5 C.c. of spirit is taken as above :—

1·48 × C.c. soda required = Gms. of methyl acetate per 100 C.c. of spirit.

SELECTED PRACTICAL FORMULÆ.

FORMULÆ COMPOUNDED WITH COGNAC, ARRACK, AND RUM.

Tea Tincture; Finest Pekoe tea, 30; vanilla, 1; white sugar, 5; distilled water, 200; cognac, 150. Digest for 3 days. The vanilla should be rubbed down with the sugar, and the mixture should not stand longer than 3 days in a moderately warm place. *Superfine Cognac :* Oil of cognac, 120; cognac, 20,000; spirit of wine, distilled water of each 7,000; tincture of tea as above, 30; Malaga wine, 2,000. *Fine Champagne Cognac :* Tincture of tea, 50; oil of cognac, 100; cognac, 20,000; spirits of wine, distilled water of each, 10,000; Tokay, 3,000. *Rum Flavour Essence :* Tincture of saffron, 250; tincture of vanilla, 500; cinnamon oil, 20; spirit of wine, 22; rum, 500. *Essence of Rum :* Rum flavour essence, 200; acetic ether, 40; cinnamon tincture, catechu tincture of each 10; formic ether, 75; tincture of vanilla, 10; angelica root tincture, 2; tincture of cinchona bark, 15; triple orange flower water, 100; essence of woodruff, 30; butyric ether, 20; spirit of wine, 650; rum, 1,000. *Jamaica Rum :* Essence of rum flavour, 30; essence of rum, 125; rum, 15,000; spirit of wine, 9,000; sugar candy, 150; distilled water, 8,000; Malaga wine, 2,000. The mixtures are greatly improved by keeping.—*Essence of Arrack*: Colourless essence of rum, 500 Gm.; acetic ether, 20 Gm.; birch tar oil, rectified, 5 drops; spirit of wine, 500 Gm. *Aromatic Arrack Essence*: Oil of celery, 5 drops; essence of maraschino, oil of cognac, of each, 12 drops; tincture of vanilla, 5 Gm.; tincture of saffron, 2 drops; spirit of wine, 500. *Arrac de Goa :* Butyric ether, 4; acetic ether, 5; tincture of vanilla, 10; essence of arrack, aromatic essence of arrack, of each 85; spirit of wine, 20,000; arrack, 10,000. These ingredients are mixed and filtered, and a hot solution of honey, 200, in distilled water, 7,000, is added.—*Pharm. Zeit.*, **44**, 153.

EMULSION OF COD LIVER OIL.

E. Leger employs moist casein as the emulsifying agent in the preparation of emulsion of cod liver oil. The moist casein is prepared as follows :—Milk is warmed to 40°-45° C., and for each litre taken, 30 Gm. of solution of ammonia are added. The mixture is placed in a separating funnel, and set aside in a cool place for 24 hours. The lower layer of liquid is then run off, heated to 40°-45° C., and acidified with acetic acid, when the casein is precipitated. This is washed with tepid water, collected on a cloth and pressed. To prepare a litre of emulsion, the casein prepared as above, derived from a litre of milk, is taken; sodium bicarbonate, 5 Gm., are dissolved in cherry laurel water, 100, and distilled water, 50. The casein is rubbed down with the solution; at first it swells, then passes into solution, forming an opalescent liquid, which is strained into a 2-litre bottle. Cod liver oil, 500 Gm., is now gradually added to the solution, with vigorous shaking after each addition, to complete emulsification. When this is effected, simple syrup, 250 Gm., is added, and finally enough water to bring the volume up to 1 litre. The cherry laurel water is used not only as a flavouring agent but also as a preservative.—*Journ. de Pharm.* [6], **9**, 575.

DOUBLE STAINING OF FLAGELLATES, FUNGI, AND SPIRILLA.

Ziemann's method is an elaboration of Romanowski's staining process, by which chromatin is coloured carmine red, or carmine-violet, and protoplasm blue. The author uses a mixture of 1 per cent. methyl-blue solution, 1 part, with 0·1 per cent. eosin solution, 6 parts. The staining is performed in concave well slides, which are covered to avoid evaporation. Any pellicle which forms on the surface is removed with blotting paper. The staining is accelerated by the addition of 2·5 per cent. of borax to the methyl-blue solution. The time required for staining blood preparations is about half-an-hour. On the addition of borax, however, only ten minutes is necessary for organisms of low development, without borax fifteen minutes. Flagellates take longer than blood. The objects are fixed either by being passed thrice through a flame, or are immersed for half-an-hour in absolute alcohol. Flagellates are fixed by immersion in hot sublimate alcohol (saturated aqueous sublimate solution, 2 parts, absolute alcohol, 1 part), and washing with 63 per cent. iodine alcohol. The results with bacteria are not yet satisfactory.—*Pharm. Cent.*, **40**, 144, after *Centralh. f. Bact.*, **1**, 945.

AMYL ACETATE AS A SOLVENT.

To clean brushes and vessels from dry paint or other resinoid impurities, amyl acetate is an excellent and inexpensive solvent. The odour of the acetate may easily be removed from the treated articles by means of methylated spirit.—*Scient. Amer.*, **80**, 361, after *Farb. Zeit.*

FLOOR WAXES.

(1) Hard paraffin, 6, yellow wax, 2, are melted and coloured with powdered tumeric. (2) Yellow wax, 1 kilo; oil of turpentine, 1½ kilos; spike oil, 10. (3) Yellow ceresin, 2 kilos; liquid paraffin, 0·5 kilo; French oil of turpentine, 1·5 kilos, benzene, 2 kilos. (4) Wax petroleum, 8, are placed in an earthenware vessel and melted on a hot-plate. The mixture is painted thinly on the floor while hot, leaving only a thin layer of wax after the evaporation of the oil. Polish lightly with a dry rag.—*Pharm. Zeit.*

PHARMACY IN AUSTRALASIA.

(From Our Melbourne Correspondent.)

The British Medical Council may possibly consider that Australian pharmacists and medicos have been somewhat dilatory in responding to its invitation for suggestions in connection with the proposed Addendum to the British Pharmacopœia. In Victoria at least, however, the matter is receiving careful consideration, and at the June meeting of the Council of the Pharmaceutical Society of Australasia, the committee appointed (consisting of Drs. Plowman and Cole, and Messrs. Francis, Woolnough, and McAlpine) presented a preliminary report. This was to the effect that they had discussed the several suggestions made by the British Medical Council, and had also addressed communications to the various medical societies in Victoria, asking that a representative might attend and confer with them. The Medical Society of Victoria has appointed Drs. D. Grant and Jamieson, and the Melbourne Medical Association, Dr. P. B. Bennie, to act as their representatives, but so far no reply had been received from the Victorian Branch of the British Medical Association. It was hoped that a meeting of the joint representatives would be arranged for an early date, after which a further report would be submitted.

In the Meantime considerable interest is being taken by Victorian pharmacists in connection with a suggestion made by Mr. Rankin, a member of the P.S.A. Council, that a conference of medical men and pharmacists should be held to deal with a matter of what is perhaps felt to be of more immediate and practical importance, and which I daresay will also be looked upon in the same light by English and foreign manufacturers. Briefly put, the objects of the conference are (1) to instruct Victorian chemists by means of printed formulæ in all the processes peculiar to private pharmacy (Nostrums), and many similar preparations; (2) so that all Victorian chemists will dispense from the formulæ of a recognised and authorised body; (3) to decide formulæ and processes of manufacture; (4) to authorise the issue of a leaflet or book with formulæ at a rate to be fixed.

In Introducing the Subject at the Council meeting, Mr. Rankin said that he felt the time had come when some such action as he now proposed should be taken. It was ridiculous, he contended, that in dispensing a prescription the dispenser had to use a compound the composition and dose of which he is totally ignorant, while the prescriber knew perhaps just as little; and while the charge to the patient was doubled, the whole advantage went to the manufacturer, either English or foreign. His idea was that by means of printed formulæ, authorised and recognised by the medical and pharmaceutical professions, a higher standard of uniformity would be obtained. In looking up formulæ pharmacists would turn to their B.P. first, then to such works as Squire and Martindale, and failing these their own book, to be known as the V.P.C., would be referred to. It was, of course, necessary to get good formulæ, to which end the aid of the medical profession should be invited; and they could then make the preparations themselves, or obtain them from the wholesale houses. In time medical men in the colony would get to recognise the formulæ, and prescribe no others.

During the Subsequent Discussion one speaker expressed a fear that as soon as the English manufacturers became aware of the proposed scheme they would combine and send out first-class men to "squelch" it; while another, apparently forgetting our protective tariff, wanted to know what was to prevent the home manufacturer from utilising a recognised formula, sending it out here as his own, and underselling the local houses. On the whole, however, councillors were favourably impressed, and on the motion of Mr. Tompsett it was resolved that "a Committee consisting of the President, Vice-President, and Mr. Rankin, be appointed to deal with the matter, and to place themselves in communication with the various persons and societies, so that a report could be presented at the next meeting."

The Vacancy in the Council of the Pharmaceutical Society of Australasia, caused by the resignation of Mr. D. A. Simpson, has been filled up by the election of Mr. Thomas H. Buzza, of Footscray.

The Dental Board of Victoria has recently had a nut to crack in the application of a student, who had served his articles of indenture in South Australia with two dentists, both of whom were registered Victorian dentists, to be allowed to enter for examination *sine curriculo*, under the clause of Dentists Act, 1898, preserving the rights of present students. The Board eventually refused the application on the strength of the following opinion furnished for their guidance by the Crown Solicitor:—"In my opinion Section 10 of Act No. 1,595 only applies to an apprentice who has served in Victoria with a Victorian dentist, and would not apply to a person who had served his articles outside Victoria, even though the master may have been registered for Victoria."

The Failure of the Negotiations entered into between Victoria and New South Wales some two years ago was a severe blow to the friends of Intercolonial Reciprocity, and there seemed but little likelihood of the subject being reopened for some time to come. Western Australia has now, however, stepped into the breach, and in a communication addressed to the various Australasian Pharmacy Boards—but more especially to that of New South Wales, which as representing the mother colony "should be the one to take the most active interest in the matter"—emphasises the disadvantages of the present condition of affairs, and submits for consideration several suggestions bearing on the differences as regards examination and apprenticeship which now operate as a barrier to a mutual understanding. So far as it goes, the evidence of the interest now felt by West Australian pharmacists in the subject meets with a hearty welcome from the *Australasian Journal of Pharmacy*, which from the first has been the sturdy and enthusiastic champion of the movement. But it does seem as if the *Journal* had just a little cause of complaint against the authors of the document, a very striking peculiarity of which is thus commented upon:—"But while welcoming everything and anything that will help to make for reciprocity, we may be excused for expressing the opinion that in a document of this kind we might have looked for some appreciative acknowledgment of the services rendered by previous workers in the cause, who have borne the heat and burden of the day. So far as we can see, there is not in the whole document a single proposition of practical value that has not already been suggested by ourselves or been fully discussed in our pages. But of all this, or of the past history of the reciprocity movement, not the slightest mention is made in the communication, the tone of which would, indeed, almost lead a cursory reader to conclude that our West Australian friends had just awoke to the disadvantages of the present condition of affairs, and were endeavouring to enlist the sympathy of their *confrères* in the other colonies in the initiation of an entirely new movement for reform."

As Regards the Object in view itself, however, the *Journal* expresses the hope that the parent colony will accept the responsibility cast upon it, and even at some small sacrifice to herself initiate one more effort; and adds:—It would be a sad commentary if, while the Australian Colonies have been found prepared to make important economical concessions to each other to secure their political federation, pharmacists should any longer be prevented from professional union by such paltry obstacles as those which at present operate to keep them divided.

At the June Meeting of the Pharmacy Board of New South Wales the lot for retirement fell upon Dr. J. Ashburton Thompson and Mr. J. C. Hallam. The latter offers himself for re-election; and three other candidates have also been nominated, viz., Messrs. H. A. Rose, G. S. C. Wells, and C. A. Marshall.

The Pharmaceutical Society of New South Wales have appointed a committee, consisting of Messrs. Williams, Hallam, Brothwood, Short, Maiden, Smith, Baker, and Haswell, to deal with the report of the General Medical Council *re* the proposed Addendum to the British Pharmacopœia. The following gentlemen have been elected honorary members of the Society:—J. H. Maiden, Director of Botanical Gardens; Professor Anderson Stuart, Sydney University; Professor A. Liversidge, Sydney University; Professor Haswell, Sydney University; Dr. James Dickson, Sydney University; Henry G. Smith, F.C.S., Technical College; R. T. Baker, F.L.S., Technical College.

The Registered Pharmacists' Society of New South Wales, which has now been duly registered "with limited liability without the addition of the word 'limited' to its name,"

has had engraved for it a very handsome and artistic diploma of membership, which it is issuing to members on payment of a fee of 10s. 6d. each. The picture is in black and white, on the lines of the diploma of the Pharmaceutical Society of Great Britain. The design comprises the Australian coat of arms, topped by mortar and pestle, festooned with a wealth of native flora, such as the flannel flower, boronia, Christmas bell, fuchsia, wattle, palms, ferns, etc. The shield, bearing the inscription and certificate of membership, is supported by figures representing Britannia and New South Wales. Britannia is shown upon a rock accompanied by the Union Jack and tripod, while a ship at anchor symbolises Great Britain's dominance of the sea. At her feet are entwined the rose, shamrock, and thistle. New South Wales is represented by a shepherdess with crook standing on a bale of wool, with sheep in repose. Beneath her feet nestles the beautiful waratah, the national flower of the colony. The panel for the officers' signatures is set between the alembic and other instruments of the chemist's art, and the whole rests upon a fancy design in tiles, with a medallion centre-picce bearing the letters, M.R.P.S. of N.S.W.

At a Recent Meeting of the chemists of Christchurch, N.Z., it was determined to form an association to be named the Canterbury Pharmaceutical Association, and the following office bearers were elected:—President, Mr. Hobden; Vice-Presidents, Messrs. Papprill and R. S. Cooke; and Messrs. Kiver and Smith-Ansted, secretary and treasurer respectively. The following gentlemen were elected to serve as committee:—Messrs. Barrett, Hean, Ross, Cole, Painter, Bates and Parnham. Mr. L. Bonnington was chosen auditor. The subscriptions were fixed as follows:—21s. for chemists residing in town, 10s. 6d. for those residing in the country, and 10s. 6d. for associates; subscription for apprentices to be 5s. At a subsequent meeting, on May 30, rules were submitted for approval and adopted, and the opportunity was availed of to present Mr. Frank Renshaw, travelling representative of Messrs. Kempthorne, Prosser, & Co., in Canterbury, but who is now taking up the management of Messrs. Sharland & Co.'s Auckland branch, with a handsome marble clock and an illuminated address.

Taking Advantage of a Recent Visit to Dunedin, the Rt. Hon. R. J. Seddon, the Premier, was waited on by a deputation from the Otago Pharmaceutical Association, who drew his attention to several of their grievances, such as their exemption from the compulsory half-holiday list, their unsatisfactory position under the sale of poisou regulations, and their liability to jury service. The Premier promised that the requests of the deputation would be brought under the consideration of the Government, but humorously assured them that there was so much intelligence among chemists that it would be a great loss to the colony if their services were to be barred. If they exempted chemists he did not know where they would stop.

NEW REMEDIES.

IODISED SULPHUR AND SULPHUR IODIDE.—*Iodised Sulphur.*—When roll sulphur is heated to between 115° and 120° C. and iodine is gradually added to it, with gentle agitation, in any prescribed proportion, such, for example, as equal parts, the iodine is gradually dissolved, and, on cooling, a crystalline blackish-brown mass is obtained, which should be preserved in well-stoppered bottles, since the iodine is readily volatilised. L. Prunier determines the amount of iodine in this substauce by digesting a known weight with four parts of iron filings and ten parts of water. The water is decanted from time to time and renewed as long as ferrous iodide is formed. The united liquids are then precipitated with sodium carbonate, filtered, and the precipitate washed free from alkaline iodide. The filtrate and washings are then acidulated with nitric acid, and the iodine determined in the usual manner by means of silver nitrate. *Sulphur Iodide* for medicinal use is the combination of plastic sulphur with iodine in molecular proportions, that is, four parts of sulphur to one of iodine. Roll sulphur is heated to about 250° C. to its second melting point, and a thermometer is plunged into the melted mass; when the temperature falls to about 200° C., the mass assuming a pasty condition, iodine is gradually added, the temperature being regulated between 170° and 200° C. When all the iodine has been added, the mass is cooled, powdered and sifted. It always contains a certain proportion of iodised sulphur. Any free iodine, which, from its irritant action, is objectionable in a preparation intended for internal administration is then removed by agitation with a five per cent. solution of sodium thiosulphate. The iodine in the reddish powder thus obtained may be determined in the manner described above for iodised sulphur. The amount of insoluble sulphur is approximately estimated by treatment with carbon disulphide; to the violet solution thus obtained, solution of caustic soda is added until complete decolorisation. The bisulphide removes all the soluble sulphur; that in the insoluble condition is collected, washed and weighed. Iodide of sulphur is less irritant than iodised sulphur, but must be employed in a diluted form, rubbed down with precipitated sulphur in such proportion that the mixture may contain from 2 to 4 per cent. of combined iodine.—*Nouv. Rem*, **15**, 169.

NEW DERMATOLOGICAL REMEDIES.—*Lenigallol* or pyrogallol triacetate is a white insoluble powder. It is best prescribed with zinc paste, thus—lenigallol, zinc paste, lanoline, equal parts. This application is without effect on the healthy skin; in the presence of alkaline secretion it liberates pyrogallol, and becomes darkened. For eczema, both chronic and acute, the following ointment is used: lenigallol, 1 or 2; zinc paste, 200. *Eugallol*, the monoacetate of pyrogallol, forms a treacly mass, readily soluble in water. Like pyrogallol, it gives rise to marked inflammation of the healthy skin, but is more easily applied than that body, since when exhibited dissolved in a volatile solvent, such as acetone, it forms a varnish-like layer, the action of which is strictly limited to the area covered by it. It is prepared in solution in acetone in the strength 1 : 1 or 1 : 2. It should be employed with caution. *Salligallol*, the di-salicylate of pyrogallol, is a resinoid body. It is much less energetic in its action than eugallol; like that body it is prescribed dissolved in acetone, or in chloroform, in the form of a varnish. The two may be compounded together thus: Saligallol, from 2 to 15; eugallol, from 1 to 40; acetone, *q.s.* to make 100. The solution of salligallol met with in commerce contains 40 per cent., dissolved in acetone. *Lenirobin*, or tetracetate of chrysarobin, is less active than the latter body and does not stain the linen. *Eurobin*—chrysarobin triacetate—although even more irritant than chrysarobin, may be prescribed in much smaller doses, and is best prescribed in conjunction with the milder eugallol or saligallol as a varnish thus: eugallol, from 10 to 20; eurobin, from 1 to 2; acetone or chloroform, *q.s.* to produce 100. Or, saligallol, 5 to 10; eurobin, 1 to 20; acetone or chloroform to make 100. Like eugallol, eurobin should be employed with caution.—*Nouv Rem.*, **15**, 121.

BROMETHYLFORMIN IN EPILEPSY.—Féré has given bromethylformin ($CH_2)_6N_4C_2H_5Br$, as a sedative in epilepsy in doses of 1 to 5 Gms. per diem; as much as 9 to 12 Gms. may be given in twenty-four hours as an anti-epileptic, without producing bromism. For children it may be compounded as follows:—Bromethylformin, 10 Gm.; distilled water, 10 Gm.; syrup of orange, 90 Gm.; one to two teaspoonfuls to be given daily.—*Nouv. Rem.*, **15**, 278.

ICHTHYOL IN MEASLES.—Good results have been obtained by Strisower *(Klin. Therap. Woch.)* with ichthyol ointment in the treatment of measles. He prescribes an ointment of ichthyol, 7, lard, 3, with which the patient is anointed from head to foot, morning and evening. If this is begun at the commencement of the disease, when the rash is confined to the pharyngeal mucus membrane, it is possible to obtain a perfectly abortive course, without skin eruption or fever. If used later, the rash quickly disappears and a perfect cure is effected in four to five days, when a warm bath will remove all the ointment from the body.—*Pediatrics*, **7**, 274.

TANNOCASUM (CASEIN TANNATE).—G. Romijn prepares this by dissolving purified casein 1,000 Gm. by the aid of sodium carbonate, in 10 litres of water; a solution of tannin 700 Gm. in water 300 Gm. is stirred in, and formaldehyde solution 100 C.c. added. The mixture is now saturated with very dilute hydrochloric acid, the resulting precipitate pressed and dried by heat. A light grey substance is obtained which easily powders. The author recommends the preparation as an astringent for intestinal disorders.—*Pharm. Post*, *3M.* (**13**), 180, after *Pharm. Wekbl. v. Nederl.* (**35**), 44.

PIPERIDINE BITARTRATE—Occurs in colourless pleasant-tasting crystals, readily soluble in water. For uric acid diathesis, powders of 60 to 100 Cgm. are given three times per diem, dissolved in a little aërated water.—*Merck's Report*, 1898, **127.**

LETTERS TO THE EDITOR.

A Microscopical Fragment.

Sir,—Your article of August 5 on air-bubbles in microscopic sections suggests the propriety of my giving publicity to a dodge which I have sometimes found useful for obviating these little disfigurements by means of an extemporised substitute for an air-pump. Take a small syringe of the well-known pattern having a glass barrel, vulcanite mounts and leather packing to the piston. These usually work so nearly air-tight that if the piston be drawn up while the nozzle is closed with the finger it will spring back to its original position. Unscrew the top and remove the piston, close the nozzle with a fragment of beeswax, and half fill the barrel with water; into this drop the section or tissues to be treated. Then replace the piston and screw on the top. The syringe being inverted and the plug of wax removed, the air is to be driven out of the barrel by raising the piston till the water begins to flow out of the nozzle, close the aperture with the finger and lower the piston. A partial vacuum is thus formed and the air rapidly escapes from the cells of the tissue, collecting in the point of the syringe. By removing the finger and raising the piston the liberated air is forced out; this may be repeated several times so long as air is given off. The same mode of operating is applicable to objects to be mounted in Canada balsam if oil of turpentine be used instead of water and the objects to be mounted are quite dry before immersion in the turpentine.

Bradford-on-Avon, August 7, 1899. B. S. Proctor.

The Sale of Benzene, etc.

Sir,—With reference to the sale of "benzine" in small quantities, being in doubt as to whether the Sun Fire Office would allow this under their policy, unless special arrangements were made for storing the liquid, I wrote to them on the subject. In their reply they stated there would be no objection if the "benzine" did not come under the category of mineral oils or liquid products thereof used for lubricating or illuminating purposes. This seems rather ambiguous. Will you kindly inform me through the Journal if the "benzine," such as is sold for cleaning purposes, would also come under this category?

August 8, 1899. Fortior (32/17).

*** The purport of the inquiry put by the Sun Fire Office appears unintelligible.—[Ed. *P.J.*]

Company Trading in Pharmacy.

Sir,—There are those who support the suggested proposals of the Council in the hope that by including "persons" in the proposed Bill "companies" might thereby be kept out of our fold. No chemist can object to such a favourable proposal being passed into law, and, if there was a reasonable hope of attaining such an end, we would all no doubt readily unite for its accomplishment. Previous to the framing of the historic Council's suggestions, the late President of the Society asked the trade to consider the pharmacy question, but to do so from a practical rather than from a theoretical or idealist point of view. To assist him in preparing a Bill, the Lord Chancellor tendered similar advice to the Council. It looks as if this commission had been exceeded in both cases. The Lord Chancellor has twice made honest attempts at legislation on our behalf. These have been made after full consideration of the question, and with the aid of interviews and suggestions, but they have been far from satisfactory to us. If we have experienced difficulties in piloting the non-contentious measure of last year through Parliament we may calculate on these being increased a hundredfold if we insist on bringing forward a Bill which is to strike at the root of such a favoured institution as the "store." By asking too much we may lose all. We have no sinister motive or felonious intention in seeking the restriction and regulation of company pharmacy. It is desirable, however, that a scheme for regulating pharmacy shall provide for dispensing being placed on a more satisfactory footing, and this in the interests of the public as also in justice to the chemist who has been fitted by education and experience to undertake the arduous and responsible duties of his calling. The Pharmacy Act makes the chemist at present a seller of poisons. Medical prescriptions, whether containing poison or not, should find their way to and be dispensed by registered men only. There are many medical prescriptions containing no scheduled poisons which, were they dispensed by unskilled and unqualified persons, might lead to disastrous results. Nor is this danger confined to the pharmacy and the "store." In the infirmaries, hospitals, asylums, army and navy, incompetent persons are frequently engaged in compounding and distributing potent medicines. Chemists have had to remonstrate with public bodies as to this disgraceful state of affairs, and frequently without effect. This reform we can demand in the public interest, and it is hoped it may be granted.

Edinburgh, August 8, 1899. W. S. Glass.

Complimentary Dinner to Mr. A. C. Wootton.

Sir,—The arrangements in connection with the complimentary dinner to Mr. A. C. Wootton are now completed. It will take place at the Hotel Métropole, London, W.C., on October 5. The price of the dinner ticket has been fixed at one guinea. As already announced it is proposed to present Mr. Wootton on that occasion with an album containing the signed photographs of those taking part in the function. As this album will necessarily take some time in preparation the Committee trust that the earliest application shall be made for dinner tickets, and that those applying for tickets should send a signed photograph for inclusion in the album. Correspondence in reference to the matter should be addressed to the Secretaries, The Wootton Complimentary Dinner, 157, Queen Victoria Street, E.C.

(Signed) John Thompson, *Chairman.*
W. Edwards, Jun. } *Hon.*
W. S. Glyn-Jones } *Secs.*

London, August 9, 1899.

The Retail Prices of Homœopathic Preparations.

Sir,—Having fixed the minimum retail price at which our homœopathic tinctures, pilules, and perloids are to be sold, we find some misunderstanding has taken place, as we merely mentioned a sixpenny and a shilling size. We should like to explain that we have abandoned the old sixpenny size, and fixed the minimum retail price of the old shilling size at 6d. We have introduced a new size, double that of the old shilling bottle, and have fixed the minimum retail price of that at one shilling. Our wholesale terms will be half the price of the retail, viz., 3s. for the old 1s. (now retailed at 6d), and 6s. for the new. This allows a profit of 100 per cent. on the outlay, or 50 per cent. on sales. Perloids from their first introduction have always been protected at face value, and the trade price is now well known to chemists.

74, *New Bond Street,* Keene and Ashwell, Limited.
London, August 9, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured.*

Powder (G. D.—32/15).—It is potato starch.

Botanical (T. J.—31/32).—They are not British species, but we hope to identify them for you shortly.

Botanical (H. J.—31/31).—(1) *Viccia cracca;* (2) *Epilobium hirsutum;* (3) *Bryonia dioica;* (4) *Knautia arvensis.*

Mercury on Gold Ring (A. S.—32/18).—The most satisfactory plan is to heat the ring carefully until the mercury volatilises.

Botanical (A. L.—32/11).—It is *Solanum nigrum.* The leaves of the plant are variable, sometimes entire, and sometimes toothed.

Botanical (J. W. H.—32/3).—(1) *Hydrocotyle vulgaris;* (2) *Lycopus europæus;* (3) Send lower leaf of this umbelliferous plant; (4) *Alisma plantago;* (5) *Filago germanica.*

Machinery and Plant for Soap Makers (F. E.—32/8).—Messrs. Houchin and Co., Bridport Place, N., will supply you with what you require.

Unqualified Person Keeping Open Shop (R. T.—31/30).—Unless he holds himself out as a registered chemist or sells scheduled poisons we fear you have no remedy.

Contents of Mixture (H. W.—32/5).— t appears to contain spirit of chloroform, tincture of gentian, and a little tincture of capsicum, together with a bismuth salt, and sodium or potassium bicarbonate. We cannot undertake a complete analysis of the mixture.

Blue Fire (H. J. H.—32/7).—(*a*) Potassium chlorate, 25; potassium nitrate, 50; copper carbonate, 20; sulphur, 16; charcoal, 12. (*b*) Potassium chlorate, 30; potassium nitrate, 40; copper ammonio-nitrate, 20; sulphur, 12; charcoal, 16; burnt alum, 10.

Loofah (J. G.—31/34).—This is the parenchymatous skeleton of the interior fibres of the pepo of *Luffa egyptica;* it is indigenous to Egypt and Arabia. The use of the fibre as a vegetable sponge is common in the East, whence it was introduced originally as a washing material in the Turkish bath.

Rodent Ulcer (J. B. P.—32/10).—We do not know of any work on rodent ulcer by Dr. Schultza, but are making inquiries for you. Adequate information on this and kindred affections may be found in works on diseases of the skin, such as those by Malcolm Morris (second edition Cassells) and Radcliffe Crocker (second edition Lewis).

Book on Soap Making (F. E.—32/8).—Watt's "Art of Soap Making," published by Crosby, Lockwood and Co., 7, Stationers' Hall Court, Ludgate Hill, is the book most likely to be useful to you. Another useful work is "Soaps and Candles," by James Cameron, one of Churchill's Technological Handbooks, published by J. and A. Churchill, Great Marlborough Street, W.

Ringworm in Cattle (R. F.—32/12).—(*a*) Tar, 15; yellow wax, 6; carbolic acid, 1. Melt the wax and tar together. Then stir in the phenol. (*b*) The following remedy is stated to be very efficacious. Wash the parts well with soft soap and water, dry, and then rub vigorously with a large fresh onion cut in half. Repeat the process daily.

Epilepsy (E. N.—32/16).—Sir William Gowers is one of the senior physicians who have made a special study of nervous disorders such as epilepsy. Other senior physicians similarly experienced are Sir William Broadbent and Dr. Hughlings Jackson. There are also very many younger physicians whose names are familiar as skilled neurologists. The case may, however, be a surgical one, and it would be well to take the advice of your family physician as to whom to consult.

Salicylic Acid in Beer (W. W. S. N.—31/33).—To 50 C.c. of beer in a separator add 5 C.c. of alcohol, 5 C.c. of sulphuric acid, and shaken out with 50 C.c. of a mixture of equal volumes of petroleum ether and ether. The extraction is repeated with another portion of the solvent, the bulked ethereal solutions distilled, and the residue extracted with water: to a known volume of this aqueous solution a drop of very dilute neutral ferric chloride is added, and the colour produced matched by an aqueous solution of salicylic acid of known strength.

Boric Acid in Beer (W. W. S. N.—31/38).—This is best determined by Gooch's method, which consists of distilling with methyl alcohol (not methylated spirit) on to a known weight of CaO; then determining the increase of the weight of the lime due to the formation of calcium borate. If the boric acid is present as borax, it must first be liberated by means of acetic acid before distilling. You should note that according to Brand and Deltour, boric acid is a natural constituent of hops, and that therefore it is possible to get a minute trace, sufficient to react with turmeric, from beer which contains no added boric acid. The quantity which must be added to effect a preservative action, however, would be considerably more than this.

Saccharin in Beer (W. W. S. N.—31/33).—500 C.c. of beer are treated with a few crystals of copper nitrate, which combines with the bitter resins and prevents their subsequent extraction with the saccharin. The solution is then evaporated to a syrup, sand is added, and a few C.c.'s of phosphoric acid. The mixture is then extracted with petroleum ether (b p. 60°), the solvent distilled off, and the residue treated with a slight excess of sodium carbonate. If saccharin be present the solution will have a sweet taste. The amount is determined by evaporating to dryness, adding a little potassium nitrate and fusing. From the amount of sodium sulphate thus formed, determined in the usual way with barium chloride, the amount of benzoyl sulphonic-imide is deduced.

Formalin in Beer.—(W. W. S. N.—31/33).—To the distillate from a known volume of the beer, add a drop of dilute aqueous solution of phenol, and pour the mixture upon strong sulphuric acid. If formalin be present a bright crimson colour appears. According to O. Hehner, to whom this test is due, a white, milky zone appears above the red ring when more than 1:100,000 is present, or even a milky solution is formed. The precipitate thus obtained is so insoluble that it might be utilised for the quantitative determination of the formalin. Another method is to distil a relatively large volume of the beer, concentrate the distillate by again distilling; determine the acidity of a portion of the distillate; add perfectly neutral hydrogen peroxide to the rest, warm gently, and again determine the acidity; the increase, due to formic acid, will give the amount for formalin present.

Sale of Poisons (F.H.R.—32/13).—If any appreciable quantity of prussic acid be present, the article must be treated as a preparation of that poison. The sale of the syrup of codeine might be regarded as equivalent to the sale of codeine—a poisonous vegetable alkaloid. Ferricyanides are not scheduled poisons. Preparations of nux vomica are specifically mentioned in Part 2 of the Schedule, and should be treated accordingly. Tincture of savin is not scheduled as such, but any preparation containing oil of savin would come within the Schedule. Emplastrum cantharidis actually contains cantharides, but emplastrum calefaciens does not. Whilst, therefore, the sale of the former might be regarded as equivalent to a sale of cantharides, the sale of emplastrum calefaciens could hardly be regarded in the same light. Homœopathic preparations containing scheduled poisons must be treated accordingly.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Abram, Alcock, Allan, Ashwell, Dunn, Fenton, Fraser, Glass, Keene, Kilmer, Kimpton, Knight, Lander, Lloyd, Lothian, Marshall, McHattie, Medley, Naylor, Nurse, Pickles, Proctor, Reynolds, Richardson, Ruoff, Slater, Summers, Wallace, Wilson, Wright.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

IGNITING A JET OF HYDROGEN.

C. G. Hopkins describes a method by which a jet of recently generated hydrogen can be ignited with absolute safety and without loss of time. As soon as the action begins, collect the escaping gas in a test-tube, and, when the latter is thought to be full of pure gas, remove it two or three feet from the generator and ignite the hydrogen in it; then immediately attempt to light the jet of hydrogen with the hydrogen flame contained in the test-tube. If the gas is explosive it will explode in the test-tube and leave no flame. If, on the other hand, a flame remains in the test-tube with which the jet can be ignited, it is certain that the gas in the generator is no longer explosive. By adopting the precaution, therefore, of never lighting the hydrogen jet except with the hydrogen flame obtained as described above, absolute safety can be insured. Attempts may be made to ignite the jet by this method as often as thought proper, and if the hydrogen is properly generated the gas will be ignited in less than a minute.—*Journ. Am. Chem. Soc.*, **21**, 634.

DETERMINATION OF CARBON AND HYDROGEN.

O. F. Tower finds that amido compounds—of which urea, hippuric acid and paratoluidine were taken as types—yield no oxides of nitrogen absorbed by concentrated sulphuric acid or by soda-lime, when ignited in a combustion tube, and that it is, therefore, not necessary to use a copper spiral when burning them. Of the nitro substances burned—nitraniline, dinitro-benzene and picric acid—only the last gave oxides absorbed by the reagents, and, judging from the increase in weight of the absorbing tubes, the nitrogen was probably for the most part absorbed as nitrogen peroxide. Nitric oxide, it is thought, may have been produced to a limited extent in any of the combustions; for, unless that oxide is further oxidised, it is not absorbed by either concentrated sulphuric acid or soda-lime, and consequently has no effect on the accuracy of the determination of carbon and hydrogen. The Kjeldahl method was found to be accurate for determining small amounts of nitrogen existing in the nitro condition.—*Journ. Am. Chem. Soc.*, **21**, 596.

ABSORPTION OF NITROGEN.

It is pointed out in *Nature* that, in connection with the preparation of argon, whilst Professor Ramsay used magnesium for the absorption of nitrogen, Ouvrard subsequently proposed lithium and Maquenne recommended a mixture of lime and magnesium. Dr. Hempel, however, has investigated the subject systematically, and finds that a mixture of calcium, magnesium, and sodium is much more effective. He mixes 1 Gm. of finely divided magnesium with 5 Gm. of coarsely powdered lime and 0·25 Gm. of sodium. In a comparative time experiment the rates of absorption of nitrogen by magnesium, lithium, lime-magnesium, and lime-magnesium-sodium were in the ratio 1, 5, 8, and 20.

DIGITALIS AND ITS PRINCIPLES.

J. W. England is of opinion that, whilst digitoxin is probably the most distinctive chemical compound in digitalis leaves, the entire therapeutical activity of the leaves cannot be due to that compound. Dr. Karl Hofmann (*Wien klin. Wochensch.*) has shown that the physiological effects of digitoxin are not manifested in less than six to thirty-six hours, but digitalis and its preparations yield physiological effects in thirty to sixty minutes, and this great difference, together with other considerations, is thought to preclude the acceptance of Kiliani's claim that digitoxin is the most important therapeutic principle of the leaves.—*Am. Journ. Pharm.*, **71**, 379.

SILVER AND ITS SULPHIDE.

H. Pélabon states that below 180° C. silver is not attacked by dry sulphuretted hydrogen, nor is silver sulphide reduced by hydrogen. Above 280° the two reactions take place, and their speed increases as the temperature rises. The silver liberated by the reduction of the sulphide assumes the form of filaments when the reduction occurs at a temperature below 580°; at higher temperatures it covers the surface of the sulphide uniformly.—*Bull. Soc. Chim.*, **21**, 402.

CONSTITUENTS OF ARALIA NUDICAULIS.

Dr. W. C. Alpers has extracted and examined the fixed oil of *Aralia nudicaulis*, which he describes as perfectly clear; of a dark red colour; soluble in petroleum spirit, benzene, ether, and chloroform; sparingly soluble in absolute alcohol; insoluble in alcohol and water. It has a bitter, acrid, pungent, and persistent taste, causing a feeling of dryness in the mouth, and slightly resembling castor oil in odour. At the ordinary temperature it is rather thick, it solidifies at 3° C., and decomposes at about 300°. Its specific gravity is 0·921 at 20°, and under the influence of nitrous acid it solidifies, forming a greyish-yellow, sticky, doughy mass of elaidin. The oil was present to the extent of 1·726 per cent. in the dried rhizome, and was combined with a small quantity of a volatile oil. On distillation of the powdered drug, from 0·04 to 0·12 per cent. of this volatile oil was obtained. It is described as having an odour resembling that of young carrots, and a clear, light yellow colour. Its boiling-point at normal pressure is from 260° to 270°. On analysis the volatile oil was found to consist principally of a sesquiterpene, $C_{15}H_{24}$, for which the name "araliene" is proposed, and an alcohol, $C_{15}H_{25}OH$ (?), together with a small quantity of azulene. The sesquiterpene has a specific gravity of 0·9086 at 20°; boiling-point, 270°; $[\alpha]_D = -7$ to -8; $N_D = 1{\cdot}49936$. It forms oily compounds with hydrochloric acid and bromine, and derivatives with nitrous acid. Treated with hydrochloric-acetic acid it forms a compound of a permanent blue colour, chloroform and sulphuric acid produce a purple red colour, acetic acid and sulphuric acid a wine-red colour.—*Am. Journ. Pharm.*, **71**, 370.

HEADACHE PREPARATIONS.

G. A. Wilson has obtained thirty-six different headache preparations and submitted them to qualitative analysis. Twenty-nine of the samples were obtained through the wholesale houses and the remaining seven were purchased from different retail stores of good standing, being sold on inquiry for "something for headache." In the analysis chief attention was paid to the active ingredients, and little or no consideration was devoted to diluents, colouring matters, aromatics, etc. The following is the list of substances detected in the thirty-six preparations and the number of samples in which each was found:—

Acetanilid	in 30	samples
Sodium Bicarbonate	,, 19	,,
Caffeine	,, 14	,,
Phenacetine	,, 5	,,
Tartaric Acid	,, 4	,,
Potassium Bromide	,, 3	,,
Camphor	,, 3	,,
Camphor Monobromate	,, 2	,,
Sodium Salicylate	,, 2	,,
Quinine Sulphate	,, 1	,,
Potassium Bicarbonate	,, 1	,,
Antipyrine	,, 1	,,
Sulfonal	,, 1	,,
Ammonium Carbonate	,, 1	,,
Ammonium Bromide	,, 1	,,
Salicylic Acid	,, 1	,,
Potassium and Sodium Tartrate	,, 1	,,

In addition to the above, some of the preparations contained sugar, milk sugar, celery, charcoal, calcium carbonate, and sanguinaria, while two evidently contained belladonna and gelsemium.—*New England Druggist*, **11**, 524.

ALKALOIDAL ASSAY OF BELLADONNA PLASTERS.

BY CHARLES E. PARKER, PH.C., ORANGE, N.J.

The following process of determining the alkaloidal content of belladonna plasters has been very successful and satisfactory in the writer's hands during an extensive experience in the examination of these products. In its esential features, the disintegration of the plaster mass with chloroform, precipitation of rubber with alcohol, and shaking out by the Rodgers and Girdwood method with chloroform, the process was described by S. W. Williams in a paper read before the American Pharmaceutical Association in 1890, and again by Carl E. Smith in a report from the Committee on Research of the U.S. Pharmacopœial Revision Committee.* It is well known, and probably the only process used by the limited number of analysts who have had occasion to examine commercial belladonna plasters, and while not especially adapted for the use of tyros it should enable the competent pharmacist to determine the comparative strength of plasters with a very fair and useful degree of accuracy, and the total alkaloidal strength after some practice. The process as here given embodies some slight and heretofore unpublished modifications, which the writer had found advantageous.

Take two plasters, or, if supposed to be much under pharmacopœial strength, take four, and double the quantities of solvents here given. Remove all cloth but that upon which the mass is spread, weigh the plasters, cut into strips ½ inch wide, and digest in a beaker of 150 C.c. capacity with 30 to 40 C.c. of chloroform, keeping the beaker covered with a watch glass. It is permissible to warm the mixture slightly to hasten solution, but not higher than blood heat, and disintegration of the mass should be promoted by frequent stirring with a glass rod. When the cloth appears nearly free of mass (usually requiring ten or fifteen minutes), decant and drain off as much as possible of the thick mixture into a similar beaker and precipitate rubber, etc., by adding with constant stirring a minimum amount (10 to 20 C.c.) strong (91 per cent.) alcohol, sufficient to effect complete separation. Let stand a few minutes that the precipitate may settle and become coherent, and then decant the supernatant liquid in portions into a small funnel, the throat of which is loosely plugged with a pledget of absorbent cotton, and which is so arranged to drain into a 250 C.c. separatory funnel. Treat the cloth in the first beaker with a further quantity (about 20 C.c.) of chloroform, and decant the washings into the second beaker, dissolving with them the precipitated rubber with the aid of gentle warmth and stirring. When the mixture is free from lumps, precipitate again with the minimum necessary amount (about 10 C.c.) of alcohol, and proceed as before, filtering the chloroform-alcohol solution into the separator. Repeat this procedure once more with a small quantity of chloroform, which should this time be made alkaline with five drops of 10 per cent. ammonia water, and without application of heat. This treatment should remove all the mass from cloth and beaker. Dry the cloth, cool and weigh it, and deduct this from the gross weight of the plaster to obtain the net weight of mass used.

In prescribing the amounts of chloroform to be used in the several extractions of the plaster mass, some latitude has been allowed to the judgment of the operator. It is well to use first the smaller amount, and then add more should it be needed. While sufficient should be used to thoroughly disintegrate the mass, and to produce a mixture not too thick and viscid to drain readily from the cloth and beaker, an excess over this necessary amount should be avoided. The amount actually required will vary according to the composition of the mass, and the amount of mass in the plasters. No ammonia being used in the first two extractions, the application of gentle heat is harmless and facilitates the operation. Overheating should be carefully avoided.

Filtering the chloroform-alcohol solution removes particles of suspended matter, and facilitates separation in the shaking out process which is to follow. If the pledget of cotton is of moderate size, and properly (not too tightly) adjusted in the throat of the funnel, the liquid will filter readily; or, if the cotton becomes clogged, it will be only at the upper surface, and a slight kneading with the end of a glass rod will start the flow.

In this extraction, with successive portions of solvent, care should be taken that no portions of material adhering to the sides of beakers or funnel escape from its action, and it is well as a check on the completeness of the extraction to repeat the process with a fourth small portion of chloroform, the proceeds of which are to be shaken out separately and tested for residual traces of alkaloid.

If not already so, the combined chloroform-alcohol solutions in the separator are made plainly alkaline with a few drops of ammonia water, and the chloroform caused to separate by the addition of sufficient water, perhaps 50 C.c. The chloroform portion is drawn off and shaken out in other separators with three successive portions of 25 C.c., each of 2 per cent. hydrochloric acid. The alkaline hydro-alcoholic solution in the first separator is extracted with three or more 25 C.c. portions of chloroform, or until a few drops of the chloroform, evaporated and taken up with dilute sulphuric acid, give no precipitate with Mayer's reagent. These portions of chloroform are also shaken out with the portions of dilute acid before mentioned. The portions of acid being united in one separator, with addition of the rinsings of the separators from which they were taken, are made alkaline with ammonia, and shaken out with several portions of chloroform. The chloroform extracts are washed in separators with two portions of water and united in a flask, from which the chloroform is distilled off. The alkaloidal residue may be titrated by the pharmacopœial method for liquid extract of belladonna, or any other suitable method, of which the writer prefers the one given below.

In "shaking out" violent agitation is to be avoided, as it causes troublesome and time-wasting emulsions. Great care should be taken to obtain perfect separation of the liquids, as a mixture containing emulsion may be washed until apparently free of alkaloid, and yet be found to contain appreciable amounts when the emulsion has broken down. Chloroform carries mechanically small amounts of liquid from one separator to another, which may cause an unsuspected change of reaction unless the separators each contain a small piece of litmus paper. Chloroform also retains in solution traces of alcohol, which may convey non-alkaloidal (resinous) matter. Therefore, the first alkaloidal residue cannot be considered pure. Make a preliminary titration by dissolving it in 10 C.c. of N/20 hydrochloric acide, and titrate with N/50 barium hydrate solution, using a few drops of tincture of cochineal as an indicator. Shake out the titrated solution carefully once more, and collect the purified alkaloid in a small tared distilling flask.

Dissolve the alkaloidal residue in a little ether and evaporate (to expel traces of chloroform); dry and weigh. Dissolve in N/20 hydrochloric acid, and titrate as before. If carefully done there need be no appreciable loss in the purification. Indeed, the second titration sometimes yields higher results, owing to (acid) resinous impurities in the first residue. If the alkaloid consists of atropine or hyoscyamine the titrated result is more reliable; otherwise, the gravimetric.

* See the *American Journal of Pharmacy*, April, 1898.

LUTE FOR ALCOHOL BOTTLES.—The following cement is used by Camerano for sealing specimen jars containing preparations preserved in alcohol in the Zoological Museum at Turin. It is stated that it gives a perfect hermetic seal, which is impervious to alcohol and will last indefinitely. Caoutchouc, 200; suet, 125, are melted together (caoutchouc in the form of old rubber tubing cut in small pieces may be used); French chalk, 200, is then stirred in. The mixture is allowed to cool and keeps indefinitely. To use it, it is warmed, and a little taken up on a glass rod or a piece of wood is applied to the parts to be luted.—*Petit Mon. Pharm.*, **49**, 3,315.

AUSTRALIAN INDIGENOUS VEGETABLE DRUGS.*

BY J. H. MAIDEN,

Government Botanist and Director of the Botanic Gardens, Sydney.
(Corresponding Member of the Pharmaceutical Society of Great Britain.)

URTICEÆ.

Ficus glomerata, Roxb. "Clustered Fig."

This tree possesses an astringent bark; this, as well as the fruit, which is considered to have similar properties, is prescribed in hæmaturia, menorrhagia, and hæmoptysis. The dose is about 200 grains. The fruit, filled with sugar, is considered to be very cooling, and the small, blister-like galls which are common on the leaves, soaked in milk and mixed with honey, are given to prevent pitting in smallpox. Ainslie tells us that "from the root of the tree, which in Tamil is called 'Attievayr,' there exudes, on its being cut, a fluid which is caught in earthen pots, and which the Vytians consider a powerful tonic when drunk for several days together." In Bombay the sap is a popular remedy, which is locally applied to mumps and other inflammatory glandular enlargements, and is used in gonorrhœa. (Dymock, *Materia Medica of Western India.*)

Queensland and Northern Australia.

Laportea gigas, Wedd. "Giant Nettle."

The poisonous fluid secreted from the foliage is very powerful, particularly in the younger leaves, and their sting is exceedingly virulent, producing great suffering. Cattle become furious when they come in contact with the leaves. It is stated that the pain caused by the sting of this plant will be instantly relieved by the milky juice of the lower part of the stem of *Colocasia macorrhiza* ("Cunjevoi" of the natives), being rubbed on the affected part.

"The genus of Laportea has some interest to pharmacologists, inasmuch as, after being nettled, one is reminded of the fact for several days, and in exceptional cases for weeks, whenever the nettled part is wet. Upon touching water, there is produced a sudden severe pain; it is only momentary, however. If the hand be the part nettled, the secondary pain starts in the spot nettled, and runs up the arm and down the corresponding side. No explanation has ever, as far as I am aware, been given to account for the secondary pain. A juice made by pounding the green leaves in a mortar gave no decided reaction with litmus paper; it was tasteless, and when injected into frogs had no action upon them. If the stinging hairs be carefully examined, and the tops shaved off with a razor, a few will be seen to contain a minute quantity of fluid; so small a speck is it, however, that even with the microscope it is impossible to test its reaction with litmus. The juice of *Colocasia macrorrhiza* plays the part of the dock in England as a remedy for application to parts nettled; it, however, seems quite useless.

"The adage, 'If you gently touch a nettle, it will sting you for your pains,' is not applicable to tree nettles, for in order to be stung it is necessary to handle the leaves roughly, or brush against them with some force. The fracture of the points of the stinging hairs is quite audible, and one feels a prick when the point enters the skin; in a second or two afterwards he is conscious of having been nettled." (Dr. T. L. Bancroft, *Trans. Intercol. Med. Congress*, 1888.)

Mr. A. R. Crawford, of Walcha, wrote me the following interesting letter a few years ago:—

"The bark supposed to possess medicinal properties is that of *Laportea gigas*, Wedd., said to have been used by the blacks in the olden times for the cure of rheumatism, also for 'giggle giggle,' a skin complaint, also for mange on their dogs. I can remember one man, said to have been cured of rheumatism, and said to have been so bad that he could only crawl round the room, supporting himself by the wall. The blacks took him in hand, stripped him, laid him out on a sheet of bark, rubbing him with the young leaves and bark of the *Laportea*, pounded up and boiled until it was of the consistency of treacle. It is said that they almost rubbed the man's skin off, but they cured the patient. I do not know if you are aware of it, but the best cure for sting of the leaf is a piece of the bark (from a young plant is most convenient, chewed up and rubbed on the spot); it is as if you wiped the pain away with a cloth. It has the same effect used for sting of the large nettle found in the shrubs—a native nettle, I think."

New South Wales and Queensland.

CASUARINEÆ.

Casuarina equisetifolia, Forst., "Bull Oak."

The bark, according to Dr. Gibson, is an excellent astringent, and may be used with advantage in chronic diarrhœa and dysentery. It is not used medicinally by the natives of India. The Chinese in Bombay say that it is used as an astringent in China (Dymock). Doubtless the barks of the numerous other Australian species possess similar properties.

New South Wales, Queensland, and Northern Australia.

PIPERACEÆ.

Piper Novæ-Hollandiæ, Miq., "Native Pepper."

An excellent stimulant tonic to the mucous membrane. Used by Dr. Joseph Bancroft in the treatment of gonorrhœa and other mucous discharges with considerable success. This is one of the largest native creepers, the root being at times from six inches to a foot in diameter. The plant climbs like ivy to the top of the tallest trees, and when full grown weighs many tons, so that a good supply of the drug is readily obtainable. The active principle, as dissolved out by ether, is a brownish, oily fluid, soluble in water to a limited extent only, the insoluble portion producing an oily emulsion. It has a warm, aromatic, pleasant taste, and a benumbing effect on the tongue when applied to it in minute quantity.

Dr. Bancroft further states that he has used a tincture internally and in other ways without any remarkable effect, but has not made sufficient advances to speak of it as a valuable drug for any particular purpose. The ethereal extract, mixed with water, inserted under the skin of frogs or small animals causes death.

Northern New South Wales and Queensland.

SANTALACEÆ.

Exocarpus cupressiformis, Labill., "Native Cherry."

The twigs prove as good a bitter tonic and astringent as the South American Rhatany, *Krameria triandra* (Dr. Lauterer, *Proc., R.S., Qd.*, x., 101).

CYCADEÆ.

Macrozamia spiralis, Miq.

See a paper by Dr. George Bennett on "A case of poisoning by the seeds of *Macrozamia spiralis*." I merely draw attention to the highly indigestible, if not poisonous, character of Macrozamia seeds. They caused the death of some French sailors during the very first year of Australian settlement. For information in regard to these plants as stock poisons, see *Agricultural Gazette*, January, 1897, p. 20.

New South Wales and Queensland.

ORCHIDEÆ.

Dendrobium teretifolium, R.Br.

The bruised leaves are used in the South Sea Islands for severe headache or other pains. (Bennett, *Gatherings of a Naturalist*, etc.)

New South Wales and Queensland.

AMARYLLIDEÆ.

Crinum.

For notes on the medicinal value of *C. asiaticum*, Blanco, see *Pharm. Indica*, 464. It is not likely that any species of this genus possesses properties not shared by the others.

* From the *Agricultural Gazette of New South Wales* (Concluded from page 166).

TACCACEÆ.

Tacca pinnatifida, Forst.

The starch from the tubers is far preferable to that of any other arrowroot for dysentery. (*Treasury of Botany.*) This plant is not endemic in Australia.

Queensland and Northern Australia.

DIOSCORIDEÆ.

Dioscorea.

An "Extractum *D. villosæ* fluidum" is made by Merck. See Rep. 1894, p. 59. Attention is invited to the reputed medicinal properties of *Dioscorea*, of which we have three species in Australia.

LILIACEÆ.

Asparagus racemosus, Willd.

The roots of this plant are used medicinally by the natives of India, but they appear to be wholly unworthy of notice. (*Pharm. of India.*) An account of some of the uses to which it is put by them will be found in Drury's *Useful Plants of India*, p. 56.

Queensland and Northern Australia.

Flagellaria indica, Linn. "Supple Jack."

The leaves are said to be astringent and vulnerary (Bailey). This plant is not endemic in Australia.

New South Wales to Northern Australia.

Smilax glycyphylla, Smith. "Native Sarsaparilla"; "Sweet Tea."

This plant has been recommended as an alterative and tonic and anti-scorbutic. It is one of the earliest plants pressed into the service of medicine in New South Wales. At p. 230, *Journal of a Voyage to New South Wales*, by John White, Esq., Surgeon-General to the Settlement, London, 1790 (the information must have been furnished almost immediately after the foundation of the colony), occurs the passage . . . . "good for the scurvy. The plant promises much in the last respect, from its bitter, as a tonic, as well as the quantity of saccharine matter it contains." The decoction is made from the leaves, and is similar in properties but more pleasant in taste than that obtained from the roots of *S. officinalis*, or Jamaica sarsaparilla. The herb is a common article of trade amongst Sydney herbalists.

"*Glycyphyllin.* Glucoside of the leaves of *Smilax glycyphylla*; a brownish-yellow, amorphous mass, or by slow evaporation of the ethereal solution, concentrically united tufts of crystals of aromatic odour and bitter-sweet taste; dissolves better in hot than cold water, easily in alcohol and in ether; breaks up on boiling with dilute sulphuric or hydrochloric acid into sugar and another product." (Mueller and Rummel, in Witstein's *Organic Constituents of Plants.*)

See also a paper by Professor Rennie, of Adelaide, on *Glycyphyllin*, the sweet principle of *S. glycyphylla*, in *Journ. Chem. Soc.*, December, 1886.

"Sarsaparilla has been found growing in the Port Phillip district of Australia, and has been shipped thence in small quantities." (Simmond's *Com. Prod. of Veg. Kingd.*) This statement has been made inadvertently. *S. australis*, R.Br., is found in Victoria, but it does not appear to possess the properties of *S. glycyphylla.*

"Under the name of *Akar Restong*, *S. glycyphylla** is used in the Straits Settlements in the form of a lotion for syphilitic ulcers and for syphilitic ozæna; the lotion is made by pounding the leaves and roots with an equal quantity of water." (E. M. Holmes in *Bulletin of Pharmacy*, vi., 108.) For notes on the active principles in *Smilax*, see Sohn, p. 89.

XYRIDEÆ.

Xyris indica, Linn.

The juice of the leaves, mixed with vinegar, is applied externally in cases of itch. The leaves and root boiled in oil are considered useful in leprosy on the Malabar Coast. In Bengal the plant is reckoned of great value as an easy and certain cure for ringworm. (Roxburgh.) See *Pharm. Indica*, 510.

In Australia there are no less than nine species of *Xyris*, some of them being exceedingly abundant.

PALMÆ.

Cocos nucifera, Linn. "Cocoanut Palm."

Various medicinal qualities are attributed to this palm. The flowers are employed by the natives of the tropics as an astringent, the roots as a febrifuge, the milk in ophthalmia, etc.

Queensland.

AROIDEÆ.

Colocasia antiquorum, Schott.

The acrid juice of the petioles of several varieties of this species is a common domestic remedy in India, on account of its styptic and astringent properties. The petiole is slightly roasted, and the juice expressed. "I have seen a purulent discharge from the ears of children stopped by a single application. The tubers of these plants, chopped fine, tied in a cloth, and heated, are used as a fomentation in rheumatism." (Dymock, *Materia Medica of Western India.*) It is said that the juice of the petioles will even arrest arterial hæmorrhage. (*Pharm. of India.*)

Queensland.

Colocasia macrorrhiza, Schott. "Cunjevoi" of the aborigines.

This plant possesses much acridity in the fresh state, and it is employed by the natives of India as an external stimulant and rubefacient. The acrid principle is, however, very volatile, and by the application of heat, or simple drying, the roots became innocuous. (*Pharm. of India.*) As an antidote to the stings of plants, see *Laportea gigas.*

For an account of a case of poisoning through eating the tubers of this plant, see the *Gazette* for May, 1896.

New South Wales and Queensland.

TYPHACEÆ.

Typha angustifolia, Linn. "A Bull-rush."

The root-stock, which abounds in starch, is somewhat astringent and diuretic, and is employed in Eastern Asia in dysentery, gonorrhœa, and the measles.

All the Colonies.

GRAMINEÆ.

Andropogon citreus, R.Br.

Makes a useful tea in fevers. (Armit., *Journ. Linn. Soc.* [Bot.], xx., 69.)

Queensland.

LYCOPODIACEÆ.

Psilotum triquetrum, Sw.

This plant is used in infusion in visceral complaints in the South Sea Islands. (Bennett, *Gatherings of a Naturalist*, etc.)

Victoria to Queensland.

FILICES.

Adiantum æthiopicum, Linn. Common "Maidenhair Fern."

This plant is said to possess medicinal properties, being slightly astringent and emetic. It has been used in Europe in making *Sirop de Capillaire*, a demulcent drink, employed in diseases of the chest.

All the Colonies.

Pteris aquilina, Linn., var. *esculenta*, "Brake Fern," or "Bracken."

The European plant is astringent, bitter, and anthelmintic, and the rhizome has been used as a substitute for hops.

All the Colonies.

* This is *S. glycyphylla*, Hask.; *S. leucophylla*, Blum.

QUALITATIVE EXAMINATION OF POWDERED VEGETABLE DRUGS.*

BY HENRY KRAEMER.

In this communication are embodied the principles of a scheme for the determination of unknown powders. While the paper has primarily to do with the consideration of official vegetable drugs, still it has been found necessary to incorporate with it also the important non-official vegetable drugs and food products, as well as the pulveres (composed of inorganic and vegetable substances), some of the compound powders for making various preparations, and all of the principal plant constituents, as opium, guaiac resin, etc. The proximate principles of plants, other than starch, have been omitted, owing to the fact that they require a somewhat different treatment. Somewhere in the neighbourhood of 300 powders are considered. The whole scheme is but tentative, and will doubtless require some changing, but gives us a basis for subsequent work, at least. It has not been possible, up to the present time, owing to the pressure of duties, to finish the drawings for publication of the points considered, but even without these, those who are familiar with the microscopical characteristics of crude drugs and the general principles of chemical analysis will find little or no difficulty in the utilisation of the same. The drugs under consideration are divided, according to the varying shades of colour, into seven classes :

I. Colour, some shade of light green to grey.

II. Colour, nearly white.

III. Colour, some shade of yellow.

IV. Colour, varying from some shade of tan or ecru to dark brown, or even dark blue or black.

V. Colour, some shade of red.

VI. Powders that vary in fineness from Nos. 20 to 30 or less, and are with difficulty examined by means of the microscope without further treatment, as sectioning, etc.

VII. Drugs that do not occur in the powdered condition.

The author was some time in coming to the conclusion that powdered drugs could be arranged along colour lines before taking them up scientifically for identification. It is true it is necessary to arrange samples of the powders in convenient vials and mount on white cardboard to appreciate the ground for the classification adopted. It will also be found that there are a few of the powders under the different groups, as No. I., that might be considered advantageously under others, as No. IV. In such cases samples must be arranged under both, and this has been done as far as possible by the author.

The largest groups are Nos. I. and IV., and it will be found that they include a more natural grouping than we would at first suppose. Under No. I. we find chiefly the herb and leaf drugs, while under No. IV. are chiefly roots, rhizomes and barks. It has been found necessary, owing to the difference in predominating constituents or tissues, to work up each group differently.

GROUP No. I. COLOUR GREEN TO GREY.

Coca, Buchu, Mentha viridis, Matico, Chelidonium, Guaiaci resina, Gaultheria, Lobelia (herb), Passion flowers, Pulsatilla, Pilocarpus pinnatifolius, Lobelia (leaves), Buchu (long), Calumba, Eucalyptus, Absinthium, Pilocarpus, Senna (Alexandria and India), Scutellaria, Castanea, Eupatorium, Tanacetum, Mentha piperita. Lobelia, Anisum, Fœniculum, Conium, Belladonnæ folia, Coca, Insect powder (Persian), Salvia, Eriodictyon, Hamamelis, Matico, Uva ursi, Scoparius, Grindelia robusta, Chimaphila, Gaultheria, Hyoscyamus, Stramonii folia, Galla (Chinese or Japanese), Cypripedium, Aletris, Digitalis, Marrubium, Piper nigrum, Ergota, Hedeoma, Sarsaparilla (Mexican), Cimicifuga, Spigelia, Leptandra, Arnicæ radix, Chenopodium, Sarsaparilla (American), Xanthoxylum fraxineum, Xanthoxylum americanum, Aralia spinosa, Senega, Sarsaparilla (Honduras), Sumbul, Taraxacum, Serpentaria, Piper album, Aurantii amari cortex, Aurantii dulcis cortex, Limonis cortex, Helonias dioica, Caulophyllum, Angelica, Kava kava, Nux vomica, Belladonnæ Radix.

* From the *American Journal of Pharmacy*.

I. Without Fibro-Vascular Tissue.

1. *Ergota.*—Oil globules ; red or violet coloration in choral and sulphuric acid ; odour.

II. With Fibro-Vascular Tissues.

A. WITH CALCIUM OXALATE CRYSTALS.*

a. CRYSTALS ROSETTE OR STAR-SHAPED.

a. Containing starch.†

2. *Aralia nudicaulis.*—Crystals 35–70 μ ; starch, 10–15 μ; secretion reservoirs (yellow and brown) ; sklerenchyma.

3. *Aralia spinosa.*—Crystals about 50 μ; starch about 10 μ; reservoirs containing oil and resin ; cork brownish ; sklerenchyma fibres ; also sometimes fine needle-shaped crystals.

4. *Galla (Chinese or Japanese).*—Few crystals, 20 μ ; starch 40 μ; non-secreting hairs ; milk vessels accompanying ducts ; mounts in glycerin show acicular crystals of gallic acid.

5. *Passion Flowers.*—Crystals 15 μ ; starch ; pollen 35–45 μ ; sklerenchyma.

6. *Podophyllum.*—Crystals 50 μ in diameter ; starch 5–8 μ diameter ; single grains to 2–6 compound ; numerous single or groups of cells coloured yellow ; sklerenchyma fibres and ducts.

7. *Spigelia.*—Crystals 5–15 μ ; starch 4 μ ; parenchyma and long light-coloured sklerenchyma fibres characteristic ; apparently at one stage or in an admixed drug calcium carbonate is present.

β. Without starch.

8. *Anisum.*—Crystals 2–3 μ in aleuron grains 6 μ in diameter ; non-secreting hairs ; secretion reservoirs ; epidermis of seed coat and pericarp characteristic.

9. *Buchu.*—Crystals 15–20 μ ; sphere-crystals of a carbohydrate 35 μ ; mucilage ; sklerenchyma very characteristic ; non-secreting hairs ; heavy cuticle ; oil secretion reservoirs.

10. *Castanea.*—Crystals 15 μ; wavy epidermis ; sklerenchyma ; some pollen grains ; presence of few or no non-secreting hairs distinguish it from *Castanea pumila.*

11. *Cannabis Indica.*—Crystals 20 μ; characteristic crystolith (200 μ long) with or without broad base (containing $CaCO_3$ in granular masses) attached ; oil secretion hairs ; characteristi cells of pericarp.

12. *Chimaphila.*—Crystals 55 μ ; tannin masses ; chimaphilin, red with H_2SO_4.

13. *Conium.*—Crystals 2 μ in aleuron grains about 5 μ ; no oil secretion reservoirs of Umbelliferæ ; characteristic outer epidermis of seed coat and pericarp ; odour alone or when rubbed with KOH.

14. *Eriodictyon.*—Crystals 20–25 μ ; long 1-celled, non-secreting hairs ; also secreting hairs.

15. *Eucalyptus.*—Three kinds of crystals, rosette shaped, 15 μ diameter, tetragonal 4 $\times$ 14 and 25 $\times$ 15 μ ; thick greenish cuticle ; oil secretion reservoirs and characteristic sklerenchyma.

16. *Fœniculum.*—Crystals 2 μ in aleuron grains about 6 μ ; oil secretion reservoirs with characteristic inner epidermis of pericarp

* If there are any doubts about the presence of calcium oxalate crystals, sulphuric acid may be added to the powder, when numerous needle-shaped crystals of calcium sulphate will generally separate. It must be also stated that in plants containing calcium oxalate the form may be in needles in addition to the characteristic form given.

† If there are any doubts about the presence of starch, the reaction of which is sometimes hid by the presence of resinous or other principles, a small quantity of the powder may be boiled for a minute with a few drachms of water in a test-tube, the liquid filtered and tested with iodine and potassium iodine solution. Regarding the presence of reserve starch and calcium oxalate crystals in plants, the amount of these constituents is an uncertain one owing to the changes induced by certain Fungi. J. H. Wakker, in Pringheim's *Jahr. f. Wissench. Bot.*, xxiv., p. 499, states that he found in *Rhamnus frangula* the calcium oxalate crystals to be fewer and the starch grains more numerous when plants were diseased. See also Hartig's *Lehrbuch der Baumkrankheiten* and Byron D. Halsted's paper before the A.A.A.S., 1898.

running at right angles to length of the former; peculiar thickened latticed parenchyma.

17. *Gaultheria.*—Crystals 20 μ, look as though made up of little plates; stomata numerous with 2 "Nebenzellen"; tufts of fan-shaped crystals (28 μ); stone cells with reddish colouring matter; in chloral glycerin some tissue coloured purplish; with Fe_2Cl_6 tannin and oil coloured dark purple.

18. *Hedeoma.*—See No. 57. In glycerin mounts have sphere-shaped crystals separating.

19. *Insect Powder.*—Pyrethrum roseum, or Persian—numerous rounded and prickly pollen grains, 25 μ; some few crystals (2 × 8 μ), in stone or in parenchyma adjoining; sklerenchyma fibres being 17 × 105 μ, and 20 × 160 μ in Dalmatian; fragments of T-non-secreting hairs less numerous than in Dalmatian; characteristic, isolated, somewhat rounded or elliptical parenchyma cells (75 × 95 μ), also occurring in papillæ-like fragments. Fragments of papillæ (epidermis of corolla), acute and more numerous than in Dalmatian. In latter rounded and scarcely perceptible; secretion hairs 50 μ, being smaller than in Dalmatian; rose-coloured fragments in choral mounts possibly more numerous in the Persian powder.

20. *Pilocarpus.*—Crystals 17 μ; few non-secreting hairs; long sklerenchyma fibres; oil secretion reservoirs; few palisade cells.

21.—*Senna.*—Possesses four kinds of crystals—rosette, cubical, tetragonal and coffin-shaped, of which the rosette occurs least, and the other three in greatest amount; 1-celled hairs more numerous in Alexandria than in India senna. Boil a small quantity with water, filter, and to the light lemon-coloured filtrate add KOH and solution becomes red, due to chrysophanic acid reaction.

22. *Stramonii Folia.*—Crystals 10–15 μ, occurring in a characteristic line through the middle of the leaf just below the palisade cells; some secreting and non-secreting hairs.

b. CRYSTALS CUBICAL, RHOMBOHEDRAL, PRISMATIC, TETRAGONAL OR COFFIN-SHAPED.

a. Containing Starch:

23. *Cardamom.*—Crystals very small; starch in single small grains, and in masses; fragments of thick, dark sklerenchyma cells, being the outer and particularly inner epidermis of seed coat. The Malabar is distinguished from the Ceylon in that the latter has a few 1-celled hairs; the starch grains and crystals are larger and sklerenchyma cells are more prominent.

When the pericarp or fruit wall is present, this is determined by its large parenchyma cells containing brown masses; also sklerenchyma fibres.

24. *Calumba.*—In the stone cells are cubicle crystals 15 μ; starch grains characteristic, 35 × 25 μ.

25. *Gelsemium.*—Crystals of three kinds; diamond-shape, 15 × 15 μ, tetragonal, 15 × 20 μ or twin, large prismatic as in quillaja, 8 × 28 μ; starch, 8 × 8 μ; numerous sklerenchyma fibres. In overground stem find remains of chloroplastids in collenchyma; root distinguished from stem by absence of fragments of altered sieve (*i.e.*, internal phloem).

26. *Guaiaci Resina.*—See note No. 94.

27. *Pulv. Glycyrrhizæ Co.*—Cubical crystals 3 × 2 μ in crystal fibres in fragments of about 117 μ in length; starch about 5 μ in diameter; characteristic crystals and hairs of senna (see No. 21). The powder made from Russian liquorice contains few or no fragments of cork.

28. *Spigelia.*—See No. 7.

29. *Xanthoxylum.*—Crystals 7 × 10 μ; starch 10 μ; oil secretion reservoirs; in chloral mount numerous oil globules: sklerenchyma cells and fibres in *X. fraxineum.*

β. Without Starch:

30. *Coca.*—Crystals cubical 3 × 3 μ, coffin-shaped, 3 × 10 μ; peculiarity of epidermis, absence of hairs; *odor.*

31. *Eucalyptus.*—See No. 15.

32. *Gaultheria.*—See No. 17.

33. *Hamamelis.*—Crystals 7–10 μ; 1-celled non-secreting hairs; tannin and resin masses.

34. *Hyoscyamus.*—Crystals of two kinds—rosette-shaped and more or less cubical (10 × 10 μ), the latter chiefly. Numerous secreting and non-secreting hairs.

35. *Senna.*—See No. 21.

36. *Stramonii Folia.*—See No. 22. The rosette-shaped crystals are generally in greater abundance.

37. *Uva Ursi.*—Prismatic and coffin-shaped crystals (7 × 10 μ), in crystal fibres, tannin masses; characteristic sklerenchyma fibres; no oil-cells or reservoirs.

c. CRYSTALS ACICULAR (RAPHIDES).

38. *Cypripedium.*—Crystals 35–58 μ long; starch 2–4 μ; root hairs; oil and resin cells; characteristic odour.

39. *Helonias.*—Characteristic small acicular crystals (35 μ long) in small groups; starch.

40. *Sarsaparilla.*—Crystals 68 μ long; starch 10–20 μ; sklerenchyma fibres. In Mexican sarsaparilla find a pronounced yellowish hypodermis and endodermis, the walls of which are unequal in thickness. In Honduras the latter is not so pronounced. Starch in both rather characteristic.

Needle-shaped crystals other than calcium oxalate are sometimes found in the following:

41. *Buchu.*—See No. 9.

42. *Coca.*—See No. 30.

43. *Chelidonium.*—See No. 52.

44. *Gaultheria.*—See No. 17.

45. *Lobelia.*—See No. 61.

d. CRYSTALS AS FINE SAND-LIKE PARTICLES IN PARTICULAR CELLS. LIKELY TO FIND ALSO ACICULAR CRYSTALS.

46. *Belladonnæ Folia.*—Characteristic grayish or dark-coloured cells containing small angular crystals of calcium oxalate; few secreting and non-secreting hairs.

47. *Dulcamara.*—Crystal-sand; starch, 5–7 μ; acicular crystals in parenchyma of bark; ducts with bordered pores; ducts 35–45 μ in width, and accompanied with sklerenchyma fibres; occasional single bast fibre; cork.

B. CALCIUM OXALATE CRYSTALS FEW OR WANTING.

a. Simple hairs present:

48. *Absinthium.*—T-non-secreting hairs; secreting hairs.

49. *Belladonnæ Folia.*—Might be considered here as crystal-sand; could be overlooked. See No. 46.

50. *Buchu.*—See No. 9.

51. *Castanea.*—See No. 10.

52. *Chelidonium.*—Non-secreting hairs; milk vessels contain reddish masses; epidermis with papillæ and cells with sinuate margins on surface view; acicular crystals sometimes observed in glycerin mounts.

53. *Digitalis.*—Characteristic non-secreting and secreting hairs; stomata each with 4–5 nebenzellen.

54. *Eriodictyon.*—See No. 14.

55. *Eupatorium.*—Non-secreting and secreting hairs; pollen grains 15 μ; characteristic style.

56. *Galla.*—See No. 14.

57. *Hamamelis.*—See No. 33.

58. *Hedeoma.*—Non-secreting hairs, 2–3-celled; peculiar thickened or reticulated cells of anther; in glycerin mounts, crystals of carbohydrate in "Athemhohle."

59. *Insect Powder.*—See No. 19. Crystals may not be observed.

60. *Hyoscyamus.*—See No. 34.

61. *Lobelia.*—Non-secreting hairs; sklerenchyma; pollen grains 30 × 15 μ; reticulated seed coat. Leaves distinguished from herb in that in the former fewer pollen grains and seeds are present.

62. *Matico.*—Non-secreting hairs of two kinds, few short, but numerous long and peculiarly jointed; oil secretion reservoirs, numerous in tissues of fruit; spiral ducts; pollen grains nearly cubical; much sand in among the fruit fragments.

63. *Marrubium.*—1–4-celled, non-secreting hairs, either single or in groups; large oil-secreting hairs.

64. *Mentha Piperita* and 65. *Mentha Viridis.* In chloral mount violet-coloured fragments of petals; pollen grains; jointed non-secreting and secreting hairs. In *Mentha piperita* sometimes find in the secretion hairs crystals of Menthol. Non-secreting hairs peculiar and apparently more abundant in *Mentha viridis* than in *M. piperita;* taste test characteristic for each.

66. *Nux Vomica.*—Non-secreting hairs give the characteristic reaction for lignin; endosperm, with thick walls, contains oil and protein; blue with $H_2SO_4 + K_2Cr_2O_7$.

67. *Pulsatilla.*—Non-secreting hairs, long and 1-celled; sklerenchyma (mechanical cells).

68. *Salvia.*—Non-secreting hairs; 1–4-celled and jointed; also two kinds of non-secretion hairs; stomata, each with two "Nebenzellen."

69. *Scoparius.*—Non-secreting hairs; pollen grains are cubical and may be mistaken for crystals; sklerenchyma with brown contents in lumen.

70. *Scutellaria.*—Non-secreting hairs long, jointed (5 cells); two kinds of secretion hairs; sklerenchyma characteristic and prominent.

71. *Senna.*—See No. 21.

72. *Stramonii Folia.*—See No. 22.

73. *Strophanthus.*—Long secretion hairs, in diameter 10–15 μ; starch grains, 4 μ; parenchyma containing oil, aleuron and starch; narrow, almost colourless collapsed cells; Strophanthin reaction.

74. *Tanacetum.*—Characteristic, bent, non-secreting hairs, made up of 4–5 cells; pollen grains 15 μ: odour characteristic.

(*b*) CONTAINING SECRETION HAIRS OR RESERVOIRS; AROMATIC AND OF CHARACTERISTIC ODOUR.

α. With oil-secreting hairs.

75. *Absinthium.*—See No. 48.

76. *Arnicæ Flores.*—Characteristic 5–6-celled, jointed, non-secreting hairs of corolla; also double hairs on outside of ovary; pappus; pollen grains; sklerenchyma.

77. *Belladonnæ Folia.*—See No. 46.

77*a*. *Digitalis.*—See No. 53.

78. *Eriodictyon.*—See No. 14.

79. *Eupatorium.*—See No. 55.

80. *Grindelia.*—Pollen grains, 20 μ; large number of palisade cells; sklerenchyma cells and fibres.

81. *Hedeoma.*—See No. 58.

82. *Mentha Piperita* and 83. *Mentha Viridis.* See Nos. 64 and 65.

84. *Pulsatilla.*—See No. 67.

85. *Salvia.*—See No. 68.

86. *Scoparius.*—See No. 69.

87. *Scutellaria.*—See No. 70.

β. *Containing secretion reservoirs:*

88. *Angelica.*—Starch; size of parenchyma cells containing starch characteristic; sklerenchyma; odour.

89. *Arnicæ Radix.*—Inulin masses or crystals soluble in hot water; sklerenchyma fibres; resinous masses.

90. *Caulophyllum.*—Parenchyma cells containing starch characteristic; sklerenchyma; odour.

91. *Cimicifuga.*—Reserve starch; sklerenchyma fibres; ducts.

92. *Eucalyptus.*—See No. 15.

93. *Gaultheria.*—See No. 17.

94. *Guaiaci Resina.*—Numerous lemon-yellow or dark brown resin masses, which on mounting in choral have a wine-coloured halo around them; few fragments of tissues, with characteristic sklerenchyma cells and fibres few crystals of calcium oxalate (cubical or coffin-shaped) in parenchyma

95. *Kava Kava.*—Starch; yellowish resin and oil; sklerenchyma more of nature of that found in fruits and seeds.

96. *Leptandra.*—Starch characteristic; brown stone cells.

97. *Matico.*—See No. 62.

98. *Pilocarpus.*—See No. 20.

99. *Piper Album* and 100. *Piper Nigrum.* Starch and oil in perisperm; stone cells. *Piper album* has fewer stone cells than *Piper nigrum.*

101. *Sabina.*—Starch, 4 μ; characteristic hypodermis, consisting of long fibres (15 μ wide), associated with epidermis.

102. *Sumbul.*—Starch; sklerenchyma fibres numerous.

103. *Tanacetum.*—See No. 74.

C. SKLERENCHYMA CELLS (STONE CELLS) OR FIBRES (WOOD OR BAST).*

104. *Aletris.*—Starch; yellowish or reddish-yellow coloured sklerenchyma.

105. *Arnicæ Radix.*—See No. 89, sklerenchyma fibres.

106. *Calumba.*—See No. 24, stone cells.

107. *Cimicifuga.*—Starch; resin cells; sklerenchyma fibres; ducts.

108. *Chenopodium.*—Characteristic reddish-brown pericarp and seed coat; numerous starch grains, in size up to 10 μ; fine granular contents = aleuron.

109. *Chirata.*—No starch; few small pollen grains, 4 × 10 to 7 × 10 μ; parenchyma large, with simple pores; many sklerenchyma fibres, in width 20 μ, walls 4 μ thick; scalariform ducts, 30 μ in width, also isolated spiral ducts; yellow epidermis, with some collenchymatic parenchyma, latter with brown contents; with the latter are associated mycelial-like development, containing blackish-brown coloured substance, few seeds in shape like Hyoscyamus, and reticulated like Lobelia, but cells larger and walls 4 μ thick.

110. *Cydonium.*—Without starch or calcium oxalate crystals; outer clear mucilage cells as in Linum; beneath the latter are thick-walled cells, containing brown contents, which react like tannin; parenchyma containing oil and aleuron.

111. *Grindelia.*—See No. 80, stone cells and fibres.

112. *Guaiaci Resina.*—See No. 94, very few stone cells and fibres.

113. *Lappa.*—Numerous irregular transparent fragments or sphere crystals (more or less fan-shaped) soluble in hot water = Inulin; no secretion reservoirs; more wood fibres and possibly larger reticulated ducts (as much as 70 μ wide) than Inula; cells of periderm brownish becoming yellow.

114. *Leptandra.*—Starch characteristic; brown stone cells.

115. *Piper Album* and 116. *Piper Nigrum* See Nos. 99 and 100, stone cells.

117. *Physostigma.*—Starch, 25 × 40 μ; oil and protein in irregular granular masses; characteristic sklerenchyma and stone cells whose contents are reddened by alkalies.

118. *Podophyllum.*—Crystals sometimes appear wanting; starch grains single (5–8 μ) or in groups of 4 to 6 grains; numerous single cells or groups with yellowish resinous contents; ducts and sklerenchyma fibres.

119. *Sarsaparilla (Honduras)* and 120. *Sarsaparilla (Mexican).* See No. 40.

121. *Senega.*—Parenchyma and sklerenchyma fibres characteristic; mounts in chloral show some pinkish (or strawberry-coloured) cells.

122. *Scoparius.*—See No. 69.

123. *Scutellaria.*—See No. 70.

124. *Spigelia.*—Rosette crystals, 10–15 μ; tetragonal crystals, 3–10 μ; sklerenchyma fibres; parenchyma containing pink-

* If thought necessary, can isolate characteristic stone cells and sklerenchyma fibres by treatment of powder with Schulze's macerating fluid or sulphuric acid.

coloured contents; starch, 4 μ; peculiar hypodermis; may contain $CaCO_3$.

125. *Sumbul.*—Starch; resin secretion reservoirs; numerous sklerenchyma fibres.

D. SEEDS WITH THEIR CHARACTERISTIC SEED COATS.

126. *Chenopodium.*—See No. 108.

127. *Lobelia.*—See No. 61.

(E) RESERVE STARCH.

128. *Aletris.*—See No. 104, sklerenchyma.

129. *Angelica.*—See No. 88, parenchyma, odour.

130. *Aralia nudicaulis.*—See No. 2, crystals.

131. *Aralia spinosa.*—See No. 3, crystals.

132. *Caulophyllum.*—See No. 90, parenchyma, odour.

133. *Chenopodium.*—See No. 108, stone cells.

134. *Cimicifuga.*—See No. 91, fibres.

135. *Cypripedium.*—See No. 38, crystals, resin.

136. *Helonias.*—See No. 39, crystals.

137. *Kava Kava.*—See No. 95, sklerenchyma.

138. *Leptandra.*—See No. 114, stone cells.

139. *Physostigma.*—See No. 119, sklerenchyma cells and fibres.

140. *Piper Album* and 141. *Piper Nigrum.*—See Nos. 115 and 116, stone cells.

142. *Sarsaparilla (Honduras)* and 143. *Sarsaparilla (Mexican).*—See No. 40, sklerenchyma.

144. *Spigelia.*—See No. 124, parenchyma.

145. *Serpentaria.*—Starch, 10 μ, grains as a whole apparently larger than in spigelia; sklerenchyma fibres and ducts; many parenchyma cells contain a yellowish or reddish-brown substance, as also the cork cells.

146. *Sumbul.*—See No. 125, sklerenchyma fibres.

147. *Xanthoxylum.*—See No. 29.

F. CONTAINING POLLEN GRAINS.

148. *Castanea.*—See No. 10, crystals.

149. *Chelidonium.*—See No. 52, milk vessels.

150. *Eupatorium.*—See No. 55, hairs.

151. *Grindelia.*—See No. 80, hairs and sklerenchyma.

152. *Hedeoma.*—See no 58, hairs, stomata.

153. *Insect Powder.*—See No. 19, hairs and sklerenchyma.

154. *Lobelia.*—See No. 61.

155. *Marrubium.*—See No. 63, hairs.

156. *Mentha Piperita* and 157. *Mentha Viridis*—See Nos. 64 and 65, hairs.

158. *Passion Flowers.*—See No. 5, pollen.

159. *Pulsatilla.*—See No. 67, hairs.

160. *Scoparius.*—See No. 69, hairs.

161. *Scutellaria.*—See No. 70, hairs.

162. *Tanacetum.*—See No. 74, hairs.

G. INULIN MASSES OR CRYSTALS (SOLUBLE IN HOT WATER).

163. *Arnicæ Radix.*—See No. 89, sklerenchyma and resin masses.

164. *Lappa.*—See No. 113, ducts and wood fibres.

165. *Taraxacum.*—Numerous crystal-like groups, or sphere-crystals, giving in glycerin mounts the parenchyma a characteristic appearance; yellowish-brown milk vessels 10 μ in width; reticulated ducts are 45 μ wide, and associated with them are characteristic non-lignified "Ersatzfasern."

H. CONTAINING TANNIN MASSES.

166. *Chimaphila.*—See No. 12, crystals.

167. *Galla.*—See No. 4, crystals and starch.

168. *Caultheria.*—See No. 17, crystals.

169. *Hamamelis.*—See No. 33, crystals and hairs.

170. *Uva Ursi.*—See No. 37, crystals.

(To be continued.)

A CLASSIFICATION OF GUMS, RESINS AND SIMILAR SUBSTANCES.*

BY FREDERICK L. LEWTON.

The terms "gums," "resins," and "similar substances," as here used, include only those plant exudations and prepared substances of similar appearance, which are properly or commercially known as gums, resins, balsams or rubbers.

It will be at once readily seen that the above definition excludes pectic substances and numerous gums, resins and mucilages occurring in small amounts in the tissues of many plants, which should find a place in a complete scientific classification of resinous and gummy substances.

The classification of gums, resins and similar substances, particularly those included by the commercial world under the general name of "gums," presents a number of difficulties which probably account for the want of uniformity among the different systems of classification that have been proposed from time to time. This want of uniformity is no doubt due to the fact that the majority of these substances are complicated bodies, bearing no general relationship as regards chemical affinities, and are widely distributed in the vegetable kingdom, originating therefrom in several ways.

Some are secretion products, others have been clearly proved to be formed from the walls of plant cells by chemical metamorphosis, and others again are inspissated saps or extracts.

The following classification is based chiefly on physical properties and chemical composition and divides these substances into nine sections, each of which may be divided into a number of sub-sections.

SECTION I. TRUE GUMS.

Plant exudations, or prepared vegetable substances, which dissolve or soften in cold water, forming a mucilage, or at least a liquid of a gelatinous consistency.

They are insoluble in 60 per cent. alcohol. Treated with nitric acid, they yield mucic and oxalic acids. Sulphuric acid converts them into dextrin and finally into sugar.

They may be divided into five sub-sections according to their chemical composition.

Sub-section 1. *Arabic Group.*—These gums chiefly consist of arabin. They are almost entirely soluble in cold water, forming a mucilage.

Examples: All kinds of acacia gums, mesquite, feronia, or wood-apple, buchanania, and acajou gums.

Sub-section 2. *Cherry Group.*—These gums consist chiefly of cerasin, and swell in cold water, forming a poor mucilage.

Examples: Cherry, peach, and apple tree gums.

Sub-section 3. *Tragacanth Group.*—The gums comprising this group consist chiefly of bassorin, and swell in cold water, forming a mucilage.

Examples: Tragacanth, kuteera, nopal, Moringa, and cocoanut gums.

Sub-section 4. *Dextrin Group.*—The representation of this group consists of almost pure dextrin. It is soluble in cold water, forming a thick viscous solution, which has strong adhesive properties.

Examples; Dextrin, British gum or gommeline.

Sub-section 5. *Seaweed Group.*—The representative of this group consists chiefly of gelose. It forms a jelly with 500 times its weight of water.

Example: Japan isinglass from *Gelidium corneum.*

SECTION II. TRUE RESINS.

Hard, friable, lustrous vegetable substances, externally resembling gums, but which neither dissolve nor soften in cold water. They burn with a bright smoky flame, contain much carbon, but little oxygen, and no nitrogen.

Resins are not definite chemical compounds, but are complicated mixtures of the resin acids. They may be divided into six groups.

*From the *American Journal of Pharmacy.*

Sub-section 1. *Copal Group.*—These resins are insoluble in ordinary solvents unless fused.

Examples: Amber, animi or Zanzibar copal, Angola, Sierra Leone, pebble, and other East and West African copals.

Sub-section 2. *Dammar Group.*—The resins comprising this group are more or less soluble in ether, chloroform, benzol, acetone, oil of turpentine, etc., and are almost entirely insoluble in alcohol.

Examples: Singapore and Batavia dammars, Kauri or Australian dammar, and American copal or eourbaril resin.

Sub-section 3. *Sandarac Group.*—These resins are more or less soluble in alcohol without warming.

Examples: Sandarac, mastic, Manila copal. the black, white and sal dammars of India, and guaiacum resin.

Sub-section 4. *Colophony Group.*—These resins are obtained in the distillation of crude turpentine or other oleo-resins, or they may be natural products which have lost their volatile oil through evaporation. They are entirely soluble in alcohol.

Examples: Common resin or colophony.

Sub-section 5. *Benzoin Group.*—The resins of this group are soluble in alcohol and contain benzoic or cinnamic acids or yield them when subjected to heat.

Examples: Benzoin, dragon's blood from the East Indies, yellow and red grass-tree gums or acaroid resin.

Sub-section 6. *Lac Group.*—This group includes the resinous incrustation, as well as the purified products obtained therefrom, which is found on the twigs of many species of trees, and is elaborated from the sap by the female of the lac insect (*Coccus lacca*). They are partially soluble in alcohol, forming a turbid solution.

Examples: Stick lac, seed lac, shellac, button and garnet lac.

SECTION III. INODOROUS GUM-RESINS.

Plant exudations, having no pronounced odour, and which consist essentially of gum and resin associated together in various proportions, sometimes accompanied by waxy matters. They form an emulsion with water and contain no volatile oil.

Examples: Gamboge, South American hog-gum.

SECTION IV. ODOROUS GUM-RESINS.

Plant exudations, composed of mixtures of gum, resin and volatile oil in varying proportions. They have a distinctive odour which may be fetid or fragrant in character.

Sub-section 1. Asafetida Group.—This group includes gum-resins having a fetid or more or less disagreeable odour. The most important of them are yielded by plants belonging to the order Umbelliferæ.

Examples: Asafetida, galbanum, ammoniacum, opopanax, and "cumbi" or gardenia resin.

Sub-section 2. Myrrh Group.—These are gum-resins having a more or less fragrant odour. The majority of them are yielded by plants belonging to the order Burseraceæ.

Examples: Myrrh, bdellium, olibanum, and "gomart" resin.

SECTION V. OLEO-RESINS.

Plant exudations consisting of resin mixed with volatile oil in various proportions; the resin frequently being dissolved in the latter, forming a liquid.

Sub section 1. *Lacquer Group.*—This group includes the natural varnishes and desiccating lacquers, which have the property of drying hard with considerable lustre. They are mainly yielded by trees belonging to the order Anacardiaceæ.

Examples: Chinese, Japanese, Burmese and Indian lacquers and cardol.

Sub-section 2. *Copaiba Group.*—These are fragrant liquids, usually classed with the balsams, but which differ from them in consisting of a comparatively small amount of resin dissolved in volatile oil.

Examples: Copaiba balsam and gurjun balsam or "wood-oil."

Sub-section 3. *Turpentine Group.*—This group includes the soft resins containing more or less volatile oil, which are exuded by the cone-bearing trees.

Examples: Crude turpentine, Canada balsam, "gum thus," galipot, etc.

Sub-section 4. *Elemi Group.*—These are soft resins, seldom containing more than 10 per cent. of volatile oil. They are mainly yielded by trees belonging to the order Burseraceæ.

Example: Manila and Brazilian elemi, Mexican "copal," Carana resin and tacamahac.

SECTION VI. TRUE BALSAMS.

Plant exudations consisting of resin mixed with aromatic acids, alcohols and esters.

Examples: Liquid storax, "sweet-gum" resin, or liquidambar, balsam of Peru, and balsam of tolu.

SECTION VII. VOLATILE OILS.

Sub-section 1. *Camphor Group.*—These consist of solid oxidised hydrocarbons.

Examples: Camphor, borneol, menthol crystals.

Sub-section 2. *Terpene Group.*—It comprises liquid hydrocarbons.

Examples: Wood-tar, tar and resin oils, spirit of turpentine, etc.

The majority of the essential oils are of the same composition, but they are not classed with the gums and resins.

SECTION VIII. MILKY SAPS.

(Not included in above sections).

Sub-section 1. *Rubber Group.*—These consist chiefly of hydrocarbons, known as polyterpenes.

Examples: Rubber, gutta-percha, balata and chicle.

Sub-section 2. *Opium Group.*—They consist chiefly of gum and resin, associated with alkaloids, acids, inorganic salts, etc.

Examples: Opium, lactucarium, scammony and euphorbium.

SECTION IX. INSPISSATED SAPS AND EXTRACTS.

Plant exudations or inspissated saps, consisting of gum or resin, or both, associated with astringent and bitter principles, alkaloids, glucosides, etc.; or inspissated extracts of similar composition.

Sub-section 1. *Kino Group.*—These are plant exudations containing tannins.

Examples: Malabar, Bengal and Australian kinos, West Indian dragon's blood and Mochras or silk-cotton gum.

Sub-section 2. *Hemp Group.*—A plant exudation, containing resin, inorganic salts, etc.

Example: Charas.

Sub-section 3. *Aloe Group.*—They are inspissated saps, containing resin, bitter principles, etc.

Examples: Barbadoes, Socotrine, Cape, and other kinds of aloes.

Sub-section 4. *Extract Group.*—This includes all inspissated extracts containing alkaloids, glucosides or tannins.

Examples: Gambir, cutch or catechu, quebracho, liquorice paste, curare, etc.

Liquid Dentifrices.

Boas' Dentifrice: Anise fruits, 15; cloves, 10; chamomiles, 10; alcohol (90 per cent.), 1,200; cinnamon, 7·5. Macerate for four days, filter, and add oil of peppermint, 5; tincture of ambergris, 5. *Gunther's Dentifrice*: Tincture of alkanet (1:10), 200; compound spirit of balm (Codex), 70; alcohol (90 per cent.), 800; otto of rose, 3; oil of peppermint, 9. *Schroeder's Dentifrice*: Gunther's dentifrice as above, 100; salicylic acid, 2. *Coca Dentifrice*: Coca leaves, 100; alum in powder, 15; cochineal, 100; alcohol, 90 per cent. Macerate for four days, press, add oil of peppermint, 4; oil of cloves, 4; otto of rose, 1; compound spirit of cochlearia (Codex), 400; saccharin, 0·4. Filter.—*Monde dentaire*, **16**, 235.

REPORT OF THE GOVERNMENT LABORATORY.

The report of the Principal Chemist of the Government Laboratory, upon the work of the Laboratory for the year ended March 31, 1899, has been issued as a Parliamentary paper. The business of the Government Laboratory is divided into (1) Customs and Excise work in connection with the Revenue Departments, and (2) work in connection with other Government Departments.

Customs Department.—The total number of analyses and examinations made during the year was 8,418, as against 8,047 for the previous year. During the year 57 samples of tea, representing 1,616 packages, were examined and found to contain exhausted leaves or to be mixed with other substances within the meaning of the Act. They were, therefore, refused admission for home consumption or were forfeited and destroyed or otherwise disposed of as being unfit for human food. *Tea.*—Tea which cannot be admitted for use as a beverage is "denatured" by being mixed in bond with asafetida and lime, and used for the manufacture of caffeine. Samples of such "denatured" tea are examined in the Laboratory at the Custom House, prior to delivery, to ascertain that the Board's regulations are effectively complied with.

Excise.—The number of examinations was 66,423, or an increase of 1,110 over the preceding year. *Beer.*—3,165 samples of finished beer taken from 1,323 publicans, have been analysed, and 421, or 13 per cent. of the samples, were found to have been diluted with water or otherwise adulterated, the dilution in one case been equivalent to 10 gallons of water in the barrel of 36 gallons. All the samples from provincial towns, with one exception, were genuine, and the dilution, as in previous years, has been shown to be almost entirely confined to London. *Wood Naphtha.*—970 samples of wood naphtha intended for methylating purposes, representing 371,663 gallons, have been examined; and of those 115 samples, corresponding to 48,802 gallons, were not approved as suitable for the purpose. *Alcohol.*—56 samples of ordinary alcohol intended for methylation have been examiued and all found suitable. *Tobacco.*—157 samples of tobacco taken from manufacturers and dealers have been analysed for adulteration generally. Of these 132 were found to be genuine and twenty-six adulterated. In no case was there reason to believe that the adulteration had taken place in this country. The consumption of tobacco in proportion to the population was 2 lb., per head. The quantity of tobacco cleared for consumption was 8,728,920 lb. more than that cleared in the preceding year. The larger proportion of this increase, however, was abnormal, and caused by exceptionally heavy clearances in the last month of the year, owing to manufacturers anticipating that the duty would be increased by the Budget for the current year.

Other Government Departments.—For other departments that those of Customs and Inland Revenue, 3,530 samples were examined. The Admiralty samples consisted largely of food substances, disinfectants, and soaps; the Board of Trade sent 544 samples of lime and lemon juice, spirits, disinfectants, etc.; the Board of Agriculture sent 1,600 samples of butter, margarine, cheese, and oilcakes. *Butter.*—1,083 samples of butter were examined, of which only two were reported adulterated, as again twenty-five last year and forty-six the year before. This is a marked improvement on previous years, for not only has the number of adulterated samples rapidly diminished year by year, but the analytical results show a distinct improvement in the quality of those reported genuine. No samples have this year been reported as of doubtful purity, since, although certain samples gave reactions for cotton-seed oil, the amount indicated was not more than might be due to feeding on cotton-cake, whilst the other analytical results of these samples were such as to preclude the idea of any admixture of margarine containing cotton-seed oil. The result of the investigation made at Wye, and in the Laboratory last year, into the effect of feeding cows upon oil-cakes proved beyond doubt that the characteristic constituent of cotton-seed oil passes into the milk of cows fed upon cotton-cake. With regard to the use of boracic preservative in butter, France again heads the list of European countries, and Holland comes next, whilst Danish and Scandinavian butters were entirely free from this preservative. The majority of the butters from the more distant colonies—as Australia and New Zealand—contained boric preservative. The use of artificial colouring matters derived from coal tar is now much in vogue, particularly in the United States, and to a less extent in Holland. *Margarine.*—The great majority of the margarines examined contained cotton-seed oil, boric preservative, and aniline colouring matters.

Food and Drugs Bill.—A considerable amount of attention has been given to the provisions of the new Food and Drugs Bill introduced into the House by the President of the Board of Agriculture. The various proposals and suggestions made upon it by numerous public bodies, agricultural and other associations and traders, and amendments proposed in Committee, have been submitted to the Principal Chemist by the Board of Agriculture for criticism or comment, embracing questions concerning imported dairy products, margarine and margarine cheese, the use of preservatives and colouring matter in milk and butter, standards of purity, etc.

Poisons Bill.—Amongst the matters referred to the Chief Chemist for his consideration was the Poisons Bill promoted by the Privy Council, with a view to safeguarding the sale of poisonous preparations not included in the Schedule to the Pharmacy Act, but which affect many preparations used for agricultural purposes.

Home Office.—The work done for the Home Office has been considerably increased in consequence of the inquiries which were directed to be made by order of the Home Secretary concerning the use of lead compounds in pottery manufacture and the use of ordinary phosphorus in the manufacture of lucifer matches. The Dangerous Trades Committee of the Home Office have also sent a number of substances for examination and report.

Post Office.—The gum used for postage stamps has been examined, in view of an alleged case of septicæmia due to its use. Bacteriological cultivations were made both from the stamp paper and the gum employed as the adhesive material, but no pathogenic organism could be detected in either case.

War Office.—The samples examined for the War Department exhibit an increase of twenty-nine on those of the previous year. For the Army Medical Department a number of medicinal preparations have been examined. A good proportion of these samples exhibited satisfactory conformity with the standards of the British Pharmacopœia, but in several instances they were markedly inferior. In one case complaint was made by a medical officer that a particular sample of ether, when used as an anæsthetic, had proved very unsatisfactory. The examination of the sample revealed no explanation of the special features of which the complaint was made, but established the fact that the ether had been largely, if not entirely, prepared from methylated spirit, though the bottle bore a label guaranteeing that the preparation was made from rectified spirit.

Reference Samples.—74 samples were referred to the Government Laboratory by magistrates under the Sale of Food and Drugs Acts, the number being greater than for some years past. In the great majority of instances the Government chemists were in agreement with the analysts, but they were not always able to draw the same conclusions as to the articles being adulterated. No drugs were included among the samples referred.

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PROSPECTS OF PHARMACEUTICAL LEGISLATION.

THE favourable prospect now presented of reasonable amendment of the law affecting the business of chemists and druggists is still so much obscured by the complicated tangle of incompatible ideas, contradictory arguments, and misconceptions, that at the risk of wearying some readers of this Journal, attention may again be directed to some essential points which have repeatedly been dealt with in these pages as of primary importance, both in the public interest and in the interest of legally qualified chemists and druggists. In that connection the importance of giving prominence to the professional aspect of the chemist's business is especially to be urged. The general principle has now been recognised that a company, as such, ought not to be permitted to carry on any professional occupation for the practice of which individual qualification is required by the State as necessary in the public interest. In that respect chemists occupy a position of great practical advantage, for while the medical profession has still to convince the public and the Legislature that none but legally qualified persons should practise medicine, the exercise of the chemist's business has already been made subject to statutory limitation in the public interest. The legal qualification that was established for that purpose has hitherto had more reference to the sale of poison and to the trade side of the business than to the important work of dispensing and compounding medicine. But the danger attending performance of such work by unqualified persons has become apparent, and, in regard to the public interest as well as for conserving the legitimate interests of registered chemists, the need for making such work the exclusive business of persons duly qualified for the purpose has now been admitted by the Government. A sound basis has thus been obtained for improving the position of qualified chemists—not only in regard to the sale of poison which was once thought to be the most important point, but in the direction originally contemplated by the Pharmaceutical Society—as the only persons specially competent to carry out the work of dispensing and compounding medicine.

The qualification of chemists demanded by the State would be unmeaning and valueless in the public interest if unqualified persons were permitted to carry on business as chemists and druggists. From that point of view the LORD CHANCELLOR has recognised the propriety of restricting companies now carrying on that business, and the House of Lords Committee was unanimously of opinion that interference with the practice of any profession by taking advantage of company machinery must be stopped. In addition to that strong public reason for preventing infringement of privileges conferred by qualification, the claim of qualified chemists, in their own interest, may also be urged as a further reason. In that sense persons registered under the Pharmacy Act are entitled to claim that the privileges they acquire by qualification are exclusively their own. They are entitled to call upon the Government to assist them in defending those rights, and, for that purpose, to rectify those defects of the Pharmacy Act which have led to the infringement of their privileges. For both reasons—public and private—there should not therefore be any idea of compromise with unqualified persons or with companies, and least of all in regard to the use of titles indicative of qualification. Among the suggestions to that end which have been put forward, more or less unwisely, the most preposterous of all is the proposal to recognise companies provided their business is conducted by a board of qualified directors. Anything more grotesquely incongruous than such an application of company machinery—really for the purpose of defeating the object of a statute passed in the interest of the public—could scarcely be imagined. Rather give full scope to the principles of free trade; let the directors of drug companies be as ignorant of the chemist's business as other directors often are of the business they are supposed to conduct. If the business of chemists and druggists is to be carried on by unqualified capitalists or by companies, let the rights of legally qualified persons conducting such a business be properly respected by putting them in a position to conduct the business, as the LORD CHANCELLOR says, *bonâ fide*, and so that they would not only be masters of the business, but of the company as well.

In regard to the practice of pharmacy, as well as the business of the chemist and druggist, there is also a prospect of amended legislation as a consequence of the position taken by the LORD CHANCELLOR. Though the principle of proprietary qualification—seriously damaged by the reduced standard adopted in 1868—was practically sacrificed when the necessity for legal qualification ceased to be identified with proprietorship of a business, the LORD CHANCELLOR'S declaration that the public must not be exposed to the danger of unqualified persons practising as dispensers affords some hope that the rights and privileges conferred by pharmaceutical qualification may be defended with success. Upon that point all interest should now be centred. Instead of seeking for extension of the Poison Schedule only, as furnishing the measure of the pharmacist's function and thus encouraging the mistaken as well as mischievous idea that the sale and dispensing of poison are branches of trade, the limitation of which constitutes a monopoly, pharmaceutical policy should aim at bringing about a more enlightened interpretation of the pharmacist's work, as, even in dealing with the most simple kinds of medicine, exercise of trained intelligence and skill is required, because the chemist's shop or dispensary is essentially a poison closet. On those lines there might even be a possibility of extin-

guishing the chemist and druggist and establishing the one qualification of pharmaceutical chemist as originally contemplated by the founders of the Society. That project has attractions as well as difficulties, and under existing conditions improvement of pharmaceutical legislation will more probably be of a less radical character. But, first of all, and in any case, it is essential that the Council should receive much more coherent support,—even from the Society, which is still the minority—that chemists collectively should show they are capable of agreement on principles and of being led in defence of their rights, not only as vendors of Mother Siegel's syrup and Beecham's pills, or even as licensed sellers of poisons, but as possessors of a qualification by which they are entitled to practise pharmacy. That result must be achieved if the rank and file of registered chemists are not to become mere tools of the company monger.

THE PLACE OF PHARMACOLOGY IN THE MEDICAL CURRICULUM.

THE presidential address delivered before the British Medical Association by Professor J. B. BRADBURY, of Cambridge, at the opening of the Section of Pharmacology and Therapeutics this month, was devoted to a brief consideration of the proper place of pharmacology in the medical curriculum. Reference was made at the outset to the growing tendency for medical corporations, other than the universities, to require less and less knowledge of the natural history, properties, composition, and action of drugs from candidates for their diplomas; a condition of things which is much to be regretted. Without any desire to revert to the state of affairs when medical candidates were expected to have a minute knowledge of the distinctions between the different species of senna, cinchona bark, etc., Professor BRADBURY considers that the danger now is that they may not be able to recognise senna at all, or to know the ingredients and doses of the most important pharmacopœial preparations. "The consequence is, when settled in practice, that they are tempted to prescribe ready-made tabloids, elixirs, etc., the purity and the precise dose of the ingredients of which have no official sanction." And whilst, in many cases, those preparations are most useful and valuable on account of their easy portability, in other cases the therapeutic results would be more satisfactory if official preparations were issued instead. The contents of the British Pharmacopœia, so far as they bear directly or indirectly on prescribing, should be thoroughly mastered by all medical students, and such knowledge should be made a compulsory part of the curriculum. A considerable part of the work of a medical man once started in practice is writing prescriptions for his patients, and yet in respect of the knowledge of drugs and their actions his education is often most imperfect. Continuing, Professor BRADBURY urged that it is not too much to expect those who are daily to prescribe remedies to be acquainted with what is known of their actions. That, he thinks, can best be taught after anatomy and physiology, and along with pathology. He would make the first part of the final examination pathology and pharmacology—the sciences dealing respectively with disease and its treatment—and then the student should at the next stage be ready to apply the principles thus acquired to actual practice in connection with his clinical medicine, surgery, and midwifery.

ANNOTATIONS.

THE ABSURDITY OF THE ATTEMPT to take advantage of company machinery for the purpose of carrying on the business of a chemist's and druggist's shop belonging to a joint stock company, or to any association of unqualified persons, is tolerably certain to become evident whenever the circumstances of the case are understood. That was shown, to some extent, by the provision in the Lord Chancellor's Pharmacy Bill, that the business of a shop belonging to a company should be conducted by a registered chemist and druggist, or pharmaceutical chemist, as the case might require. But that provision would be insufficient to meet all the requirements of the case. If the qualified person conducting the business were to be in the position of an employé of a company and subject to its control, no real improvement would be secured. How far that deficiency was intended to be met by the words *bona fide* used by the Lord Chancellor is uncertain; but the use of those words points in the same direction as the remark more recently made by the Lord Chancellor as to the absurdity of an ideal person, such as a company, conducting the business of a chemist and druggist requiring personal qualification: it agrees also with the opinion formed by the House of Lords Committee that such procedure should be put a stop to. The only reasonable condition under which the business of a chemist's and druggist's shop can be conducted in conformity with the law is that a legally-qualified person shall have absolute control and authority; then, perhaps, it might not matter whether the shop belonged to a company or even to an unqualified individual, for the proprietorship would then be a matter comparatively unimportant.

EVEN MR. JESSE BOOT considers that in every chemist and druggist's shop the business should be conducted "wholly and solely under the control of a registered chemist." That view of the matter relates, of course, to the professional part of the business, for the exercise of which legal qualification is necessary in the public interest. It supports the argument for the coincidence of legal qualification with proprietorship which was intended by the Pharmacy Act. It also supports the Lord Chancellor's opinion that companies at present carrying on business as chemists and druggists should be subjected to restrictions by which "proper vested interests" would be respected. But chemists must remember that that view is maintainable only in so far as their business is of a professional character. Though they, as well as the public, are entitled to enjoy advantage from the necessity for qualification, they cannot expect any kind of trade protection which they are not able to provide for themselves as being something more than ordinary traders.

THE CURIOUS NOTION THAT THE BUSINESS of a chemist's and druggist's shop, belonging to a limited liability company, might be conducted by a board of qualified directors, is more likely to afford some temporary amusement than to meet with approval of any of the parties who would be concerned in such a clumsy and unsuitable arrangement. The business of a chemist's and druggist's shop is very rarely so extensive as to require the assistance of the Companies Acts for limitation of financial liability in connection with it. Then imagine the business of a chemist's and druggist's shop being conducted by a board of qualified directors sitting in attendance, with the secretary of the company, for the purpose of dispensing physicians' prescriptions or for selling pennyworths of laudanum and white precipitate. Under such circumstances there would probably be but small prospect of the board being able to declare a very satisfactory dividend to the shareholders. Truly those who seek to impress qualified chemists with the suggestion that such a mode of dealing with infringement of their privi-

leges and evasion of the law, can possibly afford a remedy for the evils of which they complain, must have a very poor estimate of the intelligence of the trade.

Sir Edward Frankland, K.C.B., Ph.D., F.R.S., who died in Norway on Wednesday, August 9, had been an honorary member of the Pharmaceutical Society since 1862, and was also a member of the Society's Research Committee. He was born in 1825 at Churchtown, near Lancaster, and was educated at Lancaster Grammar School. He spent some time with a Lancashire chemist and druggist, and subsequently he proceeded to the Museum of Practical Geology and, in 1847, to the university of Marburg. There he took his degree, his dissertation upon the occasion dealing with the discovery of a method for isolating ethyl. Chemistry was, from the outset of his career, his special subject, and he was engaged in original work in pure chemistry at a very early age. To quote the *Times*, his earliest researches, undertaken in conjunction with Kolbe and prosecuted in the laboratories of Playfair and Bunsen, were at first analytical in character, their aim being the isolation and identification of the proximate radicals composing certain organic bodies. Soon, however, he began to turn his attention to synthetical problems, to the artificial building up of organic bodies, and here his efforts were rewarded by the important discovery of the organo-metallic compounds resulting from the direct union of a positive organic radical with a metal. It was in 1850 that he announced the preparation of compounds of zinc, with methyl and ethyl, and predicted the existence of other similar bodies. Intrinsically interesting as are those substances, their importance lies rather in the theoretical deductions which he drew from a consideration of their composition. In this way he evolved the conception that the atoms of zinc, tin, etc., had only room, so to speak, for the attachment of a fixed and definite number of the atoms of other elements; and this hypothesis, which was communicated to the Royal Society in 1852, was the basis of the doctrine of atomicity or equivalence of the elements, which may be said to have dominated the course of all subsequent chemical theory since its enunciation.

In Applied Chemistry, Sir Edward Frankland's first important work was begun in 1851, when he was appointed Professor of Chemistry in Owens College, Manchester, and related to the manufacture of water-gas. He also investigated the chemical composition of the gases evolved from different kinds of gas-coal. But, in the opinion of the *Times*, his most important contributions to applied chemistry had reference to water supply and sewage questions. In 1865 he succeeded Hofmann as Professor of Chemistry at the Royal College of Chemistry (Royal School of Mines), and also undertook to continue the monthly analysis of the water supplied to the metropolis, which Hofmann had begun a few months previously for the Registrar-General. Those monthly analyses he has continuously performed ever since that date, and that task involved the elaboration of a new method of water-analysis. In 1868 he was appointed a member of the second Royal Commission on the Pollution of Rivers, and the Government provided him with a laboratory in which to carry out the inquiries necessary for the purposes of that body. Those researches occupied six years, and dealt with the chemical qualities of water from various geological strata and from different sources of supply; the possibility of rendering polluted water again wholesome; the propagation of disease by drinking water; the influence of hard water on health; the deterioration of water in mains and service pipes; and the quality of London water taken from the Thames. In physiological chemistry he took part with Fick and Wislicenus in a crucial experiment to settle the vexed question of the origin of muscular power. Sir Edward held professorships of chemistry successively in the Engineers' College at Putney, Owens College, St. Bartholomew's Hospital, the Royal Institution, where he followed Faraday, and succeeded Hofmann at the Royal College of Science, South Kensington, retiring from the last in 1885. The Royal Society, which made him a Fellow in 1853, gave him a Royal medal in 1857, and he also acted as its foreign secretary. Abroad, the French Academy of Sciences made him a corresponding member in 1866, and he was also a foreign member of the Academies of Sciences of Bavaria, Berlin, St. Petersburg, Upsala, America, and Bohemia. Oxford gave him the degree of D.C.L. in 1873, and Edinburgh that of LL.D. in 1884. He was the first president, in 1877, of the Institute of Chemistry, and served as president of the Chemical Society in 1871, being one of the six ex-presidents entertained at the recent banquet. The honour of K.C.B. was bestowed on him in 1897.

The National Physical Laboratory is being founded on a wide basis, and there is to be as little delay as possible in proceeding with the planning and erection of the new buildings, for which the Government is providing the sum of £12,000. The realisation of the scheme, as the *Times* points out, is primarily due to two addresses delivered before the British Association in 1891 and 1895, by Professor Oliver Lodge and the late Sir Douglas Galton respectively. The matter was finally laid before the Marquess of Salisbury, and as a result, a committee, of which Lord Rayleigh was chairman, was then appointed by the Treasury, and, after taking evidence, reported in favour of the establishment of a public institution for standardising and verifying instruments, for testing materials, and for the determination of physical constants. It was further recommended that the institution should be established by extending the Kew Observatory in the Old Deer Park, Richmond, and that the Royal Society should be invited to control it and to nominate a governing body, on which commercial interests should be represented, the choice of the members of such body not being confined to Fellows of the Society. Those recommendations were approved, and to give effect to them the Government undertook to ask Parliament for the sum already mentioned for buildings, and for an endowment of £4,000 a year. A scheme for the management of the new institution has been approved by the Treasury, and the first instalment of the promised grants has been sanctioned by the Legislature. The Kew Observatory Committee is willing that the institution which it has managed very successfully should be merged in the National Physical Laboratory, which will thus become possessed of an endowment of £458 per annum from the Gassiot trust and of an income of about £2,700 from fees for standardising. Those receipts have, in the past, rather more than covered the expenses of carrying on the work of the observatory.

The Ultimate Control of the National Physical Laboratory is placed in the hands of the Royal Society, but the constitution of the bodies—an executive committee and a general board—which manage it directly can only be altered with the consent of the Treasury. The general board is a relatively large body, to which the executive commitee must report annually, and to which it must submit its scheme of work for the next year. Twelve of the members of the general board are nominated by the Institutions of Civil, Mechanical, Electrical, and Naval Engineers, the Iron and Steel Institute, and the Society of Chemical Industry. Six of those representatives of "commercial interests" are also to be members of the executive committee, which will ultimately consist of twelve ordinary and five official members, of whom the latter are the president of the Royal Society, the chairman of the committee, the Permanent Secretary of the Board of Trade, and the treasurer and one of the secretaries of the Royal Society. In the first instance, six members of the existing Kew Observatory Committee will also have seats on the executive committee, but their places will not be filled up when their period of

office expires. Finally, it is in the power of the executive committee to appoint sub-committees to superintend particular departments or investigations. The members of these sub-committees need not necessarily be members either of the general board or of the executive committee. Preliminary arrangements have been in progress for some time in order that the National Physical Laboratory should be organised as soon as possible after the requisite funds were voted by Parliament. The six technical societies mentioned above have nominated their representatives, the general board and executive committee have been constituted, and Lord Rayleigh has accepted the chairmanship of those bodies. On the recommendation of the executive committee, the council of the Royal Society has appointed Mr. R. T. Glazebrook, F.R.S., principal of University College, Livorpool, to the important post of director of the National Physical Laboratory. A number of sub-committees have also been organised by the executive committee, which have been requested to make suggestions preparatory to the drawing up of a detailed scheme of work and of the plans of the new buildings. A definite scheme of work will be arranged during the autumn, and the director will, it is hoped, take up the duties of his office on January 1, 1900.

THE LIABILITY OF ASSISTANTS for offences under the Sale of Food and Drugs Act does not commend itself to the editor of *Truth*, who asks what sense of justice there is in making a servant or employee liable for an offence which is morally and equitably the offence of his employer alone? The question is asked in view of a case which recently occurred at Bridlington, and has since been the subject of a fruitless appeal to the Home Secretary. An apprentice to a firm of grocers was convicted for selling two ounces of milk of sulphur which contained 55 per cent. of calcium sulphate, and he was fined £5 and costs, with the alternative, in default, of two months' imprisonment. Now, no sane man, it is urged, can suggest that the youth had committed anything but a technical offence. "The article sold was not his. He did not buy it, there is no reason to suppose that he had any knowledge, or means of knowledge, as to its quality. He sold it in the ordinary discharge of his duty as a servant." And yet, had not his employers paid the amount of the fine and costs, as they ultimately did, he must needs have gone to prison for two months. That such a thing should be possible is asserted by *Truth* to be "a disgrace to the Parliament which made the law and the magistrate who administer it." But if the employers cannot be got at in any other way than through their assistants, what is to be done in such cases? The same difficulty arises in connection with the Pharmacy Act, 1868. In many instances offences against that Act, for which employers are "morally and equitably" liable, can only be dealt with in the persons of their assistants who actually effect the sales. The ideal state of affairs would be that both employer and assistant should be liable, when the assistant acts with the full consent of his employer; and, in any case, the onus of proving that he did not authorise any attempt to evade the Statute should be cast upon the proprietor of the business.

THE LONDON UNIVERSITY EXAMINATION LISTS, just published, show that an unusually large number of pharmacists have been successful at the recent examinations, and that the Pharmaceutical Society's School of Pharmacy numbers the majority of them among its past students and prizemen. Mr. George Senter, a former Bell Scholar (1895) and Pereira Medallist, has taken honours in chemistry and physics at the Intermediate Examination in Science, and four other medallists—Messrs. P. E. F. Perrédès, E. C. Spurge, T. E. Wallis, and Harold Wilson—have passed the same examination in the first division. This record is a distinctly creditable one for the School of Pharmacy, and vouches for the thoroughness of the instruction given in that institution.

THE PHARMACEUTICAL SOCIETY is a body with excellent intentions, observes the *Worcester Herald*, and the public is indebted to it for raising an interesting point at a dull season, but it is suggested that the Society seems to have been actuated by an excess of zeal in the weed-killer case reported last week. "It may or may not be dangerous for florists to sell a weed-killer containing poison enough to kill 20,000 people. So far as we can remember there has not been a great anxiety on the part of suicides or persons with felonious motives to utilise weed-killer. But there was no evidence that Mr. White was actually the seller; in fact, he showed that he studiously kept within the requirements of the law." It is suggested by the scribe whose view of the matter is here quoted, that the Society may be satisfied at having drawn attention to a matter liable to be overlooked, even if nothing more is heard of Sir R. Harington's remarks suggesting an alteration in the law. Another lay journalist, writing in the *Worcester Journal*, expresses the opinion that Mr. White could no more be held an unlicensed seller of poisonous compounds than a brewer's agent or traveller could be held an unlicensed seller of beer. "If he were so held, it would be an absurd straining of the law, because it would saddle the agent with the risk of the principal, and it must logically follow that, like the sale of weed-killer, the sale of poisonous paints and hundreds of other substances, must pass to chemists. It is inconceivable that the Legislature intended chemists to secure a monopoly of trade in everything that contains poison, whether or not that trade implies peril to the public." The same writer also remarks that the Society is apparently seeking to apply provisions for public safety to sales quite outside the original contemplation of Parliament, but that it is not likely the Society will persuade Parliament that such sales ought to be brought within the Act. Such are the impressions produced on some lay minds by the action of a body which endeavours to secure the impartial administration of the law.

ABBREVIATED ADDRESSES ON TELEGRAMS are threatened with non-recognition by the postal authorities, even though the persons for whom the messages are intended are perfectly well known at the local post offices from which the telegrams would be delivered in the ordinary course. A question on the subject was addressed to Mr. Hanbury before Parliament closed, but no satisfactory answer was forthcoming. It appears that firms who have been in the habit of receiving telegrams addressed in an abbreviated form have received an intimation from the postal authorities that messages so addressed in the future will be returned to the senders, as being insufficiently addressed. Failing the registration of abbreviated addresses, the firms in question are advised to request their correspondents to make use in future of a sufficiently full address. Inasmuch, however, as no firm can control the action of every person who might possibly address a telegram to it, such a suggestion seems absurd. At the same time it does not seem reasonable that a telegram addressed to a person or firm whose whereabouts are perfectly well known at the local post-office should not be delivered because the address given is not the full address and not registered at a cost of a guinea a year. Anyone, therefore, who may suffer by the non-delivery of telegrams for the reason given should not fail to worry the Postmaster-General about the matter, and as an extreme measure it might also be well to communicate with Mr. Henniker Heaton.

THE DANGER OF LICKING POSTAGE STAMPS was the subject of much comment in the daily Press some time ago, and the adhesive matter upon the stamps was blamed for causing serious trouble at times. But whilst it is undoubtedly better not to lick postage stamps with the tongue, the gum upon them has now been vindicated against the charges made against it. It has been submitted to the Government laboratory for analysis, and, as the

Daily News expresses the result, it has left that institution "without a stain upon its character, other than the stain of the chemicals employed in testing." It had been alleged that the gum had occasioned septicæmia in a particular case, but Dr. Thorpe, the Principal Government Chemist, reports that "Bacteriological cultivations were made both from the stamp paper and the gum employed as the adhesive material, but no pathogenic organism could be detected in either case." At the same time, as the *Daily News* suggests, one cannot apply similar tests to every thing with which the stamp paper may come in contact. One cannot make bacteriological cultivations from the drawers in old post offices or from the fingers of the counter clerks. So the rule remains a good one that, in stamping all letters and telegrams, one should insist on using the post office damper, which too often is dry, or kept on the wrong side of the counter behind the wire barrier.

The Conference Handbook, published under the title of 'Plymouth Revisited,' was not the least notable of the local committee's successes. The matter was good, the illustrations were beautiful, and the printing and general appearance of the book were beyond criticism. The extreme thoughtfulness of the members of the local committee was shown by the fact that a copy of the book was sent by post, in advance of the meeting at Plymouth, to every person on whose behalf tickets were procured. As a result, it was possible for intending visitors to take full advantage of the information given, whilst undue waste of copies of the book was prevented. A limited number of copies still remains in the hands of the hon. local secretary—Mr. J. Davy Turney, 15, Leigham Terrace, Plymouth—and we are requested to state that those will be sent free to persons interested on application. A stamped addressed envelope, measuring not less than 9 in. by 6 in., should be sent with each application.

Some Facts and Figures Concerning Petroleum, which appear in the report, dealing with the last municipal year, by Mr. Alfred Spencer, chief officer of the London County Council's Public Control Department, are well worthy of attention. Of 304 petroleum lamp accidents which occurred during the year, 28 had fatal results, and the remaining 276 caused the turning-out of fire brigades. From July, 1890, to the end of March last—nearly nine years—there has been a total number of 1,852 accidents, with a death-roll of 253. Mr. Spencer is in favour of raising the flash-point of petroleum oil to 105°, and in his report he expresses himself as convinced that the price of oil to the consumer would not be increased by raising the flash-point. He points out that during the past year the importation of Russian oil into this country has nearly doubled; that nearly the whole of the increased quantity had a flash-point of 100°, and that this oil was procurable by consumers at as low a price as low-flash oil. It is noteworthy, by the way, that whilst no less than 333,000,000 gallons of petroleum came into the Port of London during the six years 1890–95, only 17,000,000 gallons, or five per cent., was subject to the restrictions imposed by the Petroleum Acts.

Ice Creams and Micro-organisms are now closely-associated ideas in the public mind, but it has probably never occurred to anyone that the higher-class ice creams could possibly be more dangerous to health than the street varieties. Such, however, seems to be the case, Dr. Reginald Dudfield, medical officer of health for Paddington, having reported to the local vestry that a bacteriological examination of ice cream sold by street vendors and in shops demonstrates that the compound sold by the street vendors, being made by boiling the ingredients previous to freezing, contains, as a rule, fewer micro-organisms than that sold by the better-class manufacturers, who make their cream ices from cream and fruit, not from custard. But he also insists that the premises occupied by the street vendors require supervision to ensure that the ices are not exposed to exhalations from drains, etc.

The Tonic Properties of Sea Air have been the subject of considerable speculation from time to time, and the *Lancet* has made a further attempt to explain the causes of the invigorating and tonic properties of a sea-breeze. Ozone is very commonly accepted as an important factor in this connection, since it is invariably present in air that has been in contact with sea-water, and especially agitated sea-water, and to a smaller extent in the air of the country, whilst it rarely occurs in the air of towns and crowded places. Both ozone and hydrogen peroxide are also probably formed by air skimming over the surface of fresh water, and hence the breezes coming over the lochs in Scotland and large lakes and rivers in other places become ozonised and bracing like those from the sea. The exhilarating effect of a sea-breeze may, however, be ascribed to other bodies which are foreign to inland air. Thus sea air contains a traceable amount of salt and iodides, attaining a maximum of 0·022 gramme per litre, or about one and a-half grains per gallon. Those mineral ingredients derived from the sea doubtless accentuate the tonic action of sea air, and further it is probable that ozone interacting with chlorides and iodides would lead to traces of chlorine and iodine being present. It is pointed out, in conclusion, that many persons describe the smell of strong sea air as iodous or chlorous, and it has even been said that the starch used in face-powders turns blue at the seaside on account of the iodine in the air forming blue iodide of starch. "If that be so the blue and haggard appearance characteristic of many faces exposed to a strongly salt-impregnated breeze would find an interesting, but perhaps embarrassing, explanation."

The Pending Organisation of Secondary Education by the Government has induced Professor Meldola to write to the *Times* respecting the danger—which he conceives to exist—of the inadequate representation of science and of scientific interests among those in authority. The conflict between the old classical pedagogue and the science teacher representing the "modern" side of our public and secondary schools is, he points out, a very ancient and well-known antagonism. "Time, or in other words, the advancement of science, has helped to break down this antagonism to a considerable extent, to the advantage of both parties. The scientific man who refuses to admit the humanising influence of classical subjects is as narrow in his views as the classical headmaster, who looks upon the modern side of his school as a refuge for inferior beings." But, it is urged, if, while conceding that the classical and humanitarian interests should be allowed their proper place in any scheme of secondary education, it is not, at the present crisis, insisted that the scientific interests shall be strongly and as efficiently represented, no progress will be made, in spite of the well-meaning efforts of those in authority, who have the higher education problem now before them. What this actually means is, apparently, that the officials of the Science and Art Department are not to have everything their own way in the proposed scheme, as it is suggested that if, in dealing with this problem at the present time, the Government does not avail itself to the fullest extent of the experience in the teaching of science which has been acquired by the officials of one of its own departments as the result of vast expenditure and of long years of labour carried on all over the country, "we may again awake with the painful experience of finding science pushed into the background in a code of education which, if not made more thoroughly scientific than it has hitherto been, will fail in its objects and will cause bitter disappointment to all those who have been anxiously waiting for the present opportunity of seeing much-needed reforms made possible." But it may be questioned whether it will be generally agreed by educational experts that "the officers of that department which has had the largest practical experience in this direction are those to whom the country must at the present time look for assistance." The direction of the science teaching in secondary schools may, of course, fall into the wrong hands, but it will not necessarily escape that fate if the arrangements are made at South Kensington.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

The 'Dictionary of Terms Used in Medicine and the Collateral Sciences,' compiled by the late R. D. Hoblyn, has now reached its thirteenth edition (London: Whittaker and Co. Pp. 838. Price 10s. 6d. net). Like the preceding edition, this has been revised throughout by J. A. P. Price, B.A., M.D. (Oxon.), and the numerous additions made are accountable for sixteen extra pages. For more than twenty years the book has been the most useful of its kind published, and the new words and phrases added, particularly those relating to bacteriology, will help it to maintain that position for some time to come.

'Essentials of Pharmacy for Minor Students,' by W. A. Knight, and edited by Henry Wootton, B.Sc. (London: London College of Chemistry and Pharmacy. Pp. 189. Price 4s. net), is admittedly a work produced for examination purposes, but it does not possess the chief faults of its class, and is something more than a mere cram-book. The book is, of course, a compilation, based on the standard works of Caspari and others, but is free from any great mass of detail. In fact, to quote the preface, "attention has been given more to the leading principles underlying the varied operations rather than to a detailed description of the apparatus employed." Part 1 deals with general pharmacy, and treats of the collection of drugs, operations requiring the use of heat, the disintegration of solid substances, solution, etc., etc. The various operations are described as briefly as is consistent with accuracy, and illustrations are given where they can help to elucidate the text. Official pharmacy is the subject of Part 2, the solvents of the Pharmacopœia being first considered, then the different groups of galenical preparations in order—aceta, acida diluta, aquæ, etc The notes published in this section of the book should prove particularly useful to students. The rest of the book is occupied by lists and tables of various kinds and notes on official assay processes. As an aid to the study of the British Pharmacopœia, the work must prove of considerable value.

That the 'Manual of Pharmaceutical Testing,' by Barnard S. Proctor (London: Offices of the *Chemist and Druggist*. Pp. 192. Price 2s. 6d. net), supplies a want in the world of pharmacy may be inferred from the fact that it has now attained to the dignity of a second edition. The idea underlying its production is that registered chemists and their assistants, whilst usually too much occupied in other ways to undertake exhaustive analyses of the chemicals, etc., kept in stock in the pharmacy, should roughly test those substances occasionally, and so satisfy themselves that they are up to the required standard. The tests given are the simplest and most inexpensive that can be devised, and are intended to show only whether the article under examination is fit for use, without indicating the extent of deviation from standard, when such deviation exists. The materials and appliances to be used are limited to such as are in common use at the dispensing counter. The book is not quite free from errors or misleading instructions, and it is questionable whether such rough-and-ready methods as are described should be resorted to by the trained pharmacist, but, such as it is, the book is as well done as anything else the author has ever set his hand to.

'The Botanic Brewer's Guide' (London: Potter and Clarke. Pp. 36) embodies a collection of recipes for the production of a large variety of temperance drinks, together with notes on the precautions to be taken in brewing, and instructions how to comply with the Excise regulations. Notes on the herbs and other materials used in the manufacture of botanic beverages, and extracts from various Acts of Parliament, give completeness to the work, which appears well-adapted for its intended purpose.

THE SALE OF FOOD AND DRUGS ACT, 1899.

For the information of chemists and druggists the new Sale of Food and Drugs Act, which comes into operation on January 1, 1900, is here presented in brief:—

1. *Imports of insufficiently-marked food produce.*—This section affords precautions against the importation of adulterated food products, by making the importer describe fully the nature of the goods he is introducing. The Commissioners of Customs are empowered to take samples, and to send a prescribed portion to the principal chemist of the Government Laboratories, whose certificate thereon will be legal and sufficient evidence of the facts stated in it. The penalty under this section is £20 for a first offence, £50 for the second, and £100 for any subsequent offence; and it is specifically declared that the word "importer" shall include any owner, consignor, consignee, agent, or broker who may be in possession of or have custody or control of any article which infringes the section. Drugs are not included in the operation of the section, and the employment of preservatives or colouring matter, innocuous as to quantity as well as to quality, does not constitute legal adulteration.

2. *Power to take samples of food.*—The Local Government Board, on behalf of the general public, and the Board of Agriculture, in the interest of Agriculture, are empowered by this clause to procure samples, by means of their own officers, as if such officers were authorised to procure samples under the Sale of Food and Drugs Act, 1875. The local authority of the place where any sample is taken by officers of the Boards must pay the analyst's fee, and must, if the analysis disclose an offence against the Act, cause proceedings to be taken.

3. *Power of Public Department to act in default of local authority.*—(*a*) It shall be the duty of every local authority en- and drugs, to appoint a public analyst, and put in force from time trusted with the execution of the laws relating to the sale of food to time, as occasion may arise, the powers with which they are invested, so as to provide proper securities for the sale of food and drugs in a pure and genuine condition, and in particular to direct their officers to take samples for analysis.

(*b*) If the Local Government Board or Board of Agriculture, after communication with a local authority, are of opinion that the local authority have failed to execute or enforce any of the provisions of the Sale of Food and Drugs Act in relation to any article of food and that their failure affects the general interest of the consumer or the general interests of agriculture in the United Kingdom, as the case may be, the Board concerned may, by order, empower an officer of the Board to execute and enforce those provisions or to procure the execution and enforcement thereof in relation to any article of food mentioned in the order.

(*c*) The expenses incurred by the Board or their officer under any such order shall be treated as expenses incurred by the local authority in the execution of the said Acts, and shall be paid by the local authority to the Board on demand, and in default the Board may recover the amount of the expenses with costs from the local authority.

(*d*) Makes an order of the Board conclusive as to the matter therein stated or appearing.

(*e*) Any public analyst appointed under the Sale of Food and Drugs Act shall furnish such proof of competency as may from time to time be required by regulation framed by the Local Government Board.

4. *Power of Board of Agriculture to determine what is normal milk, etc.*—These provisions are wholly applicable to dairy produce, but are novel and interesting, inasmuch as they place upon a Government Department the duty of fixing a standard of purity.

5. *Margarine cheese.*—This clause extends the Margarine Act, 1887, to the article named.

6. *Marking of margarine, etc.*—Prescribes the manner and the style of marking, as well as the size of the lettering.

7. *Regulation of manufacturers of margarine.*—Imposes upon manufacturers and wholesale dealers of the substances under this head the duty of keeping a register of sales and consignees.

8. *Mixtures of margarine and butter.*—Prohibits the manufacture, sale, or exposure for sale of margarine containing more than ten per cent. of butter fat.

9, 10, 11 refer solely to milk.

12. *Mixtures.*—The label referred to in section 8 of the Sale of Food and Drugs Act, 1875 (see Calendar, p. 210), shall not be deemed to be distinctly and legibly written or printed within the meaning of that section unless it is so written or printed that the notice of mixture given by the label is not obscured by other matter on the label; provided that nothing in this enactment shall hinder or affect the use of any registered trade mark, or of any label which has been continuously in use for at least seven years before the commencement of this Act; but the Comptroller-General of Patents, Designs, and Trade Marks shall not register any trade mark purporting to describe a mixture unless it complies with the requirements of this enactment.

13. *Amendment of* 1875 *Act as to samples.*—In the original Statute the person purchasing a sample was required to "offer to" divide the same. The words quoted have now been repealed.

14. *Taking samples in transit.*—Extension of sections 3 and 4 of the Act of 1879 respecting milk (Calendar, p. 217) to all articles of food.

15 amends the 1875 Act, section 16, by substituting "Registered parcel" for "registered letter."

16. *Obstruction of officers.*—Any person who wilfully obstructs or impedes any inspector or other officer in the course of his duties under the Sale of Food and Drugs Acts, or by any gratuity, bribe, promise, or other inducement prevents or attempts to prevent the due execution by such inspector or officer of his duty under those Acts shall be liable, on summary conviction, for the first offence to a maximum fine of £20, with increases to £50 and £100 for a second and subsequent offence.

17. *Scale of penalties.*—Establishes £50 and £100 as the respective maxima for second and third offences in all breaches of the Food and Drugs Acts carrying a first fine of £20. There is also provision in this clause for imposing a term of imprisonment not exceeding three months, with or without hard labour, on the habitual offender if the Court considers that fines will not adequately meet the circumstances of the case.

18. *Sale of tinned and similar articles.*—Notwithstanding anything in section 17 of the Statute, 1875 (that is to say, the portion dealing with refusal to sell to an inspector), where an article of food or drug is exposed for sale in an unopened tin or packet duly labelled, no person shall be required to sell it except in the unopened tin or packet in which it is contained.

19. *Limitation as to proceedings.*—When any article of food or drug has been purchased for test purposes, any prosecution based thereon must be instituted within twenty-eight days from the time of purchase. Section 20 of the original statute is therefore modified to that extent. In any prosecution under the Acts the summons must give particulars of (*a*) the offence and (*b*) the name of prosecutor, and must be accompanied by a copy of the analyst's certificate. The summons must not be returnable in less time than fourteen days from the time of service.

20. *Warranty or invoice.*—(*a*) A warranty or invoice shall not be available as a defence to any summons unless the defendant has, within seven days of service, sent to the purchaser a copy of the warranty or invoice with a written intimation that he will rely thereon for his defence. He must also specify on his intimation the name and address of the warrantor, to whom notice of the defence must also be sent.

(*b*) The person by whom such warranty or invoice is alleged to have been given shall be entitled to appear at the hearing and to give evidence, and the Court may adjourn the hearing to enable him to do so.

(*c*) Warranties from sources outside the United Kingdom shall not be available for defence unless the defendant proves that he had taken reasonable steps to ascertain, and did in fact believe in, the accuracy of the statements contained therein.

(*d*) Where a defendant is a servant of the person who purchased under warranty or invoice he shall be entitled to rely on section 25 of the Statute, 1875 (*i.e.*, the warranty clause), in the same way as his employer would have been entitled to do; but the servant must prove that he had no reason to believe that the article sold was otherwise than that demanded.

(*e*) Where the defendant has successfully defended on a warranty, any proceedings against the warrantor may be taken either before a Court having jurisdiction in the place where the article was purchased for analysis, or in a Court having jurisdiction in the place where the warranty was given.

(*f*) Every person who in respect of an article of food or drug sold by him as principal or agent gives a false warranty in writing shall be liable on summary conviction to the penalties before mentioned (viz., £20, £50, or £100) unless he satisfies the Court that when he gave the warranty he had reason to believe in the accuracy of the statements or descriptions therein contained.

21. *Reference to Inland Revenue Commissioners.*—The justices or Court referred to in the Statute, 1875, sec. 22, *shall*, if requested by the parties concerned, and *may*, without any request at all, send a food or drug to the Commissioners for analysis.

22. *Certificates of analysis.*—The production by the defendant of a certificate of analysis by a public analyst in the form prescribed by the Statute, 1875, sec. 18 (Calendar, p. 216), shall be sufficient evidence of the facts therein stated, unless the prosecutor requires the analyst to be called as a witness. The prosecutor must be furnished with a copy of the certificate three days before the hearing, or the Court may adjourn the hearing in consequence.

23. *Application to Scotland.*—Transfers all powers to Local Government Board for Scotland.

24. *Application to Ireland.*—Transfers all powers to the Department of Agriculture and Technical Instruction for Ireland.

25. *Definitions.*—"Local authority" means any local authority authorised to appoint an analyst for the purposes of the Food and Drugs Act, and "public analyst" means any analyst so appointed. All other expressions have the meanings contemplated by the foregoing Acts, with which this Act is to be construed.

26. *Definition of food.*—"Food" includes all articles used for human food or drink, other than water or drugs, and any article ordinarily entering into or used in the composition or preparation of food, and also flavouring matters and condiments.

27. *Repeal of Enactments.*—So far as the Food and Drugs Acts are concerned the following are the only deletions:—

1875 Act, sec. 2.—The definition of "food."
1875 Act, sec. 14.—The words "offer to" and "proceed accordingly and shall."
1875 Act, sec. 15.—Whole section.
1875 Act, sec. 27.—From "every person who shall give a false warranty in writing" to a "penalty not exceeding, etc."
1879 Act, sec. 10.—Whole section.

28. *Short Title* is "Sale of Food and Drugs Act, 1899."

29. *Commencement.*—January 1, 1900.

Endomentol.—Under the fanciful name of endomentol, nicotine salicylate is recommended by Volters as a specific for scabies in the form of a 0·1 per cent. ointment with vaseline or lanoline as a base. It occurs in colourless transparent crystals, with a slight empyreumatic odour. The crystals are soluble in water and other solvents, and melt at 118° C.—*Pharm. Post*, **32**, 286, after *Münch. Med. Woch.*

HORTICULTURAL RECIPES.*

Grafting Wax.—(1) Beeswax, 75; purified resin, 125; turpentine, 36; rape oil, 12; Venice turpentine, 25; zinc white, 25. Colour yellow with turmerie. (2) Japan Wax—100, yellow wax, 300; resin, 800; turpentine, 400; hard paraffin, 100; suet, 300; Venice turpentine, 600.

Fluid Grafting Wax.—(1) Resin, 1,250; pitch, 200; linseed oil, 120; turpentine, 50; yellow wax, 130. Melt with a gentle heat, stir continually until cold, and then add methylated spirit, 400 fluid parts. (2) Burgundy pitch, 500, is melted slowly, removed from the fire and mixed with alcohol, 70 to 80. Put up in wide-necked glass bottles, or in tins. (3) Turpentine, resin, 1; methylated spirit, 4.

Manure for Indoor Plants.—(1) Sodium chloride, 10; potassium nitrate, 5; magnesium sulphate, 5; magnesia, 1; sodium phosphate, 2; mixed and bottled. Dissolve a teaspoonful daily in a litre of water and water the plants with the solution. (2) Ammonium nitrate, 40; potassium nitrate, 90; ammonium phosphate, 50. Two Gm. is sufficient for a medium-sized flower-pot. (3) Ammonium sulphate, 10; sodium chloride, 10; potassium nitrate, 5; magnesium sulphate, 5; magnesium carbonate, 1; sodium phosphate, 20. A teaspoonful to 1 litre of water. (4) Ammonium nitrate, 40; ammonium phosphate, 20; potassium nitrate, 25; ammonium chloride, 5; calcium sulphate, 6; ferrous sulphate, 4. Dissolve 2 Gm. in a litre of water and water the plants with the solution. (5) Potassium nitrate, 20; potassium phosphate, 25; ammonium sulphate, 10; and ammonium nitrate, 35. This mixture produces a luxuriant foliage. If blooms are desired, dispense with the ammonium nitrate.

To Destroy American Blight and Other Plant Lice.—The use of carbon disulphide is recommended; the affected places being daubed with a rag tied to the end of a long stick. The application must be repeated every eight days. A simple method is to sprinkle the affected parts with diluted petroleum. No ill effects have, so far, been noticed from this treatment. A dilution of 1 litre of petroleum to 4 to 5 litres of water may be used as long as it is continually shaken up. The process of extinction can only be considered complete when every trace of the bluish-white web in which the insects are enveloped has been destroyed. Autumn is the best season for waging the campaign when the trees are bare; later, in spring, the bluish white web disappears, and the pests are then scarcely discernible. It is useless to attempt their destruction unless it can be done thoroughly, as the smallest remnant left multiplies to an alarming extent.

Destruction of Phylloxera.—Bordeaux mixture is rapidly prepared as follows. Water, 90 litres, is put into a wooden or earthenware vessel, and copper sulphate, 2 kilos., dissolved in it. 700 Gm. to 1 kilo. of freshly slaked lime is mixed carefully with 10 litres of water. This is gradually added with continual agitation to the copper solution; a turbid blue mixture results which becomes clear on standing. If still blue more milk of lime should be added until the solution is quite colourless. Sprinkle the vine with this solution. The solution destroys the phylloxera but has no lasting effect, so that the application must be repeated several times during the summer.

Shield Louse Wash.—(1) Calcium sulphide wash is prepared with unslaked lime, 18 kilos.; sulphur, 9 kilos.; salt, 6·75 kilos.; mixed as follows:—A fourth part of the lime is slaked and boiled for 2-3 hours with the sulphur in 22·6 litres of water. The remainder of the lime is then slaked and added with the salt to the hot mixture. The whole is boiled for another half hour or and hour, and then diluted to 353 litres. The fluid is applied luke warm when the plants are not in active growth. (2) Sodium sulphide solution consisting of sulphur, 900 Gm; caustic soda, 675 Gm. (or concentrated ammonia solution); and train oil soap, 7·5 kilos. The sulphur and the alkali are boiled in water for one hour, the soap is dissolved in 45·4 litres of boiling water. The solutions are mixed, boiled for half an hour, and diluted to 227 litres of water. Apply while warm. (3) Saponified resin solution, consisting of resin, 9 kilos.; caustic soda, 2·25 kilos.; or concentrated ammonia, 2·25 kilos.; or calcined 93 per cent. soda, 1·575 kilos.; fish or train oil, 1·4 litre. All three substances are put into a kettle, covered with 3 to 4 inches of water, and boiled from 1 to 2 hours. The mixture is then diluted with water to resemble strong black coffee. This fluid is diluted with water to 450 litres. *Petroleum.*—Undiluted petroleum may be used in frosty weather when the insects are not fully developed. The petroleum is painted on with a brush. Delicate plum or greengage trees, however, will not stand such an application. Pruning is recommended for these.

Petroleum Emulsion.—Train oil soap, 2·25 kilos, is dissolved in 45·4 litres of boiling water, petroleum, 2·25 litres, is added, and the mixture diluted to 227 litres with hot water. Wash or spray with the lukewarm solution.

Krueger's Petroleum Emulsion.—Black soap, 250 Gm., is dissolved by boiling in 4·5 litres of water, and petroleum, 9 litres, is added when the soap solution is removed from the fire. The fluid is then agitated well for 10 to 15 minutes.

Nessler's Remedies for American Blight.—(1) Soft soap, 40 Gm.; amyl alcohol, 50 Gm.; methylated spirit, 20 Gm.; water, 1 litre. (2) Soft soap, 30 Gm.; sulphurated potash, 2 Gm.; amyl alcohol, 32 Gm., to water, 1 litre. (3) Soft soap, 15 Gm.; sulphurated potash, 29 Gm., to 1 litre of water.

Destruction of Thrips.—Insect powder dusted on the plants answers admirably. (2) A decoction of tobacco stalks 500, to a pailful of water, sprayed over the beds. (3) Decoction of wormwood and dusting with a mixture of guano, gypsum and wood ashes.

Destruction of Slugs and Snails.—Strew plentifully with powdered lime in dry weather and repeat in half an hour.

Destruction of Moles.—(1) Place pieces of fresh raw meat, poisoned with arsenic powder, 1:15 or 1:20, into the hole immediately underneath every heap of earth thrown up by the mole, and cover again carefully without disturbing the passages excavated by the animal. The scent of the bait lures the moles to sure destruction. (2) Insert branches of elder into the mole runs; this is sure to drive them away. (3) A few bulbs of garlic steeped in petroleum have the same effect. (4) Hedgehogs are said to drive away moles.

Destruction of Mice.—(1) Soak wheat thoroughly in an infusion of fresh squill bulbs, 1:5, and dry quickly; this wheat is only poisonous to rats and mice, and an excellent vermin-killer if the infusion is carefully prepared. (2) A mixture of lard, 500; salicylic acid, 5; one onion; suet, 50-100; barium carbonate, 500; solution of ammonio-acetate of copper, or of verdigris, 50. The onion is cut up fine and fried with the fats until dark brown. The salicylic acid is then added and the mixture strained and stirred until the fat nearly sets. The barium is next added, and, finally, the copper solution.

Destruction of Rats.—(1) Precipitated barium carbonate, 100 Gm., and tartar emetic, 1 Gm., are mixed with baked flour and glycerin in 2 Gm. into boluses, which are fried brown in hot fat. (2) Gypsum, 2; oatmeal, 750; flavoured with anise oil. (3) Plaster of Paris and sugar, equal parts. The mixture is spread on a plate, and exposed near a vessel of water. (4) Crushed bitter almonds, 60; lard; fresh squill bulbs, equal parts. (5) Powdered almonds mixed with arsenic answer well.

Rat Cakes.—A bulb of squill is cut into thin slices, dried and mixed with sugar, flour, and a little salicylic acid. Make into cakes with glycerin and water, moisten the cakes before use, dust over with sugar, and expose them by the side of water.

Moth and Caterpillar Lime.—Venice turpentine, 200; resin, 1,000; turpentine, 140; tar, 80; lard, 500; rape oil, 240; tallow, 200. (2) Resin, 50; lard, 40; stearine oil, 40. (3) Resin, 3; rape oil, 4; lard, 2; soft soap, 1; wood tar, 10. (4) Resin, 36; rape oil, 36; Venice turpentine, 20; wood tar, 5; turpentine, 3 parts. Paint the mixture while warm on strips of paper laid smoothly on the tree-trunk about a yard above the ground. This should be done at the end of October, or the beginning of November, to prevent the females of the winter moth from climbing up the trees. (5) Instead of above mixture, cart grease may be used. (6) Mix melted resin with crude rape oil to form a mass of sticky consistence.

* From the *Pharmaceutische Zeitung.*

HYDROGEN PEROXIDE AS A MOUTHWASH.—F. Touchard states that hydrogen peroxide is one of the best agents for buccal disinfection and gargling, since it is not only perfectly harmless if swallowed, but even in dilute solution is a very active bactericide. A teaspoonful in a glass of tepid water should be used to rinse the mouth as a gargle, night and morning.—*Bull. Gen. de Therap.*, **137**, 401.

EXTRACTS FROM CONSULAR REPORTS.

Manufacturers of Artificial Indigo in Holland will have to invent new and improved processes, otherwise, at present prices, there is not much prospect of their competing successfully with natural indigo, the cost of producing the artificial product being greater than that of the natural product. The current prices per unit are 0·950d. for the artificial and 0·600d. for the natural indigo. Last year the imports of indigo into Amsterdam were considerably larger than the previous year, amounting in all to 9,595 chests, of which 5,659 chests were from Java, and the prices already greatly depressed suffered a further considerable reduction. The depression was, in Consul Robinson's opinion, no doubt partly due to fear of the artificial product, but, as intimated above, this fear is at present groundless. So discouraging is the prospect that the erection of a second manufactory in Amsterdam, which was contemplated, has not been carried out.

The Prices of Indigo at Hamburg, according to Consul-General Ward, also experienced a gradual decline in 1898, while apace with this decline the consumption increased, so that the large stocks were much reduced. Although the quantities of indigo in the market were thus brought down to their normal figure at the close of last year, and dealers as well as consumers held exceptionally small stocks, quotations for this article in December were lower than ever before known. The opinion is said to be rapidly gaining ground that indigo is not merely a very cheap article, but also well able to compete with the prices of all other dyes substituted for it. The unfavourable effects of three over-abundant crops (1894, 1895 and 1896) having thus been overcome, the prospects of a crop of average quantity and excellent quality render it likely that under these conditions business in indigo this year will develop in a normal, healthy manner.

Now is the Time for pioneers of British trade in Russia, so Vice-Consul Wardrop reports from Kertch. His remarks last year on openings for British trade, he says, still hold good, but nothing will be done until capable commercial travellers, acquainted with the country and the language are sent out. Educated men of the world, it is stated, are nowhere more likely to secure contracts and orders than in Russia. The language is not more difficult of acquisition than other languages, if it be learned on the spot. A man of average linguistic ability, Vice-Consul Wardrop states, should pick up in six months quite enough to make him a valuable travelling agent, or to enable him to start a business on his own account. Kertch, it is reported, is almost certain to grow rapidly in importance, and among the ports on the Northern shore of the Black Sea its prospects are said to be second only to those of Odessa.

Another View of the Situation, however, is taken by Acting Vice-Consul Gabriele, who reports from Berdiansk as follows:—"It is with much regret no opening for British goods can be suggested, although business is undoubtedly done by German travellers in several branches, and enquiries made at various shops confirm this, the principal advantage to the shopkeepers being that these travellers invariably speak Russian, and submit samples of goods duty free." This, although at first glance apparently directly contrary to the opinion expressed by Vice-Consul Wardrop, bears out his view that the chief obstacle to British trade in Russia is the want of capable travellers.

The Importations of Beeswax to Hamburg in 1898 exceeded those of the preceding year by about 30 per cent., and amounted to 1,262,300 kilos., the chief supplies being sent from South America, Morocco, Zanzibar, and the West Indies. Prices remained at the same figure as in 1897, and only a comparatively small stock of wax remained on hand at the end of last December. Of Japanese wax, about 420,000 kilos. were imported, as against 480,000 kilos. in 1897, the considerable fluctuations in the price of these sorts being stated to have greatly interfered with business.

The Chemical Industry, Consul-General Sir Charles Oppenheimer, reporting on the trade of Frankfort-on-Main for the year 1898, remarks, can look back upon a satisfactory year, though complaints are heard that in future some lucrative patents will lapse, and the competition of such States as Switzerland and the Netherlands, who do not recognise the protection by patents, prove injurious.

LETTERS TO THE EDITOR.

The Sale of Benzene, etc.

Sir,—As to the sale of "benzine" and the labelling thereof, we know what is meant by "highly inflammable," but with respect to a caution label, we might surely be as terse as possible. Our object is not to frighten but to inform the public, and the word "highly" may accomplish the former, but is sadly lame for the latter purpose, the adverb "highly" = in or at a high degree, and when I have to tell my clients that the words mean that "benzine" is in a high degree inflammable at a very low degree, they are disposed to think that the "merry chemist" is hoodwinking them nicely. To avoid all ambiguity I shall therefore in future use the adverb "very" *loco* "highly," and say, "N.B.," "very inflammable," until, that is, there comes a time perhaps when some Act is passed or authority promulgated by school board or consular authority to compel me to put my mother tongue upon stilts and so go hobbling along therewith, as the fashion is with the *anti*-Antediluvians so much in vogue to do.

J. C. Hyslop.

Marylebone, N.W., August 16, 1899.

Marching Backwards.

Sir,—The condition of pharmacy, on which at the present time thoughts are passing in many reflective minds, shows vast change from the palmy days of twenty-five years ago. The chemist of to-day is confronted with difficulties undreamt of by his predecessors. There seems little chance of these difficulties solving, or even partially solving, themselves in course of time. And, doubtless, the tendency of present-day trading, the move in the direction of amalgamation, the bringing of the consumer and manufacturer in closer contact, with the inevitable displacement of the middleman and small shopkeeper, are natural corollaries to economic development. It needs little logic to account for the difference in the price of goods bought from a company having a hundred shops and those obtained from a one-shop trader. It seems almost hopeless to expect the chemist in a small way of business to compete successfully with the powerful and rich drug companies. Of course, there will always be the personal element to consider. The tendency of the public trends to obtaining from the companies the patents, sundries, and household requisites they may require and going to the old-established man for anything in which personality plays a part. Then the question arises: Is it possible, after such an important section of his business has been annexed, to make an income compatible with his scientific attainments? Chemists have been blamed for not fighting the companies more vigorously. How is it possible at the present time to successfully compete with the companies? We may look upon the patent trade as hopeless; the sundries trade is fast following suit. The British public, small blame to them, buy their goods in the cheapest market. Quite true, the P.A.T.A., little credit to them, have endeavoured to regulate the price of quack concoctions. How, keeping up the price of a few obsolete nostrums is to benefit the other sections of our business 'tis not for mortal man (outside the ranks of the Association) to explain. Some pharmacists have boldly lowered their prices all along the line to the drug company level. If all chemists lowered their prices to the drug company level? A pharmacist nowadays must have double or treble the turnover he had in the palmy days of yore. And it is a moot point if the public patronise the chemist as liberally as they used to. We find drapery emporiums and stationers' shops choked with goods formerly almost exclusively dealt in by the chemist. The drug department pure and simple we know is only patronised when necessity compels. It is a debatable point if people drug themselves as of old. The present-day doctor appears to order physic in homœopathic doses and advice *ad lib.* Surely a sensible procedure. So the chemist is confronted with diminishing trade, constant fluctuating prices, and, in some instances, rising rents. Oh! happy man? That this is a true picture there can be no question. In Manchester, where a certain company is omnipotent, there is a sorry tale to tell. The closing of historic pharmacies and the triumph of a tentaculiferous outsider. It would hardly be an exaggeration to say that the trade in this particular cathedral city is in danger of being almost entirely monopolised by one firm. Much has been written and spoken these last few months of the condition of our calling. I think it is hopeless to expect any assistance from Parliament. The drug companies, to a lay mind, appear to be a neces-

sity, hence their existence. Any tinkering with titles will only be a trifling distinction between light and shade. It would be midsummer madness to expect it to turn the tide of trade back to the chemist. In my opinion, there is but one thing to be done. The Pharmaceutical Society in so far they control the examinations have in their hands a powerful weapon. They practically control the supply of qualified men. Let the standard of examination be continually raised, let there be a very real dearth of qualified assistants, then the wage bill of the companies will assume proportions that tend to level the advantage they possess over their one-shop rivals. And if the coming century is to be remarkable for great trading corporations, at least the men that work for those corporations will be adequately remunerated.

August 12, 1899. Succus Nastur (198/25).

A Disclaimer.

Sir,—In your issue of July 29, page 112e, under the heading of "Boots, a Book, and a Coroner," you say "witness had given her certain Children's Cooling Powders," and lower down there is a reference to a book which she obtained along with the powders. The certain "Children's Cooling Powders" were those of Alfred Fennings, and the book was also written by Alfred Fennings, who appears on the Register as a chemist and druggist. From the report, as it appears in your Journal, it would seem that the book was one prepared by our firm. This is not so, and we should thank you to give this letter publicity to counteract that impression.

For Jesse Boot.
(E. R. S.)

Nottingham, July 31, 1899.

*** The report referred to was copied from a press cutting taken from the *Derby Advertiser* of July 22, and nothing appeared in the original to indicate that the powders were prepared by Alfred Fennings, or that the book was issued by him. [Ed. *P. J.*]

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Stavesacre Ointment (J. B. B.—32/22).—No: stavesacre seeds and oil are not scheduled as poisons under the Pharmacy Act.

Botanical (E. J. I.—32/25).—(*a*) *Euphorbia peplus*; (*b*) *Epilobium montanum.*

Botanical (F. P. K.—32/24).—(1) *Hypericum androsæmum*; (2) *Eupatorium cannabinum*: (3) *Epilobium hirsutum*; (4) *Erythræa centaurium*; (5) *Hypericum perforatum.*

Preparation of Tannic Acid (A. N.—32/29).—Water-saturated ether is used to dissolve the tannic acid, as it is only sparingly soluble in pure ether.

Condenser (G. C.—32/27).—The condenser described by Mr. Lucas is made in glass by Messrs. Müller and Co., High Holborn, London, W.C. The price of the apparatus is 4s. 6d.

Damson Wine (J. G.—32/21).—Bruise damsons, 8 lbs., and pour upon them 1 gallon of boiling water. Let stand for 48 hours, then strain into a cask and add 3½ or 4 lbs. of sugar. Let it stand in a warm place until fermentation ceases, then add 4 ounces of brandy, and bung the cask up tight. Keep in a cool cellar for 8 months; bottle it off and keep for at least another four months before using.

Stamped Medicines (G. A.—32/31).—It is understood that the Commissioners of Inland Revenue do not object to duly stamped packages of dutiable medicines being broken and the contents retailed singly, without payment of further duty, provided the powders, etc., when handed to the purchaser are merely wrapped in paper and not enclosed in a packet fastened by string, gum, etc. The retailer, of course, must be a duly licensed vendor.

Botanical (A. A.—32/14).—(1) *Euphorbia peplus*; (2) *Polygonum convolvulus*; (3) *Capsella bursa-pastoris*; (4) *Lapsana communis*; (5) *Centaurea nigra*; (6) *Spergula arvensis*; (7) *Equisetum arvense*; (8) Same as No. 3; (9) *Chenopodium album*; (10) *Odontites rubra*; (11) Send better specimen; (12) *Mentha sativa*; (13) *Heracleum sphondylium*; (14) Send better specimen; (15) *Achillea millefolium*; (16) Same as No. 9; (17) *Fumaria officinalis*; (18) *Vicia cracca.* Though all your specimens are named, as far as possible, please do not send more than six at once in future. You would also do well to attempt to identify such common specimens yourself by the aid of a Flora.

Formaldehyde in Milk (J. B. B.—32/23).—Various processes have been recommended, but Trillat's reaction affords conclusive evidence of the presence of formaldehyde. Add to the solution (in the case of milk—a distillate) 0·5 C.c. of dimethylaniline, acidified with a few drops of sulphuric acid, and, after shaking, heat on a water-bath for half-an-hour. The solution is then alkalised and boiled until the smell of dimethylaniline has disappeared, after which the liquid is filtered through a small filter. The filter is subsequently washed a few times with water, then opened, spread on the bottom of a porcelain dish, and moistened with acetic acid. Finely powdered lead peroxide is then added, and, if formaldehyde be present, an intense blue colour appears.

Loss of Hair (F. R. C.—32/20).—We should not consider your cold bath to be the cause of the loss of your hair. Probably this arises from some constitutional debility, for which you should consult a medical practitioner. The following is a good hair tonic:—Tincture of cantharides, 10; tincture of jaborandi, 20; spirit of camphor, 20; solution of ammonia, 5; diluted alcohol to 100 fluid parts. Apply once daily with light friction. A solution of hydrochloric acid (1·5 per cent.) in dilute alcohol is also useful in some cases. An oily application which frequently gives good results may be prepared with quinine hydrochloride, 1; tincture of jaborandi, 10; oil of rosemary, 1; castor oil, 40; alcohol, (90 per cent.), q.s. to produce 100 fluid parts.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

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Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Adams, Allen, Alcock, Attree, Barker, Beech, Birt, Breeze, Burns, Cocking, Collins, Curtis, Fernie, Fletcher, Gilman, Green, Griffiths, Harrison, Hewlett, Hill, Hodge, Ireland, Keall, Kirkby, Lassasie, Lothian, Lucas, Parker, Payne, Priest, Prust, Randall, Ransom, Richtmann, Rudd, Scott, Smith, Summers, Taylor, Turner, Wild, Wilson.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ELECTRIC LAMPS IN ETHER EXTRACTION.

C. G. Hopkins employs the ordinary incandescent lamp in extraction work and finds it preferable to the gas flame for use in ether extraction, not only on account of its safety, but also because of its greater simplicity, constancy, cleanliness, and convenience. For a set of twenty complete sets of Soxhlet extraction apparatus, five 110-volt lamps, of thirty-two candle-power each, are placed in the air-bath, and they are found sufficient to produce a distillate amounting to about sixty drops per minute in each apparatus. The air-bath employed is a galvanised iron box, thirty-six inches long, eight inches wide, and six inches deep, with double side walls and triple end walls, leaving half-inch spaces in which are placed strips of asbestos paper to decrease the loss of heat by radiation. The board upon which the bath stands is also covered with asbestos. The removable cover of the bath contains twenty holes arranged in two rows. The holes are two inches in diameter, and their centres are three and a-half inches apart. The lamps are placed seven inches apart, one under the middle point of the square formed by every four holes. This symmetrical arrangement and the precaution taken to decrease radiation at the ends of the bath should provide practically the same amount of heat for each set of extraction apparatus. With the extraction in operation the temperature of the cover of the bath does not exceed 75° C., but with all the holes covered it is possible to raise the temperature to a point at which ether vapour will ignite. If, therefore, it be desired to assure absolute safety a water-bath should be employed, the bulb of each lamp being immersed in the water.—*Journ. Am. Chem. Soc.*, **21**, 645.

DECOMPOSITION OF CALOMEL.

Miss O. St. C. Lewis has attempted to ascertain the truth of statements which have been published regarding the decomposition said to take place when calomel is acted upon by hydrochloric acid, alkaline chlorides, etc. On taking 0·5 Gm. each of calomel and sodium chloride, with 100 C.c. of artificial digestive juice, 2 C.c. of diluted hydrochloric acid (10 p.c.), 0·00335 Gm. of pepsin, and water, *q.s.* to make 100 C.c., and allowing the mixture to digest on a water bath, at 40° C. for six hours, then filtering, concentrating the filtrate, testing with the usual reagents and allowing to stand for twenty-four hours, a decomposition took place, producing quite a deep brown coloration and a very noticeable precipitate with hydrogen sulphide, also a precipitate with sodium hydrate, and an orange coloration deepening into red with potassium iodide. Three consecutive trials of this experiment were made, and each showed the same evidence of the formation of corrosive sublimate. On using 0·2 per cent. of hydrochloric acid in the artificial digestive juice, with the same amounts of calomel and sodium chloride, the same reactions were obtained, excepting that the colorations were slightly deeper in tint. Three trials of this were made and in each case evidence of decomposition was shown. By mixing calomel with peptones very thoroughly, and digesting as above, very unmistakable evidence was given of decomposition into corrosive sublimate. But pancreatin in acid medium gave the most unmistakable evidence of decomposing calomel. The precipitates were exceedingly voluminous. With 0·2 per cent. hydrochloric acid, the deep-brown coloration and a very noticeable precipitate with hydrogen sulphide were obtained; with ammonium hydrate a very noticeable precipitate, and with potassium iodide a beautiful bright-red coloration. From these experiments the investigator inclines to the opinion that calomel is converted into corrosive sublimate by the action of certain salts and by the action of the acid juices of the stomach.—*Druggists' Circular*, **43**, 176.

IODINE IN ALGÆ.

Iodine appears to be a constant and essential constitutent in the protoplasm of fresh-water algæ, as well as in marine species. In the course of his investigations on the distribution of the element, A. Gautier has detected it in notable quantities in all the species examined. Thus *Ulothrix diossecta* contained 24; *Cladophora fracta*, 9·24; *Nostoc fragilis*, 4·23; *Protococcus pluvialis*, 20·6; *Batrachospermum*, 11 9; *Beggiota*, 360 parts per million of iodine calculated on the dry substance. Similarly by the lichens, consisting, as is known, of a symbiotic association of algæ and fungi were found to contain iodine in the following quantities in each million parts of dried material:—*Parmelia*, a trace too small to determine; *Peltigeria*, 2·98. Bacteria, as far as the researches have at present gone, would appear to contain but little, if any, iodine. The bacilli of diphtheria contained none, and those of tetanus a doubtful trace. The higher fungi in the instance of the three species examined: *Agaricus campestris*, *Boletus edulis*, and *Cantharellus cibarius* each gave 2·7 parts per million of iodine on the dry material. Although iodine is evidently a constant element in algæ, the fresh-water species, containing at the most but 24 parts per million, are less rich in it than those of marine origin, which contain, on an average, 600 parts per million. The bacterial algæ of sulphurous springs, which are free from chlorophyll, occupy a place between the fresh and salt water species, containing, on an average, 360 parts per million of iodine. Microscopic algæ, especially the marine species, and those which grow as lichens are exceptionally rich in that metalloid. In fungi, the amount of iodine varies according to the medium in which the plants grow, and does not appear to be an essential constituent of their protoplasm.—*Comp. rend.*, **129**, 189.

DOUBLE SALTS OF SILVER AND COPPER.

P. Sabatier has prepared an interesting series of double salts of copper and silver, obtained for the most part by the interaction of solutions of the silver salt and blue cupric hydrate. Thus the compound $3Cu(OH)_2,2AgNO_3$ is obtained in blue-violet crystals from normal solutions of silver nitrate; from hot concentrated solutions another dicupric salt, $2Cu(OH_2),2AgNO_3$ separates in bright blue acicular needles. With solutions of silver chlorate and blue cupric hydrate a heavy blue precipitate is obtained, consisting of well-formed microscopic prismatic scales having the composition $2Cu(OH)_2,2AgClO_3$. A sulphate of analogous composition $3Cu(OH)_2,SO_4Ag_2$ is obtained as microcrystalline inclined prisms; another form in needles, containing 3 molecules of water, also exists. With silver thiosulphate blue cupric hydrate forms the salt $2Cu(CH_2,AgS_2O_6$ as a violet flocculent precipitate. Most of these compounds may also be obtained by the action of silver oxide in solutions of the various cupric salts.—*Comp. rend.*, **129**, 211.

PURIFICATION OF IRIDIUM.

Crude iridium in the form of chloride is treated in solution in water acidulated with hydrochloric acid with sodium nitrite until no more nitrous fumes are evolved, the solution is rendered alkaline with sodium carbonate, again treated with nitrite and filtered. According to E. Leidié the solution contains only ruthenium, rhodium, and iridium nitrites and osmium as sodium osmate. Ruthenium and osmium are eliminated by converting them into peroxides by means of an alkaline hypochlorite and distilling in a current of chlorine. The nitrites of rhodium and iridium are unaffected by this treatment. They are converted into the respective double sodium chloride salts; the rhodium is removed by converting it into the insoluble sesquichloride, Rh_2Cl_6, which is affected by heating the mixture to 440 in a current of chlorine. The soluble iridium sodio chloride is removed by solution, precipitated as iridium ammonio chloride, which is insoluble, which is finally decomposed at a red heat in a current of hydrogen. The iridium, cooled in a current of CO, is thus obtained pure.—*Compt. rend.*, **129**, 214.

THE PHARMACOPŒIA AND EXAMINATIONS.*

BY WILLIAM C. ALPERS, D.Sc.

The examiners on the boards of pharmacy are often severely criticised for the great stringency of their questions, while occasionally we hear complaints that they are too lenient. If these critics are asked to point out any particular branch, or any particular line of questions, which in their judgment should be omitted or altered, and give their reasons why such changes should be made, they give rather vague and indefinite answers. They say, for instance, "What is the use of examining in materia medica, organic chemistry, botany, etc.? What the candidate should know is the Pharmacopœia, and if the examiners would confine their examinations to questions relating to the Pharmacopœia no fault could be found with them." The question at issue therefore resolves itself into another one: How can we ascertain whether the candidate understands his Pharmacopœia, and what should we ask him in order to arrive at this certainty? Is it necessary, with such an aim in view, to examine in botany and pharmacognosy? Should the natural orders of plants, their growth and chemical constituents be known? Should we include organic chemistry in the curriculum? Is the testing for and detecting of adulterants necessary? These and many other similar questions might be asked.

The clear understanding of the Pharmacopœia was exactly the leading thought of the writer when he drafted the curriculum after which the New Jersey Board of Pharmacy has examined for the last four years, and, in his own judgment, there is not one subject mentioned in it that is not absolutely necessary to know in order to *read* the Pharmacopœia intelligently. The word "read" is used here purposely, for this is all we can at present expect. If by a "thorough understanding" of the Pharmacopœia is meant the ability of preparing all the preparations, pharmaceutical, synthetical and chemical, a much broader knowledge than the requirements of our curriculum is necessary.

How any opposition to an examination in the fundamental laws of organic chemistry can be entertained at our present state of medication is hard to understand. We use now many products of organic chemistry, probably more than products of inorganic chemistry; and their number increases daily. Many of them, such as chloroform, ether, chloral hydrate, salol and carbolic acid, have become official; and at the next edition of our Pharmacopœia this list will be much enlarged. If it is necessary to know the composition and formula of ferric chloride or cupric sulphate, why not also to know as much of chloroform or of phenol? The same arguments apply to all other disciplines that are so often attacked by the thoughtless.

For further illustration let us select at random some items of the U.S. Pharmacopœia, and subject the description given by that authority to a brief scrutiny. Let us first take a subject of materia medica—for instance, Rosa Gallica (Red Rose), on page 340. This is certainly a very simple article. The description begins: "The petals of Rosa Gallica." What are petals? Is it wrong to ask the candidate this question? Should he not know what part of the plant they form? and should he not also know the other parts of the flower—the calyx, the stamen, the pistils, etc.? All these are official; indeed, there is not a single part of a plant that is not official in the U.S.P. The writer was once violently attacked by some old pharmacists for asking the question, "What are the parts of a flower?" How can a candidate who is unable to answer such a simple question *read* the Pharmacopœia intelligently?

The description of Rosa Gallica continues: "The petals of Rosa Gallica Linné." What does Linné mean? If we claim that we must be able to *read* our Pharmacopœia a slight knowledge of the history of the development of the various pharmaceutical sciences is indispensable. Truly I do not advocate that a complete biography of Linnæus should be given, but the fact that he was the father of modern botany, and the first to classify plants after a well-delineated system, should certainly be known. Then come the words "Nat. ord. Rosaceæ." Have they any meaning? If so, what meaning? What are natural orders? What are Rosaceæ?

By turning only two leaves from the page first selected we find words like Coniferæ, Compositæ, Polygonaceæ, Labiatæ, Caprifoliaceæ, Leguminosæ. Should all these words, and many more, be pronounced by the young pharmacist as by a speaking trumpet that gives the sound but has no thoughts? Or shall each word have a meaning and recall a definite thing to his mind? Can he *read* the Pharmacopœia without knowing something about the natural orders of plants—at least of the official plants? Or is it not necessary to understand this part of the Pharmacopœia? If not, who is to draw the line, and where is it to be drawn—what we shall understand and what not?

Let us return to our chosen subject, red rose. The description continues: "Usually in small cones, consisting of numerous imbricated, roundish, retuse, deep purple-coloured, yellow-clawed petals." Let us stop here. Do we understand all this as we read it? Here we have the words "imbricated," "retuse" and "clawed." Shall the student attach no meaning to all this? On the same page of the Pharmacopœia from which these sentences are taken we find such words as "receptacle," "hemispherical," "coalesced," "drupes," "style," "fusiform," "annulate," "medullary rays," etc.; and there is not a page in the book that does not contain similar words descriptive of plants and their parts. Should not the candidate know the meaning of such words, and is it not right to ask him questions relating to them? Our description says further: "Slightly acidulous and distinctly astringent taste." Here we have one of the technical terms of physiology. What is "astringent"? While it relates here only to the taste, it has also a broader meaning, and every pharmacist knows that astringent medicines are often called for. Should not this word be clearly understood by the candidate, together with many others, like laxative, tonic, sudorific, anthelmintic, febrifuge, etc.? Should he not be able to give a good account of all these terms and quote examples? If he cannot do so is he able to read the Pharmacopœia intelligently?

Let us now pass to another article of our Pharmacopœia on the preceding page (339). There we read: "Resorcinum, CH_4 (OH_2) = 109·74." Here is material for many questions. What do C, H, and O mean, and why are the figures 109·74 added? Elementary chemistry in all its details appears at once; chemical symbols and atomic weights are suggested. This is not all, however. The question will also be asked: Why is the one hydrogen in the formula separated from the other? Why do we not write C_6 H_6 O_2; and if we do is it wrong to do so, and why? The synonym given in the Pharmacopœia, "Metadioxybenzol," will remain a mystery to the candidate if he cannot answer these questions. If we require of him to read the Pharmacopœia intelligently, should we not ask him what the prefix "meta" means? Are we wrong in demanding an explanation of the term "dioxy" and "benzol?" Can anybody give an intelligent explanation of the word meta-dioxy-benzol without knowing the rudiments of organic chemistry? Long chemical terms are often made a subject of ridicule or attack, and yet there is nothing easier or plainer to the student of organic chemistry than these very words. Resorcinum has no meaning as such, while meta-dioxy-benzol not only recalls the composition of the chemical but also the constitutional formula, and we know at once why the formula C_6 H_4 $(OH)_2$ is preferable to C_6 H_6 O_2. Thus the description continues; every line presupposes the study and knowledge of chemistry in some of its branches. We are told to add a few drops of ferric chloride T. S. What is "T. S."? What are test solutions for? What is ferric chloride? What other iron chloride is there? and so on ad infinitum.

There is no page in our Pharmacopœia that can be *read* intelligently without fulfilling the requirements of our curriculum. The

*Read before the New Jersey Pharmaceutical Association, and reprinted from *Merck's Report*.

two examples, which were taken at random, could be duplicated on every page of our pharmaceutical guide-book. Examiners who are at a loss as how to formulate their questions need but take any subject and ask all the questions that naturally suggest themselves in reading the descriptive remarks. The examinations would then be based on the Pharmacopœia in the strictest sense of the word, and no objection as to its severity or leniency could be raised. (It will then be seen that there is nothing in the curriculum of the N. J. board which is not warranted by actual requirements.)

By again advocating our curriculum I do not wish to be understood that I consider the demonstration of theoretical knowledge as the only, or even the most important, criterion of a candidate's fitness. Much more important, in my judgment, are practical demonstrations; but it is not the object of this paper to dwell on this feature of the subject.

As the examiners on boards of pharmacy are, or ought to be, practical men engaged in business, they are better fitted to test the practical ability of candidates than professors of colleges; while the latter are far superior as examiners of theoretical knowledge. The most sensible and simplest solution would therefore consist in separating these two parts of the examinations entirely; let the board examine practically and the colleges theoretically. To accomplish this every applicant for examination before a board should be a graduate of some recognised college of pharmacy; and not until this state of affairs is reached will the complaints about injustice and unfairness of examiners cease. At present the whole burden rests on the boards, a burden which is much more onerous and trying than is generally known or appreciated. It is therefore the duty of every professional pharmacist to assist, as far as possible, the members of the boards in the execution of their duties; and this can best be done, not by unfair criticism and continuous harassing, but by frank and forcible indorsement of their acts, thereby encouraging them to bravely face all opposition and fearlessly perform their duty.

NOTE ON GLACIAL ACETIC ACID.

BY F. H. ALCOCK.

It is a difficult thing to get glacial acetic acid of correct B.P. strength when purchasing small quantities. It seems that the plan is to keep the acid in Winchester quarts, and when some is required for sale, if there happens to be the quantity already liquefied in the bottle, no attempt is made to melt the whole, so that what the purchaser gets is somewhat aqueous. The official test of gravity is of no value, and the m.p. is also risky, and the correct way perhaps is total acidity, and even that is not alone a criterion. If, however, an equal volume of oil of turpentine, B.P., be added to it, this constitutes a simple test. As glacial acetic acid is required to dissolve an equal volume of oil of turpentine, so an equal volume of oil of turpentine should dissolve in an equal volume of glacial acetic acid, and this is a useful additional test, and might have a place in the B.P.

Lacquers for Brass.—The following are very old and tried recipes for coloured lacquers:—(1) Take of shellac, 120 parts, sandarac, 45, mastic, 30, amber, 30, black resin, 90, dragon's blood, 30, turmeric, 30, gamboge, 30, rectified spirit, 1,000. Shake occasionally till dissolved and strain. (2) Seed-lac, 120 parts, gamboge, 120, dragon's blood, 120, saffron, 30, rectified spirit, 1,000. Put in a hot place, stir at intervals, and filter.—*Brit. Journ. Photog.* [There seems no sufficient reason why non-mineralised methylated spirit should not be used for preparing the above lacquers, instead of rectified spirit, —Ed. *Pharm. Journ.*]

CHAPTERS IN PHYSICO-CHEMISTRY.

Optical Properties.

It is a matter of everyday experience, and familiar to all, that different bodies do not all behave in the same way toward light. Thus, some substances, which are called transparent, such as water and air, allow light to pass freely through them; others, such as coal or iron, are opaque, or do not allow the light to pass. Some, again, as many of the metals, reflect light to a greater or less extent, while others, like charcoal, do not reflect it at all. Such properties, however, while they are sufficiently characteristic to be of some value in describing a body, are not unvarying enough to be at all reliable in its identification. For instance, whereas a large piece of ice is transparent, when reduced to powder it is quite opaque; again, the extent to which light is reflected by a metal depends on the greater or less smoothness of its surface. The degree of transparency of substances, then, and their power of reflecting light, are not made the subject of exact measurements, nor utilised for their characterisation except in a very general way.

There are other ways, however, in which the behaviour of any substance towards light is quite unvarying, and admits of very accurate measurement. Such action upon light cannot in some cases be even detected by the unaided eye, and special apparatus is always required for its measurement. The facts ascertained by quantitative observation of the behaviour in such respects of different simple and compound bodies has not only furnished important characters for their identification, but has helped to furnish interesting and valuable knowledge about the constitution of some kinds of matter. We now proceed to consider some of the chief of these optical properties of substances.

Refractive Power.

When a ray of light passes from the medium through which it is being propagated into another of greater or less density than the first, its path in the second is not a continuation in a straight line of its previous path, but the line along which it now proceeds makes an angle with the line along which it travelled in the first medium. Thus, if in Fig. 1 the space above the line AB represents

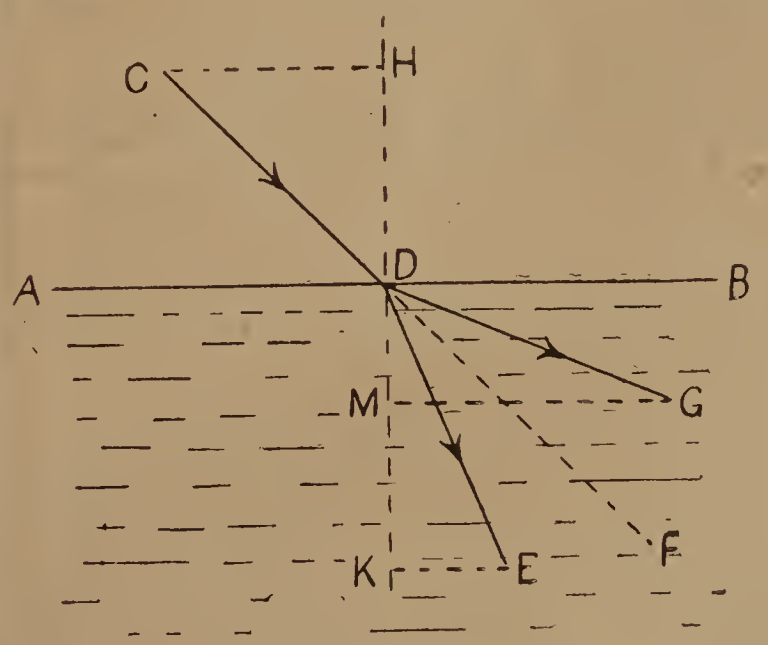

Fig. 1.

the first medium through which a ray passes, and the space below it the second, AB being thus the common surface of the two, then if the densities of the two are different, a ray having the course CD does not proceed straight on in the direction DF, but takes a course such as DE, or DG. If through the point D, where the ray meets the surface, a line HK is drawn perpendicular to the surface, the angle CDH is called the angle of incidence, and the

angle EDK or GDK, as the case may be, the angle of refraction. If from any point C in the line DC a line is drawn perpendicular to DH, and a length DE (or DG) is measured along the line DE (or DG) equal to DC, and from the point E (or G) so obtained, EK (or GM) is drawn perpendicular to DK, the lines CH and EK (or GM) furnish a means of comparing the angles of incidence and refraction; the ratio of the length of the line HC to the line EK (or GM), or, in other words, the ratio of the sine of the angle of incidence CDH to the sine of the angle of refraction EDK (or GDK) is termed the "index of refraction" of the substance lying below the line AB, with regard to the substance lying above it. If the second medium has a greater density than the first the angle of refraction will be smaller than the angle of incidence; if the second is the less dense medium, the angle of refraction (GDK) will be greater than the angle of incidence. In considering refractive indices, the ray is always supposed to pass from the less to the more dense substance; we can, therefore, at once dismiss the greater angle GDK. Theoretically, the refractive index of a substance is the ratio of the sine of the angle of incidence to the sine of the angle of refraction when a ray passes from empty space (vacuum) into the substance in question. In practice, however, air is taken instead of empty space; this produces extremely little difference in the result.

The refractive index of a substance, whether an element or a compound, is an important characteristic. It may be determined in several ways; generally the most convenient is by the use of the spectrometer (Fig. 2). This consists of (*a*) a tube called the collimator,

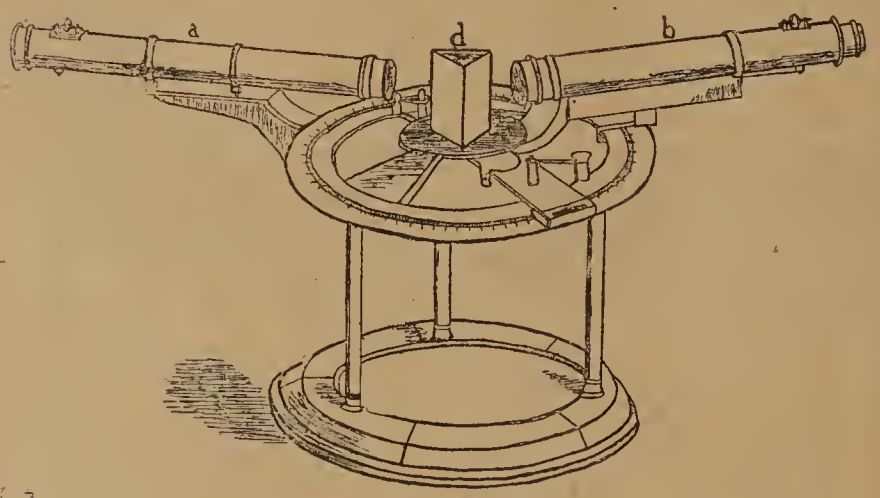

FIG. 2.

closed at one end with the exception of a narrow slit by which light is admitted, and containing a lens by which the rays are rendered parallel; (*b*) a telescope through which the rays pass to the eye, and in which the image of the slit is seen; (*c*) a stand to which these two are attached; this is circular, and graduated into degrees and minutes; the telescope can be moved round it, and fixed at any point; its position is indicated by the corresponding graduation. To use the apparatus, light is allowed to fall on the slit of the collimator; (the light must be homogeneous; this will be referred to below). The telescope is brought into a straight line with the collimator; when this position is reached the image of the slit will be seen exactly in the middle of the field in the telescope; the graduations on the scale corresponding to this position is noted. Next, a prism (*d*) of the substance whose refractive index is to be determined is placed between the collimator and the telescope; if the substance is a liquid it is enclosed in a hollow prism of glass, whose sides are of even thickness; solutions may be used, the effect of the solvent being afterwards found and allowed for. In order that the image of the slit may be received in the telescope it will now be necessary that the latter should be moved round the circle to a greater or less extent. By moving it about, and simultaneously twisting the prism round slowly, a position of the latter is found such that if it be placed in any other way the telescope has to be moved further from its original position in order to receive the image. When this position is found, the angle through which the telescope has been moved from its position before the prism was introduced is found by deducting the scale reading of the one position from that of the other. This angle is called the "angle of minimum deviation" for the prism in question; let it be represented by d. The size of the angle between those two sides of the prism through which the light passed must be measured. To do this the prism is set with this angle facing the collimator, and the telescope is successively moved to positions in which the light reflected from these sides is received in it, so that an image of the slit is seen in the centre of the field. Half the angular distance between these positions, as shown by the graduated scale, is equal to the measure of the required angle of the prism; let this be represented by a. The index of refraction of the substance (usually denoted by the Greek letter μ) is then given by the formula $\mu = \frac{\sin \frac{1}{2}(a + d).}{\sin \frac{1}{2} a}$ The temperature at the time of experiment is to be noted and recorded.

When a ray of ordinary white light is passed through a prism it is separated into a number of rays, each of which, seen by itself, gives the impression of colour. The reason of this separation is that these rays are not refracted to the same extent in passing through the prism, and hence on emerging their paths are different. On account of this difference in the refrangibility of the different rays it is necessary, as stated above, that the light used in determining refractive indices should be homogeneous; that is, it should not be composed of different rays that can be separated by a prism, but should be of one kind alone. In order that different determinations of refractive index may be comparable it is, of course, necessary that they should all be made with similar rays of light. The light generally adopted is that whose wave-length is 656 millionths of a millimetre, which corresponds to the red line in the spectrum of hydrogen.

We have said that the temperature at which the refractive index of a substance is determined should be noted. The reason for this is that it is affected by the temperature, being generally reduced by a rise in the latter. Other circumstances besides temperature which influence the density of the substance also affect the refractive index; it appears that the change in refractive index with change in temperature is really dependent on the alteration of density caused by the alteration in temperature. Attempts have been made to find an expression for the refractive power of bodies which should have the same value whatever the density, and so allow comparison between results obtained in different circumstances. Calling the density of the substance d, the expression $\frac{\mu - 1}{d}$ is found to give nearly unvarying values, whatever the condition of the substance as to density may be. The quantity represented by this expression is called the refractive constant of a substance. Another expression is also in use for the refractive constant—namely $\frac{\mu^2 - 1}{(\mu^2 + 2)\, d}$. This has been arrived at from theoretical considerations, whereas the former expression rests only on empirical results. The more unvarying result is yielded in some cases by the one, and in other cases by the other. Both are consequently in use under the name of refractive constant, but the second one is the one that is now more frequently employed.

The refractive constant of an element, multiplied by its atomic weight, gives its atomic refractive power; similarly the molecular refractive power of a compound is got by multiplying its refractive constant by its molecular weight. It is found that, with certain exceptions, if the atomic refractive power of each of the elements present in a given compound is multiplied by the number of atoms of that element existing in a molecule of the compound,

and the products so obtained added together, the resulting number is equal to the molecular refractive power of the compound found directly. It will be seen that this relation is exactly analogous to what has been found to hold for atomic and molecular volumes (*P.J.*, **56**, 305). The limits within which the rule holds are also very similar. Among organic compounds, which have been chiefly studied, irregularities are observed in those compounds in which there exists between some of the carbon atoms that relation which is commonly termed "double" or "triple linking." In these cases the observed refractive powers are higher than those corresponding to the above rule, and a definite value can be assigned to "double bonds" and "triple bonds" that must be added to the sum of the atomic refractive powers of the constituent atoms to give the molecular refractive power of the compound in which such bonds occur. Accordingly, determinations of the refractive power of compounds have been utilised to throw light on the nature of the union between the carbon atoms in cases where it was doubtful, as in benzene. Other elements besides carbon also have different values, according to the way in which the atoms are united. Oxygen attached only to one carbon atom has not the same value as oxygen which is attached to both carbon and hydrogen, and so on. We thus come to the conclusion that the molecular refractive power of a compound depends partly on the number and nature of its component atoms, and partly on the way in which these are combined.

Rotation of the Plane of Polarisation.

Leaving refraction now, we proceed to consider the behaviour of different substances towards polarised light, which is of great practical and theoretical importance.

According to the undulatory theory, light consists of vibrations in the ethereal medium, which are propagated as waves with almost incredible speed. In ordinary light these vibrations are not confined to any one plane, but occur in every possible plane. When, however, such light is passed through certain substances, of which Iceland spar is a good example, the vibrations are reduced to occurring in two planes, at right angles to each other, and these two sets of vibrations become separated from one another, forming distinct rays; when the light leaves the substance in which this change has been effected, these two rays proceed along independent paths, and in each one the vibrations continue to be in one plane only; each of them is now said to be polarised.

There are various methods by which polarised light may be conveniently obtained. The apparatus usually employed is called a Nicol's prism, and is constructed of Iceland spar in such a way that only one of the two polarised rays is allowed to pass, the other one being arrested. If now the light that has passed through a Nicol's prism is allowed to enter a second one, if the latter is so placed that its optical axis is parallel to the optical axis of the first, the light will pass through it unaltered. If, however, the second Nicol is turned round through a right angle, so that its optical axis is at right angles to that of the first one, the light which has passed through the first one will be completely arrested by the second. This property of the Nicol of allowing the passage of those rays whose vibrations are in one plane, and stopping those whose vibrations are in the plane at right angles to the former, enables us to distinguish polarised from ordinary light, which otherwise we could not do. An arrangement consisting of two Nicols in a straight line with each other, one of them being capable of being turned round freely, is called a polariscope; the Nicol which is entered first by the light is called the polariser, and the second one, by which its polarised condition is detected, is called the analyser. In order that light may pass unaltered through the second Nicol, it must reach it with the vibrations occurring in such a plane that no effect will be produced on it by this Nicol. We have already said that this will no longer be the case if the Nicol is rotated, and it is clear that the same effect will be produced if the latter remains stationary, if by any means the plane of polarisation of the light is rotated. Certain substances possess the peculiarity that, if a ray of polarised light passes through one of them, when it emerges the vibrations are no longer occurring in the same plane as when it entered, but the plane of polarisation has been turned through a greater or less angle. This is what is termed "rotation of the plane of polarisation," and bodies possessing this property are called "optically active."

The extent to which this property is possessed by a substance is measured by a form of polariscope known as a polarimeter. It consists of a polariser and an analyser placed at a suitable distance apart, together with an eyepiece, through which the light is conveyed to the eye, and a circle graduated in degrees and minutes, by means of which the exact extent to which the analyser is rotated at any time can be measured. If the analyser is put in such a position that the light reaching it is exactly stopped by it, so that none reaches the eye, it is clear that when an optically active body is placed between the two Nicols the light will no longer all be stopped in the analyser, but that to effect this the latter will have to be rotated to an extent exactly equal to the amount of rotation that has been suffered by the plane of polarisation; the amount of this rotation of the analyser can be read on the graduated circle. If, therefore, the light has passed through some standard unit quantity of the optically active body the amount of rotation that must be given to the analyser is a measure of the rotatory power possessed by the body.

In practice some modifications in the method are necessary. In the first place, it is impossible to find exactly that position of the analyser in which all the light is cut off by it, since it may be moved through a considerable range before the amount of light transmitted is sufficient to be appreciated. The field is accordingly divided into two halves, and a device (explained in more complete descriptions of the polarimeter) is introduced, by means of which one half of the field gets lighter, while the other gets darker, and the analyser is adjusted, both before and after the optically active substance is put into place, to the position in which the two halves of the field are equally bright, which can be found with great exactness. Next, the quantity of the substance is so taken that the angle to be read shall have a convenient magnitude, and this is divided by the number of decimetres length through which the light has passed, and also by the specific gravity of the substance; the number so obtained is called its specific rotatory power. Since the extent of the rotation is dependent on the wave-length of the light, ordinary white light cannot be used, as each of the different rays of which it is composed has a different wave-length, and consequently no position of the analyser could be found in which they would all be equally reduced. The light emitted by heated sodium compounds is homogeneous, that is, it cannot be resolved into different rays, and since it is very easily obtained it is almost always employed; it is only necessary to put some particles of some sodium salt on a platinum wire in a Bunsen gas flame, and to exclude other light by darkening the room. The wave-length of sodium light corresponds to the yellow line in the solar spectrum that is designated by the letter D; the symbol adopted to indicate specific rotatory power is $[\alpha]$, and to show that sodium light has been used the letter D is appended, thus, $[\alpha]_D$. When the rotation takes place in such a way that the analyser has to be turned in the direction in which the hands of a watch move, it is called dextro-rotation, and a plus sign is prefixed to the number representing the specific rotatory power; conversely, if the analyser is moved in the reverse way, the substance is called lævorotatory, and this is indicated by a minus sign. Thus, for cane sugar, $[\alpha]_D = + 66{\cdot}6$; for nicotine, $[\alpha]_D = - 61{\cdot}5$.

The optical activity of bodies may be most conveniently measured when they are in the liquid state, as the length of the column of liquid can be easily fixed. Glass tubes, enclosed in metal cases for protection, are employed, and closed at each end by a small circular

plate of glass, held in position by a cap. Whenever possible solids are dissolved in a liquid which has no optical activity itself; the observed angle is then multiplied by the number of parts of the liquid that contain one part of the dissolved substance. Since, however, the nature and quantity of the solvent, even though it is inactive, have in many cases an effect on the extent of the rotation, these particulars should always be recorded. The temperature, too, is to be noted, as this also affects the result.

In addition to the value of the specific rotatory power of a substance in aiding its future identification, it throws important light on its constitution in the case of organic substances, since optical activity in carbon compounds is found to be always associated with a particular arrangement of some of the atoms—namely, one of the carbon atoms is in direct union with four *different* atoms or groups of atoms. Such an arrangement is called asymmetric. As a good deal has been written on this subject it need not be discussed here. The reader is referred to *P.J.*, **51**, 41, etc.

Magnetic Rotation.

The very large number of substances that do not possess the molecular constitution here referred to do not under ordinary conditions show any action on polarised light. When, however, such bodies are under the influence of magnetic force, they all cause rotation of the plane of polarisation. This phenomenon has been termed magnetic rotation, and has been the subject of much work by Perkin in recent years. The tube containing the liquid to be examined is placed between the poles of a powerful electro-magnet, and the observation then conducted in the usual way. The rotation observed for unit length of the substance, multiplied by the molecular volume of the latter, gives a value which is comparable with the corresponding values for other substances. Water is taken as the standard for purposes of comparison, and the ratio of this value for any given substance to the similar value for water is called its molecular magnetic rotatory power. The term specific magnetic rotatory power is applied to the ratio of the rotation caused by unit length of the substance to that caused by the same length of water.

Much attention has been given to the molecular rotatory power of homologous series of organic substances; that is, series in which there is a constant difference of CH_2 between the adjacent members. The increase due to the additional CH_2 in the molecule is found to be constant; the molecular rotatory power of a compound is equal to the sum of the values of the CH_2 groups present, and a value which is the same for all the members of a series, and is hence called the "series constant." The mode of combination between the atoms has a certain influence on the molecular rotatory power, and, just as with the molecular refractive power, definite values can be assigned for "double bonds" and "triple bonds" between carbon atoms, the two modes of combination of oxygen, and so on. The molecular rotatory power of compounds has been employed to shed light on their constitution; that is, on the manner in which their constituent atoms are united. This is one of the latest instances of the employment of physical measurements in the solution of chemical questions. Such physico-chemical methods have already thrown much light on some of the most interesting questions of the science, and it may fairly be anticipated that in the future, as the importance of these measurements is more and more recognised, highly important results will follow from their application.

TRIBROMOSALOL AS A HYPNOTIC.—Tribromosalol introduced as a hypnotic particularly for the insane is not regarded by Vrallon as of great value. Although it gives good results in some cases, and does not occasion any digestive derangement, its hypnotic action is very inconstant, and its insolubility renders it difficult of administration in the case of many patients mentally afflicted.—*Nouv. Rem.*, **15**, 302.

QUALITATIVE EXAMINATION OF POWDERED VEGETABLE DRUGS.*

BY HENRY KRAEMER.

GROUP NO. 2.—COLOUR WHITISH.

Wheat flour, Corn starch, Wheat starch, Potato starch, Rice starch, Bermuda arrow root starch, Montserrat arrow root starch, Wheat middlings, Corn meal, Corn bran, Orris root, Resina jalapæ, Dextrin (white), Gum arabic (white), Tragacanth, Saccharum (cane), Sacch. Lactis, Scilla, Camphora, Talc, Prepared chalk, Ppt. chalk, Pulv. Cretæ Comp., $BaCO_3$, $BaSO_4$, $CaSO_4$, Heavy magnesia (MgO), Light magnesia (MgO), Antimony oxide, Antimonial powder, Tartar emetic, Calcium phosphate ppt. [$Ca_3(PO_4)_2$], Terra alba, Potassium bitartrate.

1. Plant Tissues or Cell Contents Recognizable.

A. CONTAINING STARCH.

a. Unaltered starch alone.—Grains characteristic for each; completely soluble in glycerin on heating, and precipitated on the addition of water.

171. *Arrow root starch* (Bermuda).

172. *Arrow root starch* (Montserrat),

173. *Corn starch.*

174. *Rice starch.*

175. *Wheat starch.*—Does not agglutinate on mixing with water distinction from wheat flour.

b. Altered and unaltered starch grains.

176. *Dextrin.*—Sticky mass with water; unaltered starch grains detected.

c. Plant tissues in addition to starch grains.—The former remain upon treatment with hot glycerin.

a. Do not readily dissolve or swell in cold water and become transparent and sticky.

177. *Corn meal.*—More starch and oil and little hull.

178. *Corn Bran.*—Less starch and oil and more hull.

179. *Wheat Flour.*—Agglutinates with water, distinction from wheat starch; little tissues of wheat grain.

180. *Middlings of Wheat.*—Starch and numerous fragments of tissues of wheat.

181. *Orris Root.*—Characteristic starch grains 15 × 15 to 15 × 30 μ; scalariform ducts 25 μ wide; no cork.

B. SOLUBLE OR SWELL IN COLD WATER TO FORM A STICKY MASS.

182. *Acacia* (white).—Soon affected by water; few plant tissues.

183. *Tragacanth.*—Slowly affected by water; fragments of ducts and parenchyma; more likely to find corn starch grains in commercial powder.

B. WITHOUT STARCH.

184. (*a*) *Acicular crystals.*

Squills.—Also find isolated fragments of fibro-vascular tissue.

II. Absence of Plant Tissues.

A. SOLUBLE IN WATER.

185. *Cane Sugar.*—Characteristic crystals; soluble also in mounts of glycerin and glycerin + chloral; taste.

186. *Potassii Bitartras.*—Soluble in water with acid reaction; with sodium cobaltic nitrite solution get small yellow cubical crystals, which are permanent in glycerin mount.

187. *Tartar Emetic.*—Large irregular masses; add HCl to the powder on a slide, and then pass H_2S over the same, get an orange-red precipitate, which is permanent in a glycerin mount.

B. INSOLUBLE IN WATER.

(*a*) Soluble in alcohol.

188. *Camphor.*—Liquefies in mounts of glycerin and chloral; glycerin mounts show irregular masses.

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* From the *American Journal of Pharmacy*. *Continued from page* 186.

189. *Resina Jalapæ.*—In glycerin get irregular opaque fragments, which swell and by-and-by look like huge amœboid masses; in glycerin and chloral the fragments become rounded, transparent, and finally dissolve.

(*b*) Insoluble in alcohol.

a. With H_2SO_4 reddish colour after some time.

190. *Saccharum Factis.*—Small and large irregular-shaped crystals, insoluble in mounts of glycerin or glycerin + chloral.

β. No colour reaction with H_2SO_4.

* *Soapy feel.*

191. *Talc (or Magnesium Silicates).*—Rather lustrous long irregular crystals.

** *Effected by ascetic acid.*

† *With effervescence.*

192. *Calcii Carbonas Præcipitatus* ($CaCO_3$).—Add hot solution of ammonium oxalate to acetic acid solution on slide, get crystals of calcium oxalate. Mount in glycerin and observe rosette or cubical crystals of a rather uniform size.

193. *Creta Præparata* ($CaCO_3$).—Same treatment as above, but CaC_2O_4 crystals are triangular and cubical and not of uniform shape.

194. *Pulvis Cretæ Compositus.*—On addition of acetic acid notice peculiar gummy mass containing crystals of sugar, which are soluble in water.

195. *Barium Carbonate* ($BaCO_3$).—Add H_2SO_4, and in glycerin mount the $BaSO_4$ precipitate is bacteria-like; flame test, green.

†† *Soluble in acetic acid without effervescence.*

196. *Heavy Magnesia* (*MgO*).—Alone in glycerin mount observe small rounded masses frequently grouped together; if dissolve, a few milligrammes on a slide or watch crystal in citric acid, then add a few drops (excess) of ammonium hydrate and Na_2HPO_4 and stir vigorously with a glass rod, triangular or tetragonal crystals are formed in glycerin mount.

197. *Light Magnesia* (*MgO*).—In glycerin mount looks like heavy magnesia, but masses are larger and more transparent. On treatment with citric acid, NH_4OH and Na_2HPO_4, the crystals of $MgNH_4PO_4$ in glycerin mount are large star-shaped, and look like snow crystals.

*** *Unaffected by acetic acid.*

† *Soluble in Nitric Acid.*—If necessary, in deciding on any of the next four, they are to be fused with K_2CO_3 or Na_2CO_3, and a regular qualitative chemical separation effected.

198. *Calcii Phosphas Præciptatus* [$Ca_3(PO_4)_2$].—In glycerin mount alone get small tetragonal and cubical crystals. If to a few milligrammes of the powder on a slide, we add a few drops of HNO_3, and then ammonium molybdate solution, stirring well with a glass rod, get small yellow diamond-shaped crystals, permanent in glycerin mounts.

199. *Calcii Sulphas.*—In glycerin mount alone observe needle-shaped crystals or long crystals in masses (looks like group of sklerenchyma fibres); flame test on platinum wire = bright reddish-yellow.

200. *Barium Sulphate.*—In glycerin mount alone observe irregular-shaped crystals varying from small to large; flame test = green.

201. *Terra alba.*—This is aluminium silicate (3 : 5) and magnesia.

†† *Insoluble in nitric acid.*

202. *Antimony Oxide.*—In glycerin mount alone get irregular, transparent, small to large fragments; add drop of HCl to powder on the slide, then pass H_2S over the solution, get orange-red precipitate.

203. *Antimonial Powder.*—Small tetragonal and cubical as well as irregular transparent crystals. Add HCl, then H_2S = orange-red precipitate.

GROUP No. 3.—COLOUR, SOME SHADE OF YELLOW.

Washed sulphur, Sulphur præcipitatum, U.S.P. (Lac Sulphur or Milk of Sulphur), Mastic, Glycyrrhiza (Russian), Aurantii amari cortex, Scammony resin, Resina, Lycopodium, Sandarac, Sinapis alba, Dextrin (yellow), Aurantii amari cortex, Aurantii dulcis cortex, Ammoniac, Limonis cortex, Zingiber (Jamaica), Calendula, Angustura bark, Tr. Rhei Dulc., Rhamnus purshiana, Tr. Rhei Arom., Rheum, Hydrastis, Resina podophylli, Aloes (Cape), Chrysophanic acid, Gamboge, Turmeric, Yellow ochre (Argillaceous or Calcareous earth, Fe and Mn oxides), Curry powder.

I. Possessing Vegetable Tissues or Cell Contents.

A. CELL-CONTENTS ALMOST ENTIRELY.

a. Starch grains.

204. *Dextrin.*—Altered and unaltered starch grains.

b. No starch.

205. *Lycopodium.*—Characteristic spores entirely.

B. CELL-CONTENTS AND VEGETABLE TISSUES.

a. Without any or but little starch.

206. *Aurantii Amari Cortex.*—Thick-walled parenchyma (walls 10–15 μ thick); oil secretion reservoirs (120 μ in diameter); few ducts; brownish-green outer layer; crystals of calcium oxalate cubical (15 × 15 μ).

207. *Aurantii Dulcis Cortex.*—Parenchyma cells with walls not so thick as the bitter orange peel, being 4 μ thick; secretion reservoirs about 350 μ in diameter; few ducts; outer layer orange-yellow; crystals of calcium oxalate either cubical (30 × 30 μ), or prismatic, as in quilaja (35 × 10 μ); likely to find sphere crystals of carbohydrate in glycerin mounts.

208. *Limonis Cortex.*—Secretion reservoirs as large as in sweet orange peel; outer layer pale (lemon) yellow; walls of parenchyma 5 μ thick; calcium oxalate crystals, about as in bitter orange peel; sphere crystals, as in sweet orange peel.

209. *Sinapis alba.*—Oil, aleuron and characteristic seed coat.

210. *Calendula.*—Characteristic tissues of petals containing oily drops; few pollen grains; reaction with H_2SO_4.

b. Containing starch.

a. Without crystals of calcium oxalate.

211. *Hydrastis.*—Starch 4 μ; wood fibres and ducts yellowish; few, sometimes numerous prismatic crystals in a rosette = berberine; upon addition of H_2SO_4, get abundant needle-shaped crystals.

β. With crystals of calcium oxalate.

* Crystals very small and likely to be overlooked.

212. *Zingiber* (Jamaica).—Unaltered starch grains 15 × 30 μ; yellowish (oil) and reddish (resin) cells; fibrovascular tissue.

213. *Turmeric.*—Altered starch grains (test with iodine) in irregular masses (70 × 100 to 100 × 140 μ) of shape of cell in which formed; bright yellow oil secretion cells; pigment dissolved out by use of solutions of chloral or chloral-glycerin, as well as when essential oils are employed, characteristic colour reaction with H_2SO_4, or with boric acid + HCl, and then evaporate with NH_4OH.

214. *Curry Powder.*—A powder of varying composition, but generally find the following: characteristic yellow secretion cells and starch of *ginger* and *curcuma*; oil and seed coat of *mustard*; aleuron and oil secretion reservoirs of *coriander*; may find sklerenchyma of *Pimenta* or *cloves*.

** *Crystals of calcium oxalate rosette-shaped and numerous.*

215. *Rheum.*—Crystals 70 μ; starch grains, single, 20 μ, or double 35 × 20 μ; boil a few milligrammes of the powder with water, filter, and to the straw-coloured solution add KOH = red coloration.

216. *Tr. Rhei Aromatica.*—Chiefly the characteristics of *Rhubarb* (see No. 215); crystals (10 μ), and oil secretion reservoirs of *cloves* (see No. 346); tissues of *cinnamon* (see No. 292) and *nutmeg* (see No. 496).

217. *Tr. Rhei Dulcis.*—Characteristic aleuron, non-secreting hairs and secretion reservoirs of *anise*; seed coat and crystals of *cardamom*, crystals in crystal fibres of *glycyrrhiza*; crystals and starch of *rheum*.

219. *Rhamnus Purshiana.*—Rosette-shaped and cubical crystals; bast fibres (more numerous than in Frangula); stone cells (which are absent in Frangula); a few milligrammes of powder boiled with water, filtered and the straw-coloured filtrate, treated with KOH, gives a red colour.

**** Crystals cubical, tetragonal or coffin-shaped and numerous.*

220. *Calumba.*—Stone cells contain tetragonal crystals; starch grains. (See No. 24.)

221. *Glycyrrhiza* (Russian).—Numerous sklerenchyma fibres, adjoining which are crystal fibres containing tetragonal and coffin-shaped crystals; few cork cells, distinguishing it from Spanish (which see, No. 275); some parenchyma cells contain glycyrrhizin. and are coloured straw-yellow with H_2SO_4.

***** Needle-shaped crystals.*

222. *Angustura.*—Stone cells; bast fibres; long yellow secretion reservoirs; yellowish (oil) and reddish-brown (resin) masses.

II. Few or no Fragments of Vegetable Tissues.

A. BURN, GIVING OFF ODOUR OF SO_2,

223. *Sulphur Lotum.*—Small rounded masses in chains.

224. *Sulphur Præcipitatum.*—Small rounded masses in irregular groups in glycerin mounts,

B. ON BURNING DO NOT GIVE OFF ODOUR OF SO_2.

(*a*) *Nearly colourless in glycerin mount.*

225. *Mastic.*—Transparent irregular masses.

(*b*) *Yellowish in glycerin mount.*

(*a*) *Containing oil globules.*

226. *Scammonium.*

β Transparent or translucent.

227. *Resina.*—Irregular masses, soluble in cold alcohol (95 per cent.), forming a straw-coloured liquid, becoming milky-white on addition of water; on heating fragments of resin in water, they melt, run together and form a sticky mass.

228. *Sandarac.*—Almost insoluble in alcohol (95 per cent.), and solution remains almost colourless; on heating fragments in water, do not melt.

229. *Resina Podophylli.*—Very small more or less globular particles frequently massed together in large masses.

230. *Aloes (Cape).*—In glycerin mount some fragments are conchoidal; the particles become clear and dissolve, leaving a few colourless lens-shaped or fine acicular crystals. The latter are more abundant in the Barbadoes aloes.

231. *Chrysophanic Acid.*—Small colourless and yellowish irregular masses, with KOH, becomes yellow and then crimson-red.

γ More opaque.

232. *Ammoniac.*—Irregular, faint yellow, opaque masses, made up of small, light-coloured or greyish particles.

233. *Gamboge.*—Irregular, bright yellow masses, made up of small yellow particles.

(*To be continued*).

NOTE ON EXTRACTUM GENTIANÆ.

BY F. H. ALCOCK.

During the examination of some samples of this substance, one of them, when added to water (100° F.), gave a cloudy solution which, on the addition of solution of iodine to the cold liquid, gave strong indications of the presence of starch. When the extract was examined under the microscope no granules of starch were visible. As gentian root does not contain starch under ordinary conditions, it would appear that if such be present, accidentally or otherwise, the official process for the preparation of the extract is an unfavourable one for the elimination of starch. The boiling process would be better performed (if necessary at all) after the separation of the marc than before, under which circumstances the starch would not be removed to any appreciable extent.

It is worthy of note that the particular extract referred to above absorbed much iodine solution before a permanent blue coloration was obtained.

THE STANDARDISATION OF VEGETABLE DRUGS.*

BY BURT E. NELSON.

The pharmacist who would, without regard to the alkaloidal content, prepare his tincture or fluid extract of belladonna from only half the required amount of the drug would be denounced, and yet he would in reality have done no more injury than one who has unknowingly manufactured his preparation from a sample of the drug containing but half the usual quantity of the active ingredients. Especially is this true of our more potent plant drugs, most of which depend upon fixed alkaloids for their activity.

The chief reason for the pharmacist not attempting these determinations I have found to be inability to do analytical or assay work, or the non-possession of suitable apparatus. The correction of the former evil lies with the pharmacist himself, and as for the latter, while it may not be practicable to invest in the delicate balances, complicated extraction apparatus, and other paraphernalia usually found in assay laboratories, it is within his means to possess himself of one or two stoppered separatory funnels, a pair of burettes, a series of volume pipettes, and such other apparatus as he can himself extemporise by the exercise of some ingennity.

As for methods of assay, the escape is not so easy; many of the commonly employed processes yield results which do not compare so favourably as a conscientious analyst would hope for, and the easiest is too often the poorest method. Moreover, a process which would answer for commercial valuation, where the relative alkaloidal content was the only thing desired, might be wholly unfit for standardisation purposes where exactness must be the chief aim. Especially is this true of extraction processes; maceration, and the removal of an aliquot part of the clear menstruum for assay is a process which, on account of the ease with which it may be carried out, although requiring considerable time, strongly recommends itself and for valuation experiment as above indicated, is satisfactory, but after trying it at frequent intervals during the past seven or eight years, I have abandoned it for the more rapid and thorough hot re-percolation in an extraction apparatus wherever it is applicable and accuracy is desired. For this I most commonly use the Florence flask and glass syringe percolator originally figured by Dr. Lyons and like it as well as a Soxhlet apparatus.

The principle upon which the separation of the majority of alkaloids depends is familiar, and may be learned from the United States Pharmacopœia process for assaying nux vomica extract or from one of the works mentioned in the note, by those who are unacquainted with it. It is usually preferable to evaporate over a gentle water-bath heat and under diminished pressure where practicable.

The weight of the total alkaloid obtained by causing the mixed separates to evaporate in a tared beaker to dryness and allowing the whole to remain in a desiccator over sulphuric acid for some hours until the weight is constant is, where the bases are white, clean and crystalline, frequently accurate, but more frequently they exist as a yellowish or brownish varnish-like residue consisting of the amorphous alkaloids, together with various foreign matters. In these cases a volumetric determination with standard acid and alkali solutions is desirable. I habitually use the decinormal sulphuric or hydrochloric acids (20 C.c.) and titrate back with decinormal caustic soda, using cochineal as indicator. I have not been able to obtain greater accuracy by the use of centinormal solutions. I also prefer ammonia for rendering the liquid alkaline, as I have known small quantities of the fixed carbonated alkalies to be mechanically carried away by the solvent and left with the alkaloidal residue, thereby interfering with an accurate determination by decinormal acid. Each cubic centimetre of decinormal acid neutralised by the alkaloids corresponds to one ten-thousandth of their molecular weight expressed in grammes; for example, the molecular weight of atropine being 289, each C.c. of acid represents 0.0289

*From the *Druggists' Circular*.

grammes. Where two or more bases are present, the mean of the several weights must be chosen, and herein lies the chief drawback to the process, unless we go through the laborious process of separating them. Care must be taken to insure the solution of all the alkaloid in the acid, by patiently stirring with a glass rod, where residues contain portions of other material which might entangle them and so protect portions of them from its action.

The use of decinormal iodine and sodic thiosulphate, as in Dr. Prescott's process for assaying opium, seems to possess the same advantages as the use of acid and alkali, but I have thus far tried the process but once and cannot speak from experience. Titration by Mayer's reagent possesses few advantages, as in order to secure reliable results, the determination must be accompanied by an exactly similar check experiment which entirely does away with the supposed saving of time and labour. It is, however, very serviceable for the comparative valuation of drugs for commercial purposes. Again it is possible with some alkaloids, for example, aconitine and some of its relatives to determine certain of their products of saponification (in this case benzoic acid) and from this to calculate their amount. In three samples of aconite, tried some time ago, I did not find this method to correspond with Squibb's physiological test so closely as I had been led to suppose it did.

To prepare preparations of definite strength from these drugs it is necessary to adopt some standard of alkaloidal content for each, and then to use a proportionately larger or smaller amount of the crude drug; for example, if 0·350 per cent. of atropine be adopted for belladonna leaves and the sample on hand be found to contain but 0·250 per cent. our calculation would simply be as follows: as 0·250 per cent. is to 0·350 per cent., so is 150 grammes to x (210 grammes), the amount required for preparing extract of belladonna of the standard strength.

Such standards, with accompanying methods of assay, it is very desirable that the revisors of the United States Pharmacopœia shall adopt. Without doubt many of them would eventually be found not to be the most suitable, and in succeeding revisions would be replaced by others, but would they not be far better than no standards at all? The old assay process for opium was the cause of some considerable dissension, yet it served its purpose at the time, and to it is largely due the more satisfactory process of to-day. Even the formulæ for the galenical preparations themselves have required frequent alterations. Furthermore, it might be said that the presence of the three assay processes in our present Pharmacopœia has instilled an interest in these matters into men from whom otherwise they would have received no attention.

At present the figures adopted by manufacturing houses are principally the results of their personal experiences. and frequently differ. In hospital work I have used for some time those given in the list which follows, which differ but little from those of a well-known manufacturing house, and which I have found to represent the average content of good samples of the drugs, but not the average content of the drugs as they frequently occur in small quantities on the market for the past several years:—

Powdered opium; 15 per cent. of morphine.

Nux vomica; 1·5 per cent. of total alkaloids.

Cinchona; 5 per cent. of total alkaloids.

Hyoscyamus; 0·150 per cent. of alkaloid, calculated as $C_{17}H_{23}NO_3$.

Belladonna leaves, 0·350 per cent. of alkaloid, calculated as $C_{17}H_{23}NO_3$.

Belladonna root, 0·450 per cent. of alkaloid, calculated as $C_{17}H_{23}NO_3$.

Stramonium leaves, 0·375 per cent. of alkaloid, calculated as $C_{17}H_{23}NO_3$.

Aconite root; 0·500 per cent. of alkaloid (physiological test 1 to 600).

Coca leaves; 0·500 per cent. of alkaloid, calculated as $C_{17}H_{21}NO_4$.

Colchicum seed and root; 0·500 per cent. of total alkaloids.

Sanguinaria root; 1·000 per cent. of total alkaloids.

Kola; 2·000 per cent. of caffeine.

Guarana; 3·000 per cent. of caffeine.

Hydrastis; 2·000 per cent. of hydrastine.

Ipecac; 1·750 per cent. of total alkaloids.

Gelsemium (little used); 0·350 per cent. of total alkaloids.

Pilocarpus (little used); 0·350 per cent. of total alkaloids.

Veratrum viride (little used), 1·000 per cent. of total alkaloids.

Digitalis, strophanthus, and a number of others are regularly assayed, but we do not as yet attempt to standardise the preparations made from them, as we do with alkaloidal drugs, while those which are incapable of being assayed chemically are examined microscopically for the purpose of identification and for determining as far as possible their freedom from foreign material. All are purchased in the powdered condition. Preparations manufactured from the above drugs are made to contain their several amounts of active bases by the method before indicated, irrespective of the amount of crude drugs required; and we are able to observe a corresponding uniformity of action of the extracts, etc., made from different samples of the same drug.

Below are recorded the results of a number of assays that the reader may compare the figures with those given above. The different lots of the same drug were in each case obtained in small quantities at different times, and I think represent more or less correctly the variation which exists in these drugs as they reach the retail pharmacist.

Powdered opium: Sample (1), 14·24 per cent.; (2), 14·67 per cent.; (3), 12·72; (4), 14·11.

Red cinchona; (1), 4·740 per cent. total; (2), 3·857 per cent. total.

Nux vomica: (1), 1·234 per cent.; (2), 1·892 per cent.; (3), 1·132 per cent.; (4), 1·505 per cent.; (5), 2·518 per cent., 2·00 per cent.*

Aconite: (1), 0·321 per cent.; physiological test, 1—600; (2), 0·2043 per cent.; physiological test, 1—200; (3), 1·285 per cent.; physiological test, 1—700; (4), 0·183 per cent.; physiological test, 1—80; (5), 0·477 per cent.; physiological test, 1—700.

Hyoscyamus: (1), 0·1085 per cent.; (2), 0·1274 per cent.; (3), 0·070 per cent.; (4), 0·052 per cent.; (5), 0·242 per cent.

Belladonna leaves: (1), 0·236 per cent.; (2), 0·144 per cent.; (3), 0·382 per cent.; (4), 0·471 per cent.

Kola: (1), 2·250 per cent.; (2), 2·29 per cent.; (3) 1·254 per cent.

Stramonium leaves: (1), 0·422 per cent.; (2), 0·517 per cent.; (3), 0·281 per cent.

Coca leaves: (1), 0·415 per cent.; (2), 0·424 per cent.; (3), 0·727 per cent.; (4), 0·480 per cent.

Sanguinaria: (1), 0·918 per cent.; (2), 0·911 per cent.

Gelsemium: (1), 0·770 per cent. (crude); (2), 0·416 per cent. (crude).

Ipecac: (1), 1·762 per cent. (crude).

Guarana: (1), 1·365 per cent.; (2), 1·314 per cent.

Hydrastis: (1), 1·726 per cent.; (2), 1·314 per cent.

The opium, cinchona, and nux vomica were assayed by the United States Pharmacopœia processes; the aconite by Wright's modification of Dequesnel's process, using, however, ammonia in place of sodic carbonate. Samples one and two were titrated with decinormal acid and calculated as aconitine. Squibb's physiological test was tried with all and is by far the most reliable. The hyoscyamus, stramonium, and belladonna were assayed by Dunstan and Ransom's process; titrating with decinormal acid and calculating the alkaloid as $C_{17}H_{22}NO_3$. The coca, hydrastis, and gelsemium were assayed by Lyons' processes, titrating with acid for the first

* The first of these samples was extracted by continuous hot repercolation the second by allowing the drug to macerate four days with ten times its amount of alcohol.

two, the last simply being weighed as crude alkaloid. The guarana was assayed by Squibb's process, and the kola by extracting with chloroform, evaporating to dryness, taking up the residue with successive portions of hot water, filtering, shaking out with four portions of chloroform, evaporating and drying to constant weight. The ipecac was extracted with chloroform and alcohol, evaporated, taken up with acid water, filtered, rendered alkaline with ammonia, shaken out with chloroform, evaporated and dried for weight; while the sanguinaria was extracted with alcohol, evaporated, taken up with acid water, filtered, shaken out with ether, evaporated, and titrated with decinormal acid.

By taking the figures from some older assays, which were obtained by different methods, the above list might have been made more complete, but the comparison would not have been a just one, and even then it would probably have appeared insignificant beside the mass of figures which might be collected in a large manufacturing plant. I hope, however, that those given, showing the wide variation which some of them do, will aid in demonstrating the justness of the foregoing argument. If our revision committee could see their way clear to adopt definite, although perhaps for the present, merely provisional standards for the more important of them, I think they would have taken an advance step equal to the one taken in the introduction of the cinchona and nux vomica assays of the present volume. The naming of maximum and minimum percentages, as in the case of powdered opium, would probably be satisfactory for the drugs themselves, but the preparations made from them should be of as constant alkaloidal strength as possible.

NOTE.—For information concerning assay processes, I would recommend the United States Pharmacopœia for cinchona, nux vomica and opium; Prescott's 'Organic Analysis,' the work of Dragendorff, or the smaller one of Dr. A. B. Lyons. A very complete work on the alkaloids themselves is that of Dr. Icelus Guareschi, translated into German by Dr. Herrman Kuntzkraus, 'Einführung in das Studium der Alkaloide.'

PHOTOGRAPHY WITHOUT LIGHT.*

BY DR. VICTOR SCHUMANN.

Dr. W. J. Russel has lately discovered that certain substances exposed in the dark room for several days act upon the photographic plate. That tin is one of these is certain. I proved two years ago its influence on dry gelatino-bromide emulsion. I have also recently repeated Mr. Russel's experiments as far as they refer to tin and gelatin dry plates.

I applied the tinfoil sheets (which are sometimes manufactured of the thin commercial article, and sometimes of thicker material) in several ways. Some of the sheets were exposed at least eight days in the dark; some I exposed to the daylight, and others to sunlight. Before the application each sheet was polished with soft leather and Paris red upon a layer of plate glass, then laid in dark-room light on gelatin dry plates, and exposed from one to thirteen hours of steady light. Some of the sheets, by this process, showed a heavy impression, others rather less, and still others only a very light impression. To bring this out, pyro soda is useful with some bromide of potassium. The result of these experiments was unimportant from beginning to end. On no one slate had any reduced effect been produced; and a distinct discolouration of the plates, as I had obtained with tin, could be still less expected here. I merely mention that I had no better success in the same treatment with optical glasses of brass and steel. I found no inducement to continue my researches in this direction.

If anyone concludes that the same is true in regard to gelatino-bromide emulsion of tin, he is very much mistaken. My remarks on this subject should prove the contrary by my various experiments with tin; besides, I am far from wishing to write, in this work, of the dark rays of tin. It has rather to do with electro-chemical effects which take place between the metals and silver alloy.

To a better understanding of my remarks, I will place the results of my researches in the following order: On two glass plates rubbed with weak gelatin bromide silver (ultra-violet sensitive plates of my restoring process), I lay in dark-room light two thick tinfoil frames. To obtain a close contact, the plates and foil in the copy frames should be firmly pressed together. Then I place one frame in daylight, the other is exposed in the dark. After a few days each plate shows an almost perfect black impression of the foil. The foil itself has taken on the black spots of the plate; it has lost its mirror-like smoothness, and is of a dirty grey colour. The impression of the one exposed to the light differed very slightly. The light has consequently not acted upon the impression visibly.

That the tin had acted in a far shorter contact I perceived by developing such a contact plate. I make this exception to the unlooked-for appearance of my experiment to the lower part 1,000 A°E photographic rays.

The already-used plates must be covered almost to the full spectrum of a corresponding rectangle. I chose one with a fitted segment between the casette wall and tinfoil plate of the whole size of the plate. During from half to one and a half hour's pressure, the plates and tinfoil are in an atmosphere of hydrogen gas under a pressure from ten to twenty mercury columns. The duration of the contact was longer than the exposure to the light. I make the exposure longer, especially the exposure secondary, as the spectrum rays have not acted to a certainty on the tinfoil.

Then there, where the spectrum band falls on the tinfoil (that was on both sides of the segment), no visible effect was ever produced. The plates were coloured, with few exceptions, when the whole space was disclosed, only near the edge, which was surrounded in larger or smaller spaces with peculiarly-formed spots in lined succession. In the centre of these spots could be distinguished small silver shining rings with a high light of the colour of the negative. Feathery shapes passed through the high light-like rays coming from the centre, which, however, were produced by the metallic residuum under the action of the tinfoil in the electro-chemical process and the development of salt crystals. The spots are of several sizes. Some are as broad as the plate and disperse in the form of tiny flames; most of them seem like little aureoles around the shining ring.

Nowhere is formed a correct impression of the tinfoil layers. This circumstance should not appear strange, as an intense pressure of the plate on the tinfoil, as in copy frames, was not to be obtained. In a striking way, the larger spots extended over the cut-out segment where the direct influence of the tin was impossible. I surmise that in the contact they receive the ingredients of tinfoil (Sn.Cu.Pb.Fe.Ni.), and the silver haloids pictured in the development are spread over the plate and also over the cut-out segments, and have taken on the colouring of the unlighted remaining suffusion. It is less easy to explain where, on the contact plate, the necessary fluid acts in the electro-chemical process, for the plates are well dried and kept particularly from dampness. That the hydrogen gas which followed the exposure should be used for that purpose is not probable. On the other hand, the remaining ones without the tinfoil sheet, there, where they lay on the edge of the metal case, also show spots. That in truth a fluid has formed between the tin plates seems probable, as they cling so closely together after the exposure, quite as though they had been glued.

It may seem that these spots are surface blemishes of the plates or the work of pressure, but those produced by tin are so radically different from surface defections and from the colouring of those produced by pressure that the confusion of the two is impossible.

I did not pursue these experiments further. Therefore, as they resulted solely as sporadic appearances of other observations, they can raise a slight claim to integrity. What remains for me is to remark on the sameness of both Mr. Russel's experiments and my own. But at the same time this also shows how carefully one must go to work for an explanation of supposed photographic light workings if one does not wish to run into the danger of mistake in the work.

* From the *Photographic Times*.

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THE STANDARD OF EDUCATION IN SCOTLAND.

A Report on secondary education in Scotland for the year 1899, by Sir Henry Craik, K.C.B., deals with the inspection of higher class schools and the examination for leaving certificates, and possesses special interest for pharmacists in view of the fact that after August, 1900, the preliminary examination of the Pharmaceutical Society will be abolished, and the leaving certificates (honours, first grade, and lower grade) of the Scotch Education Department will be accepted, among others, in lieu of passing that examination. The number of candidates who have presented themselves this year for the leaving certificate examination is 15,377, as against 16,262 last year, but the number of separate papers worked by the candidates (51,052, as against 51,649) shows that while the number of candidates has diminished, the number of subjects taken by each has increased. It is suggested that it would not be a matter of regret if the number of candidates showed still further signs of diminishing, owing to the exercise of greater discrimination in the selection of candidates, many of whom are presented each year with totally insufficient preparation. At the same time, the candidates presented are said to be better prepared in general, a slight increase in the proportion of passes obtained when all the subjects are reckoned being attributed to that cause. It is stated, however, to be still apparent that a large number of candidates have been sent in who have not reached anything like the required standard, and that some school managers and teachers have not yet realised what that standard is. The first and principal end of the leaving certificate examination, as defined in this report, is "to fix a standard for scholars who have gone through a course of secondary education fairly suitable for the country generally, and neither to discourage schools by asking too much nor to degrade the certificate by bringing it down to the level of inadequate work." But the lower grade certificate—one of those accepted by the Pharmaceutical Society—is said to seem to be too frequently aimed at by "those who have nothing but the most elementary and fragmentary knowledge of a subject."

In regard to lower grade English the passage for dictation proved a stumbling-block for many; but, on the whole, the spelling was fairly good and the grammar was also satisfactory, whilst many succeeded fairly well with the grammatical analysis. "In the answers to the literary questions, and in those on history and geography, there is evidence of more careful teaching, but many of the examiners complain of the lack of any notion of historical proportion, of hopeless confusion as to well-known names, and of considerable second-hand knowledge crammed from a text-book. But the worst feature of the examination is the lack of general intelligence, and of power of composition, shown in the paraphrase and in the essay." In fact, it is said to be evident that composition is insufficiently taught in most of the schools, and that the power of grasping with intelligence the general drift of a passage is one in which the pupils generally are very defective. "The habit of dividing the essay into paragraphs, and even of following any principle of punctuation, is evidently neglected, and the intelligence of the pupils is not sufficiently trained in grasping and in expressing in straightforward language the general meaning of a passage." As Sir Henry pertinently remarks, since the chief objects in the teaching of English as a school subject must be "to acquire facility in the use of the language as an instrument, and a clear apprehension of it as a means of expressing lucid ideas," some knowledge of the structure and growth of the language is of great importance as an aid towards those objects. But, apparently, that view does not prevail generally throughout Scotland.

The candidates for the lower grade certificate showed considerable evidence of a good drilling in the rules of Latin grammar, but the power of applying those rules in simple composition is rare; candidates are often very weak in grasping the meaning of a passage in translation, and rarely attempt to translate into good English. Frequent instances led to the conclusion that some of the pupils had been allowed to take up a larger number of subjects than they could study with profit. The lower grade mathematics appear to have been satisfactorily taught, and in the arithmetic examination a satisfactory feature was a falling-off in the proportion of candidates who were evidently quite unprepared for the examination. There were, however, indications that the teaching of arithmetic is too often of a very mechanical kind, and that scholars have not sufficient practice in working problems. "The question on the metric system was very badly answered. Many candidates did not know what a millimetre is, while others when told to express an inch in millimetres expressed a millimetre in inches. The question on interest also revealed a great want of power to think out the meaning of a simple problem." The work in algebra was, as a whole, satisfactory, but dishonest methods prevailed in the solution of problems. In geometry there was shown an intelligent apprehension of elementary geometrical reasoning, but many answers were incomplete, and there was a want of appreciation of relative magnitudes. The lower grade French paper was also fairly satisfactory, the grammar questions being generally answered with considerable accuracy and the composition fair, though with a limited vocabulary. With regard to

the German papers, they revealed many defects, but there was evidence of some slight advance in the general standard, though both the German composition and the translation from German left room for great improvement.

In conclusion, reference must be made to the fact that, according to this report, strong representations continue to be made in favour of the issue of leaving certificates, not in single subjects, but in groups. The argument against grouping is said to be that it might appear to impose a certain fixity of curriculum upon the schools; on the other hand, it is stated by Sir HENRY CRAIK that such grouping would undoubtedly represent a more satisfactory scheme of a comprehensive secondary education. It is suggested that, as a preliminary experiment, it may be well to begin by issuing such grouped certificates, in addition to any issued in single subjects, and it is thought that the value of such grouped certificates would soon make itself felt. Ultimately, it is to be hoped, no certificates will be issued in single subjects, and with that object in view it would be as well if the Scotch Universities were to decline to accept certificates in single subjects—whether in the lower or higher grade — from candidates for registration as medical students; they should also decline to accept certificates from more than one examining body, in the case of one and the same student.

THE GERMAN APOTHEKER-VEREIN.

THE present position of chemical investigation connected with pharmacy was the subject of an interesting address delivered by Dr. THOMS at the annual meeting of the German Apotheker-Verein held this week at Danzig. After a brief reference to the conditions prevailing at the time when the apothecary's laboratory was the birthplace of modern chemistry and to the great changes that have been brought about in the practice of pharmacy by subsequent progress in commerce, manufacturing industry, and science, Dr. THOMS proceeded to deal with the opinion held by some that pharmacy as an art is in danger of extinction, and of becoming a mere branch of trade. He gave an emphatic denial to the inference that nothing can be done to prevent that result. Unfavourable as existing conditions may be in some respects for a continuance of pharmaceutical work on the same lines as formerly, the possibility of maintaining for scientific pharmacy a position worthy of its past history was strenuously affirmed. But for that purpose, adaptation to modern requirements must not be confined to acquiring a superficial or more theoretical acquaintance with the various branches of science connected with pharmacy; the pharmacist of the future must on the contrary have a thoroughly practical training in the work requisite for carrying out investigation, and for dealing with analytical and other questions that may be submitted to him in the exercise of his business. Reference was made to the publications in the *Archiv der Pharmacie* as showing that the cultivation of capacity to carry out such investigations is productive of useful results, and that the German Apotheker-Verein may well be proud of the work it has done in that direction. On such lines alone can the practice of pharmacy be maintained at a scientific level and the pharmacist become an authority in all matters relating to the use of drugs, instead of a mere vendor of medicinal articles.

ANNOTATIONS.

THE GENERAL MEDICAL COUNCIL, as is now well known, is considering the advisability of revising the list of certificates accepted from candidates for registration as medical students, and the *Athenæum* announces that the Rev. T. W. Sharpe, formely H.M. Inspector of Schools, has been invited by the Council to give an expert opinion for its guidance on the various "junior" examinations which it has been customary to recognise as preliminary literary tests for intending medical students. The opinion is to extend to "the regulations, requirements, standards, etc., as well as the answers and the markings of candidates" in the several examinations.

DOCTORING BY CONTRACT was the subject of a lengthy article in last week's *Truth*. The editor of that paper has had sundry opportunities of enlarging his knowledge of medical aid associations, partly by communications from medical practitioners in different parts of the country and partly by interviews with one or two gentlemen who may be regarded as "specialists" upon the subject. As a result, he thinks it is perfectly evident that those associations lead to serious abuses, against which the medical profession at large has the best possible right to make a stand. Most of the abuses are said to arise out of the fact that the majority of the associations are practically the speculations of one or two individuals who promote and run them for their own profit. Those individuals make their own terms with the doctors and secure as many members as they can possiby get hold of, without regard to income, age, condition of health, or any other circumstance, and the whole revenue collected from those subscribers goes into the pockets of the promoter-proprietors, after payment of the doctors' salaries and the working expenses. "Under this system the association doctor is simply reduced to the position of a paid servant of a commercial concern, carried on by a layman who undertakes to supply medical attendance to all comers at so much per head." Few people, it is urged, will contend that this is a desirable position for a professional man to occupy. "It is wrong in principle, and it leads in practice to results equally prejudicial to the doctor and the patients." For the doctor employee is necessarily sweated, his pay being fixed by competition, instead of being determined by a more or less definite professional scale.

THE SAME ARGUMENTS may well be employed in connection with the practice of pharmacy by joint-stock companies consisting of unqualified persons. In that case, of course, there is no question about the qualified persons employed being simply the paid servants of commercial concerns carried on by laymen. The latter reap the profit of the business which the registered chemists they employ are alone qualified to transact, and the public is placed at a distinct disadvantage by reason of the chemists who are supposed to be in charge not having perfect liberty of action. The latter are engaged on a purely commercial basis, with the object of doing as much business as possible for the companies employing them, and they are obviously not free to exercise the same discretion as registered chemists who are in business on their own account. The responsibility, in fact, rests with the shareholders of the company, none of whom are competent to bear or willing to accept it, and so long as satisfactory dividends are paid the safety of the public may take care of itself. If any accident should happen the chemist employee is discharged, someone else is engaged in his place, and business goes on as usual, all the blame being cast on the discharged servant who has been replaced by another chemist willing to be sweated. It will, of course, be urged that chemists employed by companies frequently earn more than would be the case if they were in the employment of individual proprietors, but

that argument does not affect the main question. In any case the duly qualified person who enables a company of laymen to carry on the practice of pharmacy by hiring his qualification, submits to being sweated unless he receives every penny of profit earned by his assistance. That is not necessarily the case when one duly qualified person acts as assistant to another. To a considerable extent the chemist's assistant is acting as such with the object of gaining experience, and his contract with his employer is a kind of limited partnership. The longer he stays in the same place the more he increases his professional capital, whereas in the store of an unqualified drug company he is providing the whole of the professional capital from the outset, and he is worse off, as a whole, when he severs his connection with the company than he was at the beginning.

It is Contrary to Public Policy and to the intention of the Pharmacy Acts that the practice of pharmacy should be undertaken as a business by unqualified laymen, through the instrumentality of qualified chemists in the position of paid servants, just as much as it is contrary to public policy and to the intention of the Medical Acts that medical treatment should be so undertaken. To get rid of the system, in the latter case, *Truth* would insist that the medical aid association should be a *bonâ-fide* one, controlled and managed by the members through a proper committee, and that the whole of the receipts, after all working expenses have been met, should go to the medical officers. But it may be taken for granted that no such plan would commend itself to the shareholders in joint-stock companies which carry on the business of a chemist and druggist, through the medium of duly qualified persons. If they are not to share the profit, their object in carrying on the business would cease to exist. The plan suggested by *Truth*, therefore, while perfectly applicable in the case of medical aid associations, will not meet the pharmaceutical difficulty. Possibly, however, the enterprising editor of that important organ of public opinion may be able to devise some other scheme, which may fit the circumstances better, and he may not be indisposed to devote attention to the subject at this dull season of the year, if pharmacists in different parts of the country will communicate with him, and more especially if one or two gentlemen who may be regarded as "specialists" upon the subject will interview him. He has already shown that he is to some extent convinced that the practice of pharmacy by companies of unqualified persons leads to serious abuses, and it may not be difficult to induce him to assist the chemists of Great Britain to exercise their undoubted right to make a stand against those abuses.

The British Association for the Advancement of Science will meet at Dover early next month, under the Presidency of Sir Michael Foster, and the meeting promises to be of especial interest, inasmuch as visits are to be interchanged with the French Association for the Advancement of Science, which will be holding its sessions at Boulogne about the same time. The first general meeting will be held at the Connaught Hall, Dover, on Wednesday, September 13, when Sir Michael Foster will take the chair in succession to Sir William Crookes, and deliver his presidential address On the following evening there will be a soirée in the School of Art, and on the Friday evening Professor Charles Richet will deliver an address on "La Vibration Nerveuse," whilst on the Saturday evening he will lecture on "The Centenary of the Electric Current." In the Mathematical and Physical Science Section, Professor J. H. Poynting will preside; in the Chemistry Section the president will be Mr. Horace T. Brown; the presidents of the other sections will be :— Geology: Sir Archibald Geikie; Zoology: Mr. Adam Sedgwick; Geography: Mr. John Murray; Economic Science and Statistics: Professor Henry Higgs; Mechanical Science: Sir W. H. White, Chief Constructor of Her Majesty's Navy; Anthropology: Mr. C. H. Read; Physiology: Mr. J. N. Langley; Botany: Sir George King. A special feature of the Association will be demonstrations of Signor Marconi's wireless telegraphy, and the Rev. Mr. Bacon is expected to give an address on his recent balloon experiments. There are also to be several excursions to places of interest in the neighbourhood of Dover and to the Continent. The members of the French Association will visit Dover on Saturday, September 16, and the members of the British Association are invited to visit Boulogne on the following Thursday.

So-called "Wireless" Telegraphy is proving itself to be well within the limits of what is practical, and Signor Marconi has given a Press representative some interesting information with reference to the arrangements for the wireless telegraphy demonstrations at the forthcoming meeting at Dover of the British Association. The headquarters of the British Association will be at the Town Hall, and it is here that the French and English scientific visitors are to have the opportunity of witnessing some wireless telegraphy experiments. During the meeting the demonstrations will be in charge of Professor Fleming, of University College, London, and messages of congratulation will probably be exchanged between Dover and different parts of Europe. Trial between Dover Town Hall and the lighthouse at St. Margaret's have been a complete success, the tests applied yielding the most satisfactory results. An attempt to send messages direct between Dover Town Hall and Boulogne will be made if circumstances permit. The installation at Wimereux, near Boulogne, is the property of the French Government, and it is said to be possible to send direct communications, if certain alterations be made on the French side of the Channel. As stated above, the French Society for the Advancement of Science will be holding its annual conference at Boulogne at the same time as the British Association at Dover, and as both societies will be co-operating and exchanging courtesies, it is thought that there will be no difficulty in obtaining the necessary consent of the French Government. Otherwise messages will be sent across the Channel between Dover and Boulogne *via* the South Foreland. The results of the demonstrations with wireless telegraphy made during the recent naval manœuvres is said to have established the fact that, even with the present installation at the South Foreland lighthouse, messages can be exchanged with a fleet as far down Channel as Cherbourg, a distance of about one hundred miles, and even further.

Russian Weights and Measures are the subject of a new regulation recently officially published. According to the *Times* the Russian pound is fixed as the standard of weight and declared to be equal to 409·512 Gm., a pail or vedro is to hold thirty pounds of distilled water at $16\frac{2}{3}^{\circ}$ (Celsius), and a garnietz eight pounds of water. The unit of length is the arshin, equal to 71·12 centimetres. The metric system is to be optional, and may be used on a par with the Russian in commerce in dealing with contracts, accounts, etc., and after mutual agreement by State and municipal authorities. Private persons, however, are to be under no compulsion to use the metric system when dealing with the above-named authorities.

Tuberculosis in the German Army is the subject of an article in the *Militär-Wochenblatt*, and quoted by the *Times*, from which it appears that the number of cases of tuberculosis in that army has fallen from 2·9 per thousand in 1890-91 to 1·8 per thousand in 1898-99, the death-rate for the same periods from this disease being 0·42 and 0·24 per thousand. In the Bavarian army the decrease in cases has been 2·3 and in the death-rate 0·32 per thousand. The number discharged from the German army on account of the disease during the five years ending in 1896 was 7,205, or 51·9 per thousand

of those discharged for any reason whatsoever. It must be remembered that no man is admitted into the army who in the medical examination which precedes entrance is found to be suffering from the disease; apparently, therefore, it is contracted in the army. The chief predisposing cause is stated to be a "cold"; the next in importance is the strain of military duty, but this does not include the blowing of musical instruments, which comes under a separate heading. The treatment was more or less successful in 23·3 per cent. of the cases; in 1·2 per cent. a perfect cure was effected. In the remaining 76·7 per cent. the treatment failed, and death resulted in 16·1 per cent. The decrease in the number of cases in recent years is attributed largely to the discovery of the bacillus of the disease by Koch in 1882, owing to which it is easy to detect the disease and reject recruits suffering from it who would otherwise have passed the medical examination.

THE BARKING SANITARY AUTHORITIES have been distributing mercuric chloride and hydrochloric acid for disinfecting purposes in a way that seems rash, to say the least. At an inquest held at Barking last week, it was shown that a woman of sixty-three had received a quantity of the above poisonous mixture from a sanitary officer, with instructions to dilute it with twenty-four quarts of water and use it for disinfecting purposes in her house, where there had been several cases of typhoid fever. According to a local newspaper, there was sufficient poison in the bottle to kill three hundred people, As the result of a family squabble, the woman drank part of the contents, and in spite of prompt attention on the part of a medical man she died shortly afterwards. The Coroner thought "it seemed a little bit loose to give such large quantities of poison to ignorant people without some care being taken to see how it was used," and the foreman of the jury agreed with him. There is, of course, no legal restriction on the free distribution of poisons by sanitary authorities, but it does seem advisable for the necessary work of disinfection to be performed by the sanitary officers or other competent persons. It is certainly unwise to put mercuric chloride into the hands of ordinary householders for disinfecting purposes.

ANTON SCHURER VON WALDHEIM, President of the Gremium of Pharmacists of Vienna, and Vice-President of the Austrian Pharmaceutical Society, died on Sunday, August 13, in his seventieth year. By his death the list of honorary members of the Pharmaceutical Society of Great Britain is still further diminished, Herr von Waldheim having been elected an honorary member in May, 1887. He was at one time with the firm of John Bell and Co., Oxford Street, London, and was chiefly known to the pharmacists of other countries by reason of his connection with the scheme for publishing an international pharmocopœia. Thus, he was Chairman of the International Pharmacopœia Commission at Vienna, and editor of the draft International Pharmacopœia submitted to the International Pharmaceutical Congress held at Brussels in 1885.

THE SCHOOL OF PHARMACY reopens for the work of the fifty-eighth session on Monday, October 2, on the afternoon of which day an address will be delivered to the students by Professor D. J. Leech, of Owens College, Manchester, and the prizes will be presented to the successful students of the past session by the President of the Pharmaceutical Society—Mr. William Martindale. Meanwhile, the accommodation in the chemical laboratory at 17, Bloomsbury Square, is being considerably extended. Last year the number of applications for benches was so great as to necessitate the absorption of the pharmacy laboratory into the chemical department, and as further pressure on space is anticipated during the coming session, the benches in the main laboratory are being rearranged so as to permit of the admission of an increased number of workers. At the same time, the electric light is being installed in the lecture theatre, museum, library, and other parts of the Society's premises.

THE STUDENTS' NUMBER of the *Pharmaceutical Journal* will be published on September 9 next, and the principals or secretaries of colleges and schools who have not yet sent particulars of special courses of instruction for pharmaceutical students are invited to send the necessary information forthwith. The essential points should be stated as briefly as possible, the object being to furnish students with a general idea of the facilities offered rather than to overwhelm them with details which can be referred to subsequently in the college and school prospectuses. In particular, the names of lecturers, length of courses, fees payable, etc., should be stated, so that students may be able to compare the arrangements of one school with another, and make their choice accordingly.

THE BACTERIAL TREATMENT OF SEWAGE is the subject of an important paper by Mr. D. Pidgeon, which appears in the journal of the Royal Agricultural Society. The author points out that, though it is more than forty years since Pasteur demonstrated that there can be no fermentation in the absence of organisms capable of breaking down into simpler forms all the organic *débris* of the world, the methods of sewage disposal have remained half-hearted attempts to assist the world's scavengers in their appointed work. Hence, the sludge tank and broad irrigation are still employed, apparently with a view of lightening labours adjudged to be too great for the unaided microbe; while such work as might be hoped for from the organism, whether on the sewage farm or elsewhere, is carried on under conditions by no means favourable to microbial life. To improve, and, if possible, perfect those conditions, is the object sought by the bacterial treatment of sewage. At the beginning of the present decade certain experiments made at the town of Lawrence, in Massachusetts, resulted in proving that success in the filtration of sewage depends upon the very slow motion of exceedingly thin films of liquid, over the surfaces of particles having spaces between them sufficient to allow air to be in continual contact with the films, certain bacteria being present to aid in the process of nitrification. The effluents from the filters were found to include less organic impurities than most of the drinking water supplies of the State.

THE MASSACHUSETTS EXPERIMENTS were speedily supplemented by others which were made in England. Notably Mr. Scott-Moncrieff began to study the "biolysis" of sewage, basing his investigations on the consideration that since all effete substances can be dealt with by nature without assistance from chemicals, the problem resolves itself into discovering such artificial methods as would enable this agency to deal with the impurities contained in sewage on any scale, however large, at a reasonable cost, without creating a nuisance, and without the use of chemicals. He devised a "cultivation tank," carrying a layer of flints about fourteen inches deep through which the crude sewage runs. This tank is really a nidus, suitable for the growth and multiplication of the anaerobic organisms. The fresh sewage, not yet deprived in the sewers of all its oxygen, is attacked, on entrance, by aerobic organisms which, as the supply of the vital element at their command in the influent becomes exhausted, leave what remains of the food supply to such anaerobes as find a congenial home in the airless layers of the flint bed. Those so thoroughly complete the work of decomposition and final liquefaction that practically no sludge results, while the effluent contains all the solids and liquids which were present in the raw sewage, resolved into simpler forms indeed, but also deprived of a considerable proportion of the original impurities, which have disappeared by conversion into carbonic acid, marsh gas, hydrogen, and nitrogen. By supplementing the cultivation tank with a nitrifying chamber sufficient assistance is afforded to the aerobic organisms to permit of the process of nitrification being carried to such an extent as to produce a filtrate containing in solution enough nitrates to give it a commercial value.

SELECTED PRACTICAL FORMULÆ.

Gelatin Serum for Hypodermic Injection.

The value of gelatin as a hæmostatic is causing it to be freely prescribed on the Continent, both as a local application and for hypodermic injection. For the latter purpose a one or two per cent. solution in artificial serum is generally employed. Thus, a general formula for hypodermic injection of gelatin is—Finest white gelatin, 10 to 20 Gms.; sodium chloride, 5 Gms.; pure sodium carbonate, 2 Gms.; distilled water to 1,000 Gms. The solution should be thoroughly sterilised. For local application a stronger solution of pure white gelatin, 10 Gms.; sodium chloride, 10 Gms.; distilled water, 500 Gms. is employed. The gelatin in both cases is cut up small, and dissolved in the saline solution with a gentle heat, filtered through a Chardon filter, previously washed with hot distilled water, then filled into suitable flasks, plugged with cotton wool, and sterilised in the autoclave at a temperature of 100° C. Care must be taken not to exceed 105° C. during this sterilisation, or the hæmostatic power of the gelatin will be destroyed. Sterilisation may be effected in a water-bath, but in this case, great care is necessary to avoid deterioration of the coagulating properties of the gelatin.—*Petit Mon. Pharm.*, **49**, 3303.

Pomades for Falling Hair.

(1) Beef marrow, 20; castor oil, 10; gallic acid, 1. Melt together. (2) Beef marrow, 20; sweet almond oil, 10; quinine sulphate, 2; balsam of Peru, 1.—*Bull. comm.*, **27**, 326.

Universal Cement.

Glass, in the finest powder, is mixed to the desired consistence with white of egg. Broken glass, marble, porcelain, and crystal joined with this cement set so hard that they may be broken again in another part, but not where first cemented.—*Petit Mon. Pharm.*, **49**, 3,315.

To Cement Broken Amber.

Moisten the fractured surfaces with solution of caustic potash; join them together, and hold them for a few minutes over a charcoal fire, then cool. When the joint has been well done, it is imperceptible.—*Petit Mon. Pharm.*, **49**, 3,315.

Nail Lotion.

Sulphuric acid, 10; tincture of myrrh, 5; distilled water, 125. Moisten the nails night and morning with a little of this liquid on a piece of cotton wool. Polish them with a piece of chamois leather.—*Petit Mon. Pharm.*, **49**, 3,315.

Lip Salve.

Hard paraffin, 160; vaseline, 160; ethereal extract of alkanet (alkannin), 1; oil of bergamot, 2; oil of lemon, 2. Melt on the water bath, run into glass tubes 1 cm. in diameter; when cold, gently warm the tubes, push out the cerate with a glass rod, and cut into suitable lengths.—*Formulary of Bull. Gen. de Therap.*, **138.**

Remedy for Anæmia.

Pilules composed of artemisin, 0·1 milligramme; crystalline quassia, 0·1 milligramme; ferrous oxalate, 10 centigrammes, are much prescribed in Vienna for anæmia. Two such pilules are to be taken twice daily, before meals.– *Formulary of Bull. Gen. de Therap.*, **138.**

Egg-laying Stimulant for Fowls.

Bone meal, linseed meal, dried meat, spent lime, and oatmeal, of each 2 lb.; red pepper and sulphur, of each 2 oz.; salt and iron sulphate, of each 4 oz. Mix, and give one teaspoonful per hen, in soft food, three times a week.—*Cape Agric. Journ.*, **15**, 125.

Paste for Juvenile Acne.

Veiel employs the following paste in the treatment of juvenile acne:—Sulphur, alcohol (90 per cent.), and water, of each 20 Gm.; mucilage of acacia, 6 Gm. Mix. To be applied night and morning to the affected parts; if irritation is produced a paste of boric acid containing from 1 to 50 per cent. of sulphur is substituted, according to the sensibility of the skin.—*Formulary of Bull. Gen. de Therap.*, **138.**

Draught of Extract of Male Fern.

Ethereal extract of male fern, 3 Gm.; tincture of vanilla, 3 Gm.; syrup of turpentine, 25 Gm.; powdered acacia, 2 Gm.; distilled water, 25 Gm. To be taken in an equal quantity of milk, and followed, after the lapse of several hours, by a dose of castor oil.—*Formulary of Bull. Gen. de Therap.*, **138.**

SOME NEW PREPARATIONS OF CALENDULA.*

BY GEORGE M. BERINGER.

Although calendula is official, it has not received very extensive use. Nor do the dispensatories look upon marigold as possessing any special remedial value, the tincture being referred to as "probably of as much value as simple alcohol."

The drug has, however, met with more favour in homœopathy, and several preparations are quite popular. Recent indications point to the fact that physicians of the old school are beginning to test it.

The fluid extract and tincture are the preparations heretofore used, and the latter is displacing tincture of arnica for local application. In dental practice it is likewise displacing tincture of myrrh, and seems to be preferable for a mouth-wash.

The florets carefully dried and finely pulverised have been used as an absorbent and healing application to chafed surfaces, and one physician informed the writer that he preferred it to iodoform as a dusting-powder for slight wounds and abrasions.

Calendula Ointment.—The following formula yields a preparation very similar to that sold by the homœopathic pharmacists:

Take of—

Petrolatum	85·0 Grammes
Yellow wax	5·0 ,,
Paraffin	5·0 ,,
Fluid extract of calendula	5·0 C.c.

Melt the wax, paraffin and petrolatum, add the fluid extract gradually, and stir till cold.

Calendula Oil.—What is called calendula oil, or more correctly calendulated oil, is a soothing application to catarrhal surfaces, and is obtaining favourable notice and use among specialists in treatment of throat and nose as a final spray or dressing after the treatment with an aqueous liquid such as a Seiler's solution.

The following formula is submitted:

Take of—

Contused calendula	100·0 Grammes
Alcohol	75·0 C.c.
Ammonia water	2·8 ,,
Pure olive oil	1000·0 Grammes

Mix the alcohol and ammonia water and moisten the drug therewith. Then place it in a can or suitable container, add the olive oil and macerate for three or four days at a temperature of 60° to 70° C. with frequent agitation. Then express and filter.

Calendulated Collodion.—At the request of a physician friend, I have also prepared a calendulated collodion to be used as a substitute for isinglass plaster and adhesive plaster.

The following is the formula:

Calendula in No. 20 powder	100·0 Grammes
Alcohol, a sufficiemt quantity	
Castor oil	20·0 ,,
Ether	700·0 ,,
Pyroxylon	20·0 ,,

Percolate the calendula with alcohol until 200 C.c. of percolate is obtained. To this add the ether, and to the mixture add the pyroxylon and dissolve, and finally the castor oil and sufficient alcohol to make 1,000 C.c. and set aside for a few days to clear.

* From the *American Journal of Pharmacy.*

COMMERCIAL VOLUMETRIC INDICATORS.

BY F. H. KNIGHT.

A wide variation is to be found in certain common indicators used in volumetric analysis, as found in the market. This is particularly true of methyl orange, perhaps the commonest and most valuable of the indicators used. It is also known as Poirrier's Orange 3P., as Helianthin and Tropaeolin D. Of six samples from various sources, no two were equal in efficiency. One was absolutely worthless as an indicator. The indicator was tried both in simple aqueous solution and in solution water acidulated with diluted sulphuric acid, which neutralises any alkali which the dye may contain and causes a partial precipitation, afterward separated by filtration. In allcases the plain solution was more sensitive and to be preferred to the official acidulated solution.

The dyes varied in colour from a brilliant red to a dark brown. Those specimens having a brown colour, and most slowly soluble in water, proved to be the .most sensitive. On adding one drop of plain solution to 50 C.c. of water the liquids required from 1 drop to 4 C.c. of decinormal sulphuric acid to show a distinct red colour When the acidulated solutions were used, more was required to show the reaction plainly. None of the specimens were sensitive to carbonates, ammonia or organic acids, and all were weakened, as indicators, by heat.

Fenorescein and genorescin, which are used in titrating deeply-coloured liquids, were compared. But little choice is to be found with these, neither being sensitive enough for satisfactory use with decinormal solutions, though semi-normal solutions give the reaction plainly.

Cochineal was found to give particularly good results in artificial light. No difficulty was found in securing this agent in satisfactory condition, and the marked colour changes, which appear plainly in gaslight, make it an excellent indicator for this purpose. It cannot be used, however, with carbonates or organic acids. Litmus was found to be the best adapted for general all-round purposes. The efficiency of this agent depends upon the care with which the solution is prepared, since there is no difficulty in obtaining litmus of good quality in the market. It was found to react well with organic as well as inorganic acids, with ammonia and with carbonates in hot solution. No other indicator was found to possess so wide a range of power as this. The greatest disadvantage in it is the necessity for waiting a few moments at the close of the titration for the colour to become permanent, and its sensitiveness to carbonic acid in cold solutions.

But one sample of Brazil-wood was tested, though it is known that some difficulty exists in obtaining true Brazil-wood in the market. The sample tried proved satisfactory, but it was found that it was necessary to boil the decoction well before using. It cannot be used with carbonates, but it is sensitive to ammonia and organic acids, and is adapted for general use with these as well as with alkaloids. It is an extremely sensitive indicator.—*New England Druggist.*

Biological Reaction for Arsenic.—Bujwid finds that a culture of the mould *Penicillium brevicaulis*, grown upon potato at a temperature of 37° C., gives rise to a strong alliaceous odour in the presence of a minute trace of arsenic, such as would give a barely visible deposit with Marsh's test. The liquid to be examined, or in the case of a dry solid, a particle moistened with sterilised water, is placed in a tube with slices of boiled potato, and maintained at the prescribed temperature for 24 hours; in the presence of arsenic the odour of AsH_3 will be very marked in the course of a few hours.—*Union Pharm.*, **46**, 293, after *Med. Mod.*

EXTRACTS FROM CONSULAR REPORTS.

THE INHABITANTS OF TRIPOLI (Turkey) are reported to have no genius for inventiveness, to be averse to all innovation, and to cling with peculiar fondness to the simple dress and habits of their forefathers. Hence it is not surprising that in such a country industry should be backward. In addition to weaving, mat and basket making and the carpet industry, there is the soap industry, which, though occupying a much less important place than the others, turns out nearly all the soap which is consumed in the country. In the town of Tripoli itself there are five soapworks, all under the management of native Jews, which produce a coarse, cheap article of a light yellow colour. According to Vice-Consul Dickson it is made from caustic soda, silicate and carbonate of soda, talc, resin, cotton-seed oil and other seed oils. It is sold in large, hard rectangular tablets, and is used for all purposes except the bath and toilet. Toilet soap is imported from England, France and Italy in small quantities, and is also made by some of the natives. The soda and silicate which enter into the composition of soap is said to be all imported from Great Britain.

"MADE IN LONDON," printed in big letters, were the words Consul Hearn was astonished to see lately in a window of a Bordeaux shop, on the labels of articles generally supposed to be of French make. On examining the labels closely, however, he noticed in very small type at the bottom the name of the printer at Lyons, and he has no doubt that the articles were also made there. The best way to combat this fraud, the Consul thinks, is to make it known that there is evidently a demand in France for certain articles, such as ladies' garters and gentlemen's sock suspenders "made in London," when no doubt the real article will be soon offered for sale there.

RUBBER IS BEGINNING TO FORM a large item in the exports of the British Central Africa Protectorate, the value exported during the past year being over £10,000. As in other rubber-producing countries, great difficulties have been experienced in preventing rubber collectors from destroying the vine when collecting the juice. Regulations have been drawn up and forwarded to the home authorities for sanction, dealing with this subject; but in spite of all regulations and laws there will doubtless still be much unnecessary destruction of rubber vines. Collectors of districts are, however, endeavouring by every means in their power to prevent natives from destroying the vines and making root rubber. In the more southern districts of the Protectorate very little rubber is found, the bulk of the supply coming at present from Lake Nyasa and South Nyasa districts.

TOBACCO WAS ALSO EXPORTED from the Central Africa Protectorate last year, although only in small amount, the total quantity being 1,700 lbs., and, in the opinion of some, it is doubtful if that quantity will increase, at any rate within the next few years. On the other hand, Mr. John Mahon in a series of notes on the vegetable products exhibited at the Mlanje Agricultural Show, held in September, 1898, remarks that tobacco afforded indications of being a product capable of considerable extension in British Central Africa planting industries. Much credit, he thinks is due to the pioneers of tobacco culture there, and when they succeed in establishing an external market, for which they are earnestly striving, the advantage accruing to the country will be important.

GERMANS DON'T LIKE FOREIGN COMPETITION when it threatens to affect themselves; at least, such is the experience of Messrs. Lever Brothers, who, not content with introducing Sunlight (soap) into the homes of Great Britain, desired to extend their operations to Germany. No sooner was it known that the firm had acquired in a newly-opened section near the harbour of Mannheim, an area covering about 85,000 square metres for the price of about 425,000 marks, in order to establish there a large factory for their "Sunlight" specialties, than the Baden soap manufacturers at once forwarded a petition to the Diet asking for Government measures to be taken against the invasion of the Sunlight Soap Company. The petitioners speak of the "great concern," and fear ruin on account of this British competition. It is needless to say, observes Consul-General Sir Charles Oppenheimer, that the laws of the country offer no ground to

interpose in the manner desired by this petition. But it must be remarked in this connection that the German press always shows the greatest pleasure at the progress of German enterprise in foreign countries, but when an English enterprise is forced to open a branch in Germany, owing to the German customs laws, these newspapers are anything but pleased.

The Export of Liquorice Root from Batoum last year was more than double that of 1897, being 9,760 tons, as against 4,423 tons. The demand in the United States of America is reported to be steady at fairly firm prices, but the producers complain of the excessive rate of transport which the Trans-Caucasian Railway charges for the conveyance of the pressed bales from the liquorice root growing districts to Batoum. There are said to be large reserves of liquorice root along the railway line, certain difficulties having cropped up to prevent its being dug in sufficient quantities. These difficulties, however, are reported to have been more or less overcome, and there are prospects of a fairly large trade being done during the present year.

The Honey Crop in Germany last year, as in Great Britain, was a total failure, and yet the import trade in honey was not as satisfactory for merchants as they had hoped, the reason being, it is stated, the serious competition of artificial honey which, in spite of measures taken by the German Government towards putting a stop to the sale of imitations, seems to continue undiminished. The total quantities of honey imported at Hamburg from foreign countries last year was, however, larger than in 1897, and amounted to 2,775,000 kilos., as against 2,140,000 kilos. The principal countries whence honey is imported are Chile, Peru, St. Domingo, Cuba, and California.

When British Merchants require information from any part of Sicily,—and what applies to Sicily will apply equally to other countries—Consul S. Churchill states it will be best to make the enquiry through the Consulate, which will then obtain the information from the Vice-Consulates. It should be specially remembered, however, that to obtain a quick answer the enquiry should not be addressed to anyone by name, but to Her Britannic Majesty's Consul, in the care of Sicily at Palermo. Letters, it is stated, are too often addressed by name to a Consul who has already been transferred to another post.

The Sulphur Industry in Sicily.—Sulphur is one of the principal articles of export from Sicily, the extraction alone of this mineral, according to Consul S. Churchill, employing some 30,000 people. During the past two years the production of ore was 3,092,382 tons in 1897, and 3,163,146 tons in 1898. In the former year there were 642 mines in activity, whilst last year 695 mines were being worked, and it is expected that this year (1899) the total mines and output will again increase. The exports of sulphur in 1897 amounted to 427,823 tons, and in 1898 increased to 462,393 tons, the increase being principally attributed to the demands of the United States, owing to the war with Spain. The demand for sulphur in manufacturing wood-pulp and for treating vines was also greater. The stock of manufactured sulphur on hand at Palermo on December 31 last year was about 235,022.

The Prospects of the Sulphur Trade, Consul Churchill states, is a delicate subject to deal with; experts have their different points of view, but it may be safely said that there is too great a tendency to over-produce. Their own permanent welfare seems to be the last thing the Sicilian sulphur mineowners think of in comparison with immediate sales. The conditions of the leases of the mines have also much to do with this unsatisfactory state of things. When a leaseholder can only obtain a lease for ten years it is natural that he should hasten the output and its quantity as much as possible. The one thing which he wants is sulphur, and as much of it as possible. The royalty paid to the landowner is about 20 per cent. of the produce, and is said to be too great to enable the leaseholder to work the mine as it should be worked. When the ten years' lease is over the landlord takes back the property if the mine has been a producing one. It may be mentioned that the mining laws of Sicily differ from those in force in the rest of the kingdom of Italy.

The Sumach Trade is almost entirely a Palermo industry, and a combination is reported to have been formed to handle the output for the next five years, during which period the present good marks will have disappeared. The result promised to the industry is better prices for the crop, which will naturally be at the expense of the consumer. Consul Churchill thinks it is not at all unlikely that an attempt on the part of the sumach syndicate to force its prices on the market may result in the employment in the dyeing trade of materials which can be substituted for sumach. It is said that in the United States chrome is now being largely used where sumach was formerly employed. The total amount of sumach exported from Palermo in 1898 was 37,120,962 kilos., of which 14,927,124 kilos. was sent to Great Britain; of the total export 16,452,826 kilos. were unground sumach and 20,668,136 kilos. of ground sumach.

The Exports of Essential Oils from Messina (Italy) in 1898 were 5,903 cwts., value £239,600, against 7,854 cwts., value £318,959, the previous year. Of concentrated lemon juice 34,141 cwts., value £9,959, were exported last year, as compared with 54,674, value £14,486, in 1897. The quantity of olive oil exported decreased by more than half that of the previous year, being 27,753 cwts., value £61,932, as against 64,233 cwts., value £143,342.

Solfuro Oil is a product made from the residue of olives, from which the oil has been extracted, and is used in the manufacture of soap. In the Milazzo (Italy) district the works for the manufacture of solfuro oil employ about 200 hands all the year round. The waste, after the oil has been extracted, is used as fuel. The average annual production is about 1,000 tons.

A Society is being Formed, according to Vice-Consul C. F. Gray, in the Marsala (Italy) district for planting a nursery of American vines of different qualities, as the nature of the soil varies very much in the different districts of Marsala. The society is the result of an invasion by phylloxera, and members will be able to have the nature of the soil analysed where they intend planting American vines, and by this means they will get the proper species of vine adapted to the ground. Each member is entitled to a certain number of American vines at the cheapest possible price, according to the number of shares that he takes.

PHOTOGRAPHIC NOTES.

Useful Hint on Mounting—G. W. Tottem objects to the use of those slip-shod things, "Slip Mounts." His plan of mounting a print is to take a large glass (cutting shape, say), spread mountant, lay print down, rub well into contact, peel off, lay on mount and rub well down, which is as simple and quick in practice as it is to write. The advantages are that one's fingers do not get messed up, only enough mountant is left on print to make it adhere to card, no dirty edges, no finger marks on face, and, in the case of glazed prints, no backing. He can mount a 23 × 17 enlargement just as readily as a pocket Kodak print in this way; and so do those to whom he has shown the method. From practical experience of the method it can be recommended.—*Brit. Journ. Photog.*

The Persulphate of Ammonium Reducer.—As might be expected when a new reagent begins to come into common use, and particularly in a case such as the present, when the precise reaction is not perfectly understood and the conditions of its employment are not settled, there have been, at recent Photographic Society meetings, many exhibits of "failures" with the persulphate of ammonium reducer. Many of those, of course, have been of the usual type, due to carelessness of manipulation; but in the hands of well-known careful workers there have been occasionally curiously erratic results. Two distinct cases have been brought to our notice where the negative, after treatment, has shown by reflected light a mirror-like deposit of presumably reduced silver, while by reflected light a pink stain occurred in the gelatin, the effect being somewhat similar to the edges of a stale plate after development with pyro-ammonia. Several workers have reported a darkening of the plate after exposure to light in printing, but this can easily be accounted for as due to the formation of a salt of silver, sensitive to light, which had not been removed by washing or otherwise, or perhaps more likely still to the formation of a salt of silver which had combined with the gelatin and which was not removeable by ordinary washing. It seems clear that for safety some method of fixing should be adopted before the final washing. With a freshly-mixed solution of ammonium persulphate immersion in the ordinary hypo fixing bath would be efficacious, and would be attended with very little risk; but in using a solution

that has become acid, or to which acid has been added) and this has been recommended) there is a certainty that the hypo would be decomposed and a risk that sulphur resulting from the decomposition would be deposited in the film. Undoubtedly the safest method, and it ought to be adopted in heating a valuable negative, is to remove the negative from the persulphate bath to one of sodium sulphite. This acts equally well with hypo in stopping the reducing action, and at the same time its decomposition product, sulphurous acid, is innocuous. Sodium sulphite is in itself a fixing agent, though under any circumstances it acts more slowly than hypo, and it may prove that, after allowing the negative to remain a reasonable time in this bath, fixation will be complete, but this has not yet been investigated. To make certain the negative should be finally treated with the hypo bath and washed as usual.

SIMULTANEOUS DEVELOPMENT AND FIXATION OF GELATINO-CHLORIDE PAPER.—R. E. Liesegang points out that if gelatino-chloride paper be faintly printed out under a negative, and then placed in a bath which fixes it and at the same time develops it to full intensity, the only other operation would be the necessary washing afterwards. It is, moreover, not necessary to print to a given depth. The combined developing and fixing bath contains no gold salt; and, further, the bath is alkaline, so that sulphur toning is absolutely impossible. Although his experiments are not quite complete, he publishes the statement in order that others may try it. Some experiments in which fixation was attempted with sulphocyanides were without result; and even the addition of an alkaline dry-plate developer to the hypo bath caused no blackening of the exposed parts. The desired result has now been obtained by adding silver nitrate to the bath. But even a mixture of silver nitrate, hypo, and a developer such as is used for dry plates, worked only very slowly, the print had to be left in it at least the whole night. A developer which would give the print the necessary vigour in a short time was only formed when amidol and caustic potash were added to the solution of silver nitrate and hypo. The print first fixes in it, and then in about a quarter of an hour attains the necessary depth. The disadvantage that amidol, pyro, etc., lose considerably in developing power by the addition of a large quantity of hypo is very noticeable. The accelerating action which the addition of small quantities of hypo exerts in dry-plate development does not lead one to expect this. If amidol is mixed with an alkali, the red and blue oxidation products are very quickly formed. In the presence of hypo this does not take place; pyro even does not colour so quickly. It is even possible to decolorise a deep blue-coloured mixture of amidol and alkali by the addition of hypo. The bath used consists of :—

Sodium hyposulphite	31 parts.
Water	150 „

This is mixed with :—

Silver nitrate	3 parts.
Water	100 „

The precipitate first formed readily dissolves by shaking, and then there should be added :—

Amidol	1 part.
Sodium sulphite	5 parts.

When solution is effected, add as much 10 per cent. solution of caustic potash solution to make the solution slightly greenish; about 25 parts will be necessary. This bath is suitable for the development and intensification of dry plates.—*Camera Obscura*, through *Brit. Journ. Photog.*

ANALYTICAL NOTES.

DETECTION OF SACCHARIN IN AERATED LEMONADE.—50 C.c. of the lemonade is evaporated, after the addition of 2 or 3 drops of solution of sodium carbonate, to a syrupy consistence; the residue is acidulated with HCl, then shaken out with ether, 20 C.c. On evaporating the solvent the residue will have a characteristic sweet taste if saccharin be present. This residue is then gently heated in a small silver crucible with a little pure caustic potash, so as to decompose the saccharin without destroying the potassium salicylate formed. If after the evaporation of the water small bubbles of vapour are given off, these are due to ammonia, as may be demonstrated with turmeric paper, or with paper moistened in Nessler's solution, or with sodium hypobromite. The crucible is then three parts filled with water, acidulated with HCl; the acid solution is extracted with pure benzene. In the decanted benzene solution a drop of ferric chloride will give a violet colour in the presence of saccharin in the original liquid, and in the aqueous residue the presence of sulphuric acid may be proved with $BaCl_2$.—*Repertoire*, **11**, 306, after *Bull. de la Soc. de Pharm. de Bord.*

SIMPLE METHODS OF DETECTING GOLD IN MINERALS.—About 100 Gm. of the finely crushed mineral is put in a bottle, and about an equal weight of tincture of iodine is added. The mixture is thoroughly shaken up several times for an hour, and then allowed to deposit. A strip of filter paper is then dipped in the clear liquor, dried, and again soaked and dried, six times in all. It is then burnt; if there be any gold present, the ash obtained will be of a reddish purple colour, which will disappear immediately on contact with a drop of bromine water. A second method is to treat the mineral as described above with bromine water; after standing for an hour and filtering, the addition of stannous chloride to the filtrate will give a precipitate of purple of Cassius in the presence of gold. According to J. Ohly, these tests will show the presence of 0·025 ounce per ton of ore. Ores which contain sulphur should be roasted before treatment, also those which contain a large excess of carbonate, the latter being again gently heated with a little ammonium carbonate.—*Engineer and Min. Journ.*, 1899, 499.

NEW REMEDIES.

ASTEROL AND HYDRARGYROL.—Asterol is a double salt, mercury parasulphocarbolate-ammonium tartrate. It possesses advantages over hydrargyrol, which is mercury parasulphocarbolate, in being readily soluble in warm water, giving solutions which remain clear. Hydrargyrol occurs in crystalline scales or crusts which have a peculiar gingerbread odour. When treated with water it forms basic salts. To avoid this decomposition the salt is combined with ammonium tartrate. The double salt asterol thus obtained which is represented by the formula—

$$([C_{12}H_{10}O_8S_2Hg].\ 4(C_4H_4O_6(NH_4)_2)8H_2O,$$

is perfectly soluble and stable in aqueous solutions. F. Steinmann recommends asterol as a substitute for sublimate, and, in many cases, for mercury oxycyanate, on account of this solubility. Its bactericidal action is very penetrating, and is maintained even in albuminous solutions; it is non-irritant. Asterol is an excellent disinfectant for the hands; instruments are not affected by its use. Although it is poisonous, as demonstrated on animals, no apparent danger results after its extensive local application as an antiseptic. *Schweiz. Woch für Pharm.*, **37**, 717.

TRIBROMO-RESORCIN is a powerful antiseptic and bactericide, properties which are not, however, shared by its sodium salt. It is stated to be but slightly toxic when introduced into the stomach, and, when injected, it accelerates the pulse and causes depression of the nervous system, and a fall of temperature.—*Pharm. Post*, **32**, 197.

VASOTHION.—This is an organic preparation containing over 10 per cent. sulphur, similar to thilanil, thiosapol, and thiosavonal. It is obtained by combining sulphur with vasogene. It is used in ointments of iodine, iodoform, creosol, or creoline for the treatment of chronic eruptions and eczema.—*Pharm. Post*, **32**, 197.

CITRIC ACID FOR OZENA.—Hamm states that citric acid mixed with equal parts of milk sugar, applied by means of an insufflator three times a day, is an active deodorant, and exerts a marked healing effect in cases of ozena.—*Therapist*, **9**, 166, after *Münch Med. Woch.*

CHRYSAROBIN FOR WARTS.—G. W. Fitz has successfully used chrysarobin in 10 per cent. solution in solution of gutta-percha, or in simple ethereal solution, as an application to warts on the feet. The wart is first scraped, or scoured with sandpaper until it bleeds, then treated with the chrysarobin application. It has practically no effect on corns.—*Bost. Med. and Surg. Journ.*, **150**, 633.

PHENOCOLL HYDROCHLORIDE IN INFLUENZA.—Having used phenocoll hydrochloride in 400 cases of influenza during a recent epidemic of that disease in Bologna, G. Villani has found it to be a specific. It was given to adults in daily doses of 3 Gms. For children only 1 Gm. per diem was prescribed. It was well tolerated, and all the symptoms of the malady rapidly disappeared under its influence. Being antithermic, analgesic, and antiseptic, it has proved a most successful remedy in all cases.—*Nouv. Rem.*, **15**, 299.

LETTERS TO THE EDITOR.

Mistura Ferri Aromatica.

Sir,—Although this preparation is omitted from the British Pharmacopœia, there is reason to suppose that it will occasionally be prescribed, and the provincial chemist who is called upon to fill a prescription for it may welcome the following attempt to construct a formula which admits of being speedily compounded. Very few patients in this age of rush and hurry will submit to waiting the three days required to make this mixture according to the whilom official directions. If made as follows it can be completed within an hour, and the product is certainly not below the orthodox standard in strength and aroma. Set on infusum caryophylli, Oss.; while it is macerating rub up ferri carbonat. saccharat., ʒi., with 2 fl. drms. of distilled water and warm gently; add extract. cinchon. liquid., ʒi.; transfer to a bottle and shake well. Dissolve ferrum tartaratum, ℈i., in aquæ destill., ʒvi., and add to the bark and iron; then, liquor calumbæ concent., ʒi.; tinct. cardam. comp., ʒiii.; tinct. aurantii, ʒss.; shaking after each addition. Strain the infusion of cloves into the mixture, and after agitation strain the whole; add aq. menth. pip. concent. (1-40), ʒiiss.; aquæ destillat. ad ʒxvi.

Dover, August 19, 1899. J. F. Brown.

The Present Pharmaceutical Position.

Sir,—Your admirable synopsis of the pharmaceutical position concludes with this statement, "But, first of all, and in any case, it is essential that the Council should receive much more coherent support,—even from the Society, which is still the minority—that chemists collectively should show they are capable of agreement on principles and of being led in defence of their rights, not only as vendors of Mother Siegel's syrup and Beecham's pills, or even as licensed sellers of poisons, but as possessors of a qualification by which they are entitled to practise pharmacy. That result must be achieved if the rank and file of registered chemists are not to become mere tools of the company monger." Your summary well touches off, for those who will see the very strong case, the irresistible claim we can make, in the public interest, to the Legislature, that pharmacy shall have a rational footing. It also indicates generally what strong forces can be brought to support pharmacists in their eminently just claims. I beg to suggest, however, that in the paragraph quoted above you put the cart before the horse. It should read "But, first of all, and in every case, it is essential that the Council should state its claims and its general policy, certainly stating its definite object, then chemists collectively would show they are capable, etc." I beg earnestly to ask chemists in all parts of the country, whether they be men who think or those who are satisfied to have their thinking done for them, to read this leader, this brief but admirable summary. If they will further trouble to do this in connection with editorials which have appeared through many months, I venture to say many would have a better appreciation of the important position the pharmacist should have in the economy of the State and of the importance of pharmacy as a branch of the healing art. When I say it is the Council's duty to declare a tangible policy, it may appear that more is asked for than discretion or prudence can allow. As to that, I would like to remark that the natural direction of a stream is the water bed. We have the right to ask the Council now which, in their opinion, is the direction a natural stream of pharmacy would flow, and we should have a diagram.

Blackburn, August 19, 1899. R. L. Gifford.

Syr. Glycerophosph. Co. (Robin).

Sir,—In the middle of June I made 60 ozs. syr. glycerophosph. co. (Robin). I dissolved the calcium, magnesium, and iron salts in 12 ozs. of water containing 60 grs. acid citric. I then added 24 ozs. syrupus (B.P.); then the sodium and potassium salts; then the pepsin (as glycerole); then the trs.; and lastly the diastase, rubbed smooth with an ounce of syrup—shaking after each addition, and finally making up to 60 ozs. Two days afterwards an opalescence crept through the syrup and it gradually increased till it seemed as if all the pepsin or diastase (judging by the colour) had been precipitated. Repeated shaking during a week made no change. The addition of an additional 3 grs. of acid citric to one (separated) ounce had no apparent effect; neither had the addition of ½ drm. of glycerin to another ounce. (Merck recommends citric acid as a solvent in making liq. calc. glyceroph.; and glycerin to prevent precipitation of fer. glycerophosph. in making vin. fer. glyceroph). No heat was used in making the syrup. That is my case. Information on the following points will be esteemed a favour: 1. What is the cause of the precipitation? 2. What is the precipitate likely to consist of? 3. Can it be remedied? 4. Can it be prevented? The syrup after standing undisturbed for six weeks has only become bright in the upper third, the precipitate seems to be too much of a magma and too light to fall further.

August 17, 1899. T. D. (199/15).

*** Carles nas recently advocated the use of the soluble acid glycerophosphate of lime in the preparation of the syrup instead of the commercial neutral salt, since it is more stable and very soluble. It is obtained by suspending the neutral salt in water, adding sufficient oxalic or tartaric acid to precipitate half an equivalent of the lime, and then filtering out the calcium oxalate or tartrate. He finds that solution of glycerophosphates are particularly liable to give rise to fungoid growths. This, he states, may be prevented by the addition of cinnamon water or, better still, of cherry-laurel water. [Ed., *P. J.*]

Dr. Jekyll and Mr. Hyde.

Sir,—In his latest utterances upon matters pharmaceutical, the Lord Chancellor spoke not one word with which qualified men will disagree. The astonishing thing is, that a man who sees matters so clearly and balances the scales of justice so evenly in his public utterances should ever have lent his name in support of the suggestions which appeared in the Companies Act Amendment Bill. We can only come to the conclusion that the speeches are made by Dr. Jekyll and the Bills draughted by the man Hyde. It appears to me that whilst we are taking full advantage of the exceedingly helpful speeches of Jekyll, it is absolutely necessary that we keep rather more than half an eye on Hyde. The Lord Chancellor delivered a speech a year or two ago (very similar to last week's speech) which sent every chemist in the country into ecstasies, and we know how it was followed up. That speech so fascinated chemists that they left their case entirely in the hands of the Lord Chancellor, and he, having succeeded by this means in disarming opposition, almost succeeded in carrying a Bill which would have handed qualified men over to unqualified slavery for all time coming. It was not the opposition of chemists which prevented this, but circumstances connected with our Parliamentary machinery. The Bill is not withdrawn, nor are the Lord Chancellor's suggestions in regard to pharmacy cancelled. Does the Lord Chancellor think that by administering a further dose of opium in the form of a speech he will so confuse us that we will forget about the doings of the man Hyde? If chemists allow themselves to be soothed to sleep by the Lord Chancellor's speeches this Bill handing them over to slavery will pass, and nothing can prevent it; but if they have learned to distrust the Lord Chancellor thoroughly and stand on their own resources it will never pass. Of course, it is possible that the Lord Chancellor is converted a second time, but is his latest conversion any more genuine than his former conversion was? Of course, if he were heart and soul on our side, his help would be invaluable, but what could weaken our position more than the existence of a man so highly placed who argues in our favour and fights in favour of our enemies? We get the words, and the enemy get the real help, and we will have none of it. We are quite able to fight for ourselves. Our position is immensely better understood now than it was five years ago—better understood by ourselves, and better understood by the general public. We now dare to say that we are not fighting for a monopoly, and five years ago this was looked upon as heresy—we now dare to say that we have certain rights under the Pharmacy Act of which we have been defrauded, and five years ago the man who dared to make this statement was as the voice of one crying in the wilderness. What is more is, that the educated public are awakening to the injustice under which we suffer, and all the professions are awakening to the fact that our fight is theirs. Victory all along the line is drawing nearer every day, and we do not need to fall back upon the help of so doubtful a friend as the Lord Chancellor. What we need to do is to go on organising our forces, schooling our members of Parliament, formulating our ideas into compatible workable order. We need, also, to be better prepared for the Lord Chancellor during the coming year than we were during this one, should he make any further attack on us. We will be fools indeed if we allow ourselves to be hoodwinked twice.

Dumfries, August 21, 1899. James Reid.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Botanical (J. W. H.—33/1).—*Sium angustifolium.*

Botanical (T. J.—31/22).—(1) *Ambrosia trifida* (Compositæ). (2) *Populus balsamifera.*

Books for the Major Examination (J.. H. B.—33/3).—A list will be given in our Students' Number, which will be published on September 9 next.

Sanitary Inspector's Examination (J. A. L.—33/8).—Write to the Secretary of the Sanitary Institute, Parkes Museum, Margaret Street, London, W.

Metol Hydroquinone Developer (W. B. R.—32/33).—The veiling is due to over-exposure of the plate, and the only thing to do is to add about 1 grain of potassium bromide to 1 oz. of the developer.

Packages for Oils (M. A.—32/9).—The capacity of the barrels is fairly constant, and the wholesale dealers will inform you what they contain. Any standard work on arithmetic will give the information you require about pipes, tuns, etc.

Allegorical Figures (B. H.—33/4).—We regret we are unable to give figures of the kind you require. As to the Pharmaceutical Society's coat of arms, that may not be used by any one without permission from headquarters.

Acetylene Generator (T. K.—32/19).—For safety, ease, and economy in working you would find the "Incanto" Generator, Pattern B, No. 2, as good as any. It is made by Thorn and Hoddle, New Tothill Street, Westminster, who also supply a purifier and the "Incanto" non-carbonising burner.

Royal Arms (W. N. G. L.—33/5).—According to 46 and 47 Vict., c. 57, sec. 106, any person who, without authority, assumes or uses in connection with any trade, etc., the Royal Arms, or any resemblance thereof, shall be liable on summary conviction to a fine of twenty pounds.

Notice to Quit (G. H. G.—33/7).—A quarter's notice would appear to be necessary. Where no agreement has been entered into or stipulation made as to repairing, a tenant can be compelled to repair damage caused by himself, but he is not bound to make good mere wear and tear. You ought to have a proper agreement drawn up by a solicitor or a friend experienced in such matters.

Sale of Ferrocyanides, etc. (P. W.—33/12).—Inasmuch as ferrocyanides and ferricyanides are not mentioned in the list of poisons within the meaning of the Pharmacy Act, there is no occasion to observe any formalities in retailing them. At the same time, registered chemists may find it advisable to treat them—together with carbolic acid and many other dangerous substances—as though they were included in Part 2 of the list of poisons.

Lawn Sand to Kill Plantains (T. T. C.—32/28).—A mixture of ammonium sulphate, 65, and fine sand, 35, is used for destroying plantains on lawns. See *P. J.* [4], **5**, 100. Try this and let us know if it is effective. A correspondent of the *Gardeners' Chronicle* [3], **26**, 114, finds that the best way to get rid of *Hypochæris radicans*, and probably other weeds, is to drop a few minims of strong sulphuric acid on the crown of each plant. Probably the ammonium sulphate mixture would answer as well, and would be harmless to the grass. Let us hear if you succeed with it.

Concentrated Infusions (J. B.—32/34).—As a general rule these may be prepared by the method of successive percolation, using eight times the quantity of the drug required for the simple infusion and a weak alcoholic menstruum, about 65 under proof. Some drugs, such as calumba, give better results by successive cold maceration in water, followed by evaporation, and the final addition of spirit. Gentian should be treated by hot maceration and expression, the second maceration only being evaporated. The orange and lemon is best added to this in the form of a strong tincture (1:2) of the fresh peel in alcohol.

To Destroy Flies (J. N. B.—32/26).—A number of formulæ were published in the *Pharmaceutical Journal* for July 29 (p. 86) and others appeared in the issue for August 5 (p. 147). It is said that house flies and blue bottles may be kept away by fresh bay leaves. If you can procure them, you might try this remedy: the bay should be kept fresh in water, and some of the bruised leaves spread on the floor. Oil of bay leaves is also used, but is a somewhat costly remedy. Possibly eucalyptus oil sprayed over the room at night might have the same effect. Flies do not like a draught: by opening doors and windows freely they may be greatly reduced in numbers. Probably you have stables near at hand; the larvæ of the common house fly feeds in stable litter and horse dung. Doubtless the beer is an attraction to them. Burning the following pastilles in the rooms will also drive them away. Insect powder, in moderately fine powder, 240; potassium nitrate, 25; water, 300; Dissolve the nitre in the water and thoroughly damp the insect powder with the solution, and dry. Then make into a stiff paste with tragacanth mucilage and shape into cones. Dry thoroughly (in a cool oven will do). For sticky fly paper use the following:—Bird lime, 6; castor oil, 7; honey, 3; yellow resin, 11. Melt the resin in the oil, and add the bird lime to the hot mixtnre; lastly, add the honey. A fly poison which is harmless to animals is made of decoction of quassia (1·10), 25; moist sugar, 6; and ground pepper, 3. Spread about on plates with blotting paper. Potassium bichromate solution may be added to the above, if desired. Powders for strewing about the rooms and on the window sills where flies are troublesome, are composed of (1), Powdered long pepper, 5; powdered quassia, 5; powdered sugar, 10; mix, moisten with 2 parts of methylated spirit and 2 parts of water. Dry and sprinkle about. (2) Powdered orris root, 2; starch powder, 15; eucalyptus oil, 1; mixed and used as above. Or, (3) Eucalyptus oil, 5; French chalk, 10; starch powder, 85.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Bailey, Balkwill, Barlow, Brown, Cannon, Dadderidge, Dunlop, Eberlin, Elborne, Gare, Gifford, Hall Hardy, Harries, Heath, Herbert, Hurst, Lance, Lander, Lindley, Fritzche, McHattis, Mackie, Reynolds, Rhoden, Robb, Sawdon, Want, Webster.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ISOMERIC CHROMIUM ACETATES.

According to A. Recoura there are four isomers of chromic acetate—normal chromic acetate, violet mono-acid acetate, violet di-acid acetate, and green mono-acid acetate. He considers that only one of these, the normal acetate, is an ordinary metallic salt, in the others the chromium is not precipitated by an alkali, since it exists, not in a basic form, but as an acid radicle. Since the normal acetate rapidly passes, in aqueous solution, into the other forms, it is prepared in the solid form by treating chromic hydrate with an equivalent of glacial acetic acid and drying the crystalline acetate thus formed. This normal acetate is a greyish lilac substance, giving a yellowish green solution in water, which, however, soon passes into the violet or abnormal di-acid acetate. To obtain the mono-acid acetate the violet aqueous solution of normal acetate is evaporated spontaneously over sulphuric and glacial acetic acids. A crop of small, brilliant violet crystals results, which although they have the same ultimate composition as the normal acetate, $Cr(C_2H_3O_2)_3H_2O$, differ from that body in their characters. Exposed to the air they gradually lose a molecule of acetic acid; with alkalis in the cold no precipitate of chromic hydrate is produced, and of the three acid radicles in the molecule, only one can be replaced either by acids or alkalis. Calorimetric experiments show that, when neutralised with soda, nearly the thermometric equivalent of one molecule of acetic acid is obtained. The constitution of the violet chromic acetate is therefore $Cr(C_2H_3O_2)_2C_2H_4O_2$ which acts as a monobasic acid giving, with sodium hydrate, for instance, the salt, $Cr(C_2H_3O_2)_2C_2H_3NaO_2$. It is, in fact, chromo-mono-acetic acid. Cryoscopic experiments confirm this hypothesis.—*Comp. rend.*, **129**, 208.

CHROMO DIACETIC ACID.

The violet di-acid abnormal chromium acetate or chromo diacetic acid, $Cr(C_2H_3O_2)(C_2H_4O_2)_2$ is obtained, according to A. Recoura, by allowing the solution of normal chromium acetate to stand for a few hours. That this is the constitution of the acid is shown by the fact that it requires two molecules of soda to neutralise it, and that no chromium is precipitated by alkalis. The cryoscopic results show that the resulting molecule must have the constitution $[Cr(C_2H_3O_2)](C_2H_3NaO_2)_2$. This chromo diacetic acid has not yet been isolated in the solid state, since, as previously shown, where its solutions are evaporated, it rapidly passes into chromo-mono-acetic acid.—*Comp. rend.*, **129**, 288.

GREEN CHROMO-MONO-ACETIC ACID.

By prolonged keeping, the violet solution of chromic acetate gradually assumes a green colour, due to isomeric change. The same is readily effected by boiling solutions of chromic acetate with acetic acid, and is obtained on spontaneous evaporation as a green solid, having the composition $2[Cr(C_2H_3O_2)_3]H_2O$. It is regarded as a polymer of the violet chromo-mono-acetic acid, acting as a monobasic acid having the constitution $[Cr_2O(C_2H_3O_2)_4](C_2H_4O_2)_2$.—*Comp. rend.*, **129**, 290.

CONSTITUENTS OF OIL OF LEMON-GRASS.

F. Tiemann finds that lemon-grass oil contains from 73 to 82 per cent. of citral, and only traces of citronellal, together with 1·2 to 3 per cent. of methyl-heptenone and a little geraniol.—*Berichte*, **32**, 830.

ISOPULEGOL IN CITRAL.

The same investigator in submitting a commercial sample of citral to his method for the separation of that aldehyde, by shaking it with sodium sulphite in an atmosphere of CO_2 has obtained a residue which proved to be isopulegol. It remains to be seen if this is an impurity, or the result of chemical action on citral.—*Berichte*, **32**, 825.

CHARACTERS OF CROTON OIL.

As the result of an exhaustive examination of specimens of croton oil, W. Dulière gives the following characters as distinctive of the pure official article:—Sp.g. at 15° C., 0·9437; at 100° C., 0·8874. Co-efficient for correction for each, 1° C., 0·000657; solubility in alcohol (92 per cent.), 1 : 63; Burstyn's acid number, 21·7; total acid number, 215·6; consistence of soap, soft; solidifying point of fatty acids, 16·4 to 16·7° C.; Reichert-Meissl number, 12·1; iodine absorption number, 100·37 to 101·91 in 2 hours, 103·63 to 104·30 in 12 hours; iodine absorption number of fatty acids, 111·23 to 104·39 in 2 hours; acetylation number, 38·64. Oil extracted with good petroleum ether and cold-pressed oil agrees in these particulars with the ether extracted oil of the Codex. Oil obtained by hot pressing or by ether from non-decorticated seeds differs in colour, in acidity, and in solubility in alcohol, but agrees in its chief chemical characters.—*Journ. de Pharm. d'Anvers*, **55**, 294.

ODOROUS PRINCIPLE OF JASMIN.

According to A. Hesse and F. Müller, the so-called jasmal of Verley is not the odorous principle of essence of jasmin obtained by enfleurage; they have been unable to find in it any trace of that body or any other aldehyde of phenylglycol. They state that the essence contains the acetates of benzyl and linalyl but that the odour is not primarily due to these bodies but to substances not yet isolated, which exist in the proportion of 25 Gm. in 1,000 kilos. of the oil, the nature of which they are investigating.—*Berichte*, **32**, 568.

PURIFICATION OF ACETYLENE.

The use of solutions of certain metallic salts for the purification of acetylene so as to remove phosphoretted hydrogen, the most obnoxious impurity, requires the presence of an acid to prevent the formation of explosive acetylides. The addition of an alkaline chloride, more particularly ammonium chloride, has been found by C. Göttig to materially increase the effective power of the purifying solution, whilst the presence of an acid is unnecessary.—*Berichte*, **32**, 1879.

MALIC ACID BACILLUS.

A pure culture of the microbe having the property of converting malic acid into succinic and acetic acids has been isolated by O. Emmerling. It had all the characters of the *Bacillus lactis aerogenes* of Escherich. Its action on malic acid is almost quantitative according to the equation; $3C_4H_6O = 2C_4H_6O_4 + C_2H_4O_2 + 2CO_2 + H_2O$.—*Berichte*, **32**, 1915.

DETERMINATION OF FORMIC ALDEHYDE.

The characteristic hydrazone which is produced by the interaction of diphenylendihydrazin hydrochloride and formic aldehyde is suggested by C. Neuberg for the detection and determination of formic aldehyde. One drop of the reagent gives a fine yellow precipitate with formic aldehyde, and will detect 1:5000. Other aldehydes or ketones in this dilution give either no precipitate or one which is readily soluble in alcohol. This test is said to be more characteristic than the phloroglucin and resorcin tests, which are not peculiar to formic aldehyde. For the determination of formic aldedyde, the dilution of the aldehyde should be 1:1000, and the precipitation carried out at 50-60° C. The precipitated hydrazone is washed with hot water, then with alcohol and ether, and dried at 90° C.—*Berichte*, **32**, 1961.

DETERMINATION OF GOLD.

A solution of auric chloride when warmed with an alkaline solution of hydric peroxide is immediately reduced to metallic gold, and this reaction, according to Vanino and Seeman, serves as a more ready means of determining gold than by precipitating with ferrous sulphate or oxalic acid, both of which take some hours to ensure complete precipitation. It is even better than formic aldehyde. Gold can also be separated in this way from platinum and iridium, which are not precipitated by alkaline hydric peroxide.—*Berichte*, **32**, 1968.

THE INVERSION OF CANE SUGAR IN OFFICIAL (U.S.P.) SYRUPS.*

BY F. W. HAUSSMANN

Syrup of hydriodic acid was the first preparation in which large quantities of a sugar reducing Fehling's solution were noticed. Further investigation revealed, however, that the changes to be described were not confined to this syrup, but that others, containing strong mineral acids, showed the same conditions on prolonged standing. The researches were consequently extended, and other syrups, which developed marked colour changes or heavy deposits without any apparent cause, were also examined. Such were syrup of calcium lactophosphate and syrup of the phosphates of iron, quinine, and strychnine.

The syrups mentioned change in colour, gradually turning anywhere from a straw colour to brown, which in the case of syrup of hydriodic acid is usually attributed to the liberation of free iodine. Such is, however, not the case. In an examination of a number of specimens of this syrup, which varied in colour from light straw to deep brown, and in age from six months to two or even three years, not one was found to give a free iodine reaction. Similar conditions prevail in the other two syrups mentioned.

I would offer the following explanation of this colour change:— The free acid will invert the cane sugar in the syrup, with formation of glucose and laevulose. The latter, according to Jungfleisch and Grimbart, decomposes much more readily than glucose, a pure solution turning yellow at 40° C. Prolonged action of mineral acids also decomposes laevulose, with formation of formic and laevulinic acids, together with the indefinite colouring compounds, which the Germans describe under the title of "humin substances." That high temperatures have a certain influence on the production of these colour changes was illustrated during the hot days of the past summer. Samples of syrups of hydriodic acid and calcium lactophosphate, which remained colourless through spring and early summer, in July and August almost simultaneously became straw coloured to brown. Syrups, thus inverted, will gradually deposit grape sugar. This takes place more readily in winter, as the higher summer temperatures will keep the glucose in solution. I found this to be the case with syrups of hydriodic acid, calcium lactophosphate, and syrup of the hypophosphites prepared according to Churchill's formula.

The deposit in a specimen of syrup of hydriodic acid, after being washed with small portions of water and alcohol to remove the acid, was dissolved in boiling alcohol, filtered while hot, and allowed to redeposit. The white warty mass thus obtained has a feebly sweet taste, is readily soluble in water, and strongly reduces Fehling's solution. It responds to all other reactions for grape sugar, and estimated with the alkaline cupric tartrate V. S. gave an anhydrous glucose percentage of over 75.

In the proceedings of the American Pharmaceutical Association of 1893, some observations of Kulisch are recorded on the inversion of beetroot sugar in the presence of natural fruit acids. He also finds grape sugar to deposit from such syrups on standing, and attributes it to the minor solubility of glucose in water.

Another result of cane sugar inversion in acid syrups is the diminished degree of sweetness. In preparations containing no bitter principles this is readily noticeable, and may be found in syrups of hydriodic acid and of Churchill's hypophosphites.

After examination of the official (U.S.P.) syrups containing free mineral acids, those with organic acids were likewise subjected to investigation and also gave indication of the inversion of the cane sugar, although not in as pronounced a degree. In both cases it was found that inversion is progressive, and that at short intervals the respective examinations revealed a relatively greater amount of inverted sugar from the percentage previously found. It was also observed that inversion progresses more rapidly in summer than winter.

*From the *American Journal of Pharmacy*.

The researches undertaken may be considered under the following heads:—

(1) Syrups with free mineral acids.
(2) Syrups with free organic acids.
(3) Syrups without free acids.

Syrups with Free Mineral Acids.

These are syrups of hydriodic acid, calcium lactophosphate, phosphates of iron, quinine and strychnine, and hypophosphites.

SYRUP OF HYDRIODIC ACID.

This preparation may be found in time to possess all the peculiarities resulting from cane sugar inversion from the assumption of a straw colour to a grape sugar deposit. The peculiar odour sometimes noticeable may, on the one hand, be due to the decomposition of the hypophosphorous acid present, but results in the majority of cases from the evolution of hydrogen sulphide from blued sugar. The progressive inversion of cane sugar in this preparation was repeatedly studied, and the following examples, one carried out during winter, the other in summer, are hereby submitted.

Syrup of hydriodic acid was prepared in March of the present year by the official process from simple syrup prepared by cold percolation from carefully selected granulated sugar and distilled water. The latter was examined with Fehling's solution as to the amount of inverted sugar, and was found to contain between 0·33 and 0·5 per cent. Immediately after completion the syrup of hydriodic acid was examined, and no increase in the inverted sugar percentage found. After standing twenty-four hours a noticeable increase was shown, which, on estimation, proved to be 15·1 per cent. Two weeks after preparation the percentage found was 62·5, calculated as glucose. After standing for over six months with exposure to summer heat, the syrup became straw coloured, contained no free iodine, and revealed almost the identical inverted sugar percentage of the previous examination.

During the warm days of August of this year a number of specimens of the syrup were prepared. The following example is selected from these:—The syrup was prepared by agitation without heat, the sugar being dissolved in an aqueous solution of hydriodic acid, showing after one hour's standing 1·5 per cent. of inverted sugar. Forty hours afterward it was found to contain 43·8 per cent. A subsequent examination, when the syrup was five days old, showed 62 per cent., and after one month approximately the same percentage was found.

A tally was kept on this preparation with a specimen of syrup, also prepared by agitation, containing 10 per cent. by weight of glycerin. This was done to determine if the presence of glycerin retarded the inversion of the cane sugar. Such was found not to be the case, the inversion also being progressive, eventually showing almost the same percentage of glucose as in the corresponding sample.

A number of specimens of the syrup prepared by the writer and obtained from other sources were also examined. The following table furnishes the record of the coloured syrups as to age and percentage of inverted sugar:—

Colour.	Age as Far as Known.	Per Cent. of Inverted Sugar Calculated as Glucose.	Remarks.
1. Straw	9 months.	58·4	
2. Brown	2½ years.	50·	
3. Straw	10 months.	59·5	No free iodine in any of these specimens
4. Brown	2 years.	58·1	
5. Straw	6 months.	61·7	
6. Brown	20 months.	55·4	

SYRUP OF CALCIUM LACTOPHOSPHATE.

This preparation shows changes similar to syrup of hydriodic acid, gradually becoming straw coloured, which may deepen to brown on prolonged standing, and not infrequently grape sugar

deposits may be found. The gradual inversion of the saccharose was observed in a syrup prepared in midwinter, the change being due to the low temperature, somewhat slow. The syrup was prepared according to official directions, four to five hours being required for completion. Immediate examination gave evidence of but a slight amount of inverted sugar, which was not materially increased during twenty-four hours. After three days, however, 2·8 per cent. was found; after one week, the syrup still being kept at a low temperature, the figure was 4·9 per cent., which was increased after sixteen days to 12·7 per cent. Gradual increases were found at various intervals during the following fifteen days, and after one month's standing 20·0 per cent. were found.

During the following six months the syrup retained its original colourless condition, until the heat of summer caused it to assume a straw colour, which gradually deepened. Examined after standing eight months, the syrup showed an inverted sugar percentage of 54·9. Another specimen, prepared fourteen days afterwards, examined at intervals, also showed progressive inversion, passes through the same colour changes, and after eight months contains 56·8 per cent. of inverted sugar. A brown, commercial sample of the syrup, about one year old, showed a percentage of 49.

SYRUP OF THE PHOSPHATES OF IRON, QUININE, AND STRYCHNINE.

The difficulty of preserving Easton's syrup is well known, various reasons having been advanced for the discoloration and precipitation taking place. The chief criticisms have come from British sources, and several recommendations for improvement, such as decrease in the amount of sugar and free acid, have been made. In a subsequent paper the writer will render his experience with this preparation. At present he would state that he believes the discoloration to be chiefly due to the inversion of the cane sugar with formation of brown side products, induced by the phosphoric acid.

The inversion of the cane sugar was also found to be progressive in the following instances:—The syrup was prepared according to official directions, employing simple syrup showing 0·33 per cent. of inverted sugar. Seven hours after completion this was found to have increased to 1·95 per cent., and the increase was continued during three months, at the expiration of which the percentage found was 50. This syrup was kept during the summer in filled, amber bottles, away from light, but subjected to heat, and an examination in early fall found it to be dark brown, and containing approximately the same inverted sugar percentage.

Simultaneously with the foregoing Easton's syrup was prepared by a modification of the official methods, in which sugar was directly employed and dissolved by agitation in the acid alkaloidal solution. Four days after preparation the percentage found was 19·2, while when twenty days old the syrup contained 43 per cent. On four months' standing the syrup contained 56·8 per cent., and three months later the now brown syrup showed a slight reduction from the last figure.

Other syrups examined were found to contain 54·9 and 56·4 per cent. of inverted sugar after standing two months with exposure to summer heat. A dark brown specimen, about ten months old, was found to contain 50·4 per cent.

SYRUP OF THE HYPOPHOSPHITES.

This preparation, as prepared by the pharmacopœial method, hardly deserves to be called syrup, containing only 50 per cent. cane sugar. Singularly enough this official acid syrup differed from the others so far examined by showing no signs of colour change. A specimen of the syrup, contained in a partly-filled bottle, and exposed to every condition of temperature during eighteen months, still retains its original colourless appearance while giving evidence of decomposition otherwise. This is probably due to the small percentage of free acid in the syrup. With the well-known Churchill's syrup of the hypophosphites, which contains a larger quantity of free acid, the case is different, the writer having found this preparation to turn to a decided straw colour, with a final deposit of grape sugar in cold weather.

Examination as to the amount of inverted sugar in the official (U.S.P.) syrup gave the following results:—A sample six months old contained 20·8 per cent., while one of about eighteen months showed 29 per cent. Progressive inversion was not studied in the official syrup. It was, however, recently undertaken in Churchill's syrup, prepared by cold percolation. The first portions of the syrup, dropping from the percolator, responded but feebly to Fehling's solution. A contact of eighteen hours, however, revealed an inverted sugar percentage of 2·0, while when forty-eight hours old the syrup was found to contain 3 per cent. On standing four days the percentage was found to be increased to 7·8 per cent., and in ten days to 18·1 per cent. Recent examination, seventeen days after preparation, showed 27·7 per cent.

Other specimens of Churchill's syrup examined gave the following figures:—A slightly straw-coloured syrup contained 56·4 per cent.; an old brown-yellow specimen 62·3 per cent., and a straw-coloured specimen, six months old, 58·2 per cent. of inverted sugar. The salts of hypophosphorous acid have no reducing action upon Fehling's solution.

Syrups containing Free Organic Acids.

Organic acids also have the power of inverting saccharose, although not in as pronounced a degree as mineral acids. The results, so far as decomposition or colour changes, such as precipitation of grape sugar or darkening of syrups, are concerned, do not appear as prominently. The experiments of Kulisch, mentioned before, indicate that heat and the amount of free acid are important factors in the course of inversion. The latter view is substantiated by the results of the writer, but with the possible exception of the rapidity with which inversion takes place a considerable increase in temperature is not necessary. Prolonged contact of an organic acid with a cane-sugar solution will invert the saccharose at a temperature of 60° to 70° F. This was found to be the case with syrup of citric acid.

The official syrups examined of the organic acid group were the following:—Syrup of citric acid, squill, ipecacuanha, and acacia. Syrup of garlic, being deeply coloured, was not investigated.

SYRUP OF CITRIC ACID.

The phenomena of inversion of cane sugar in syrups with free organic acids were first observed in this preparation. Due to the absence of colour, therefore permitting an accurate examination with Fehling's solution, it is particularly convenient.

The observations on the following specimen cover a period of eleven months:—Syrup of citric acid was made according to official directions, the simple syrup used in its preparation having but feeble reducing action. After standing twenty-four hours signs of the presence of inverted sugar made their appearance. After standing forty-five days it was found to be 22·7 per cent., and after three months between 40 and 41 per cent.

The four-months-old syrup showed the percentage to be increased to 49·2 per cent., and ten to eleven months after preparation the figure was 63·1 per cent. This would indicate that almost all of the sugar was inverted. Outside of a slightly terebinthinate odour the syrup at this time shows no change.

SYRUP OF SQUILL.

A number of specimens of this syrup were examined, one being kept under observation for a period of seven months. Heat is employed in the preparation of the syrup, and a more rapid inversion may therefore be expected. The above-mentioned sample, one week after preparation, contained 6 per cent. of inverted sugar. At various intervals examination showed constant increases, and after seven months 26·1 per cent. was found. Other specimens showed, respectively, 12·5, 11, and 11·2 per cent., but none are as old as the above syrup.

SYRUP OF IPECACUANHA

Syrup of ipecacuanha, containing but a small amount of free acid, shows the smallest inverted sugar percentage of all syrups examined. Being prepared by cold solution, it does not show a

favourable condition for inversion. A specimen, under observation for three months, shows a percentage of 2·1, while the highest found in any sample was 3·7 per cent. Another syrup, of unknown age, showed 1·66 per cent.

SYRUP OF ACACIA.

This syrup gives evidence of the presence of inverted sugar on standing, or at least of a compound reducing Fehling's solution. The question may be raised, if this reducing action is not an inherent property of acacia and its solution. The Pharmacopœia states that the latter has no reducing action upon Fehling's solution. This has not been the writer's experience with mucilage from either solid, granular, or powdered commercial gums. Other glucose tests, such as the alkaline bismuth and safranin tests, also react, the picric acid reaction being an exception.

Samples of syrups of acacia, prepared as follows, have these percentages:—No. 1, U.S.P. syrup, nearly four months old, examined in 1 per cent. solution by volume, showed 4 per cent. inverted sugar. No. 2, a sample prepared from granulated gum, heat being employed in its preparation, contained 3·5 per cent. of inverted sugar in 100 C.c. of syrup after standing three months. No. 3, a syrup prepared from powdered gum, showed 4·5 per cent. in 100 C.c. after four months. The sugar and syrup used in these preparations gave but a feeble reaction with Fehling's solution.

Non-Acid Syrups.

Examination of this group was undertaken to determine the question if syrups, containing no free acids, and standing the same length of time as acid syrups, may not eventually also show the presence of considerable amounts of inverted sugar. Various circumstances necessarily occurring during the preparation and keeping of such syrups, as the influence of direct or summer heat, or fermentation, render such a condition possible. But while some do undoubtedly contain small amounts of inverted sugar, in no case was the percentage found as large as in the acid syrups of either group. Even in comparison with the weakest of the latter, syrup of ipecacuanha, none was found to even approximately reach its percentage of inverted sugar.

The following groups were examined, several specimens of each in a number of instances:—

Syrup of althæa. The syrup, prepared by a method in which the mucilage was removed, possessed, after five months, practically no reducing action upon Fehling's solution. Examination of several specimens, prepared by other methods, gave similar results.

Syrup of senega, several months old, examined in diluted form, showed an almost complete absence of inverted sugar. In examining this syrup in diluted form with Fehling's solution, the blue colour of the latter is turned green, but even on prolonged boiling only a slight precipitate of cuprous oxide is found.

Syrup of lactucarium was also examined in the above manner with the identical results.

Syrup of orange peel, U.S.P., showed, on standing six months, a percentage of only 0·33 per cent. of inverted sugar, and a specimen prepared from spirit of orange showed, one month after preparation, but a feeble reducing power. After six months no material increase was noticeable.

Syrup of tolu was examined repeatedly, the percentage in all cases being low. One sample showed 0·4 per cent. on standing three months.

In simple syrup the highest inverted sugar percentage found was 0·45 in a three-months-old specimen, prepared by cold percolation. The statement that continued boiling will invert the cane sugar in simple syrup the writer has been unable to verify, unless free acid was present.

The following deductions may be briefly considered:—By the presence of directly fermentable sugars in acid syrups, a favourable condition for the liability of rapid fermentation must be taken into consideration by the pharmacist. Such syrups, therefore, require special attention concerning preservation.

The physician is confronted by an analogous difficulty—namely, the likelihood of rapid decomposition in the stomach with consequent gastric disturbance. An objection to syrup of hydriodic acid, made by a physician, was the above complaint, and was attributed at the time to the liberation of iodine. The above results, however, convince the writer that inverted sugar was the disturbing factor. In plant chemistry a field for speculation is opened by the question—What influence have organic acids in the formation of the glucose regarded as a normal plant constituent?

QUALITATIVE EXAMINATION OF POWDERED VEGETABLE DRUGS.*

BY HENRY KRAEMER.

GROUP No. 4. COLOUR TAN, BUFF, ECRU TO DARK BROWN OR BROWNISH, BLACKISH AND BLUISH BLACK.

Belladonnæ radix, Ipecac. (Rio), Ulmus, Galla (Aleppo), Canella alba, Calamus, Quillaja, Physostigma, Wheat middlings, Elaterium, Althæa, Bryonia, Benzoin, Lappa, Althæa (unpeeled), Apocynum cannabinum, Apocynum androsæmifolium, Apocynum album, Horse nettle, Hydrangea arborescens, Pulv. Ipecac. et Opii, Pulv. Jalap. Co., Asclepias, Jalapa, Colchici cormis, Quassia, Inula, Aurantii amari cortex, Aurantii dulcis cortex, Limonis cortex, Pulv. Morph. Co., Pyrethrum, Aconitum, Podophyllum, Pareira brava, Rubus, Gelsemium, Euonymus, Ext. Sarsap. Fld. (powder), Ipecac (Carthagena), Cardamom (seeds and capsules), Cardamom, Vanilla and Sugar, Cort. Myrica cerifera, Lappa, Cusso, Sumbul, Sambucus, Taraxacum, Zingiber (African), Pulv. Glycyrrh. Co., Asafetida (stony), Glycyrrh. (Spanish), Zingiber (Jamaica), Tr. Gentian Co. (powder), Phytolacca, Syr. White Pine Comp., Anthemis, Gossypii rad. cort., Rumex crispus, Goa powder, Gentian. Santonica, Valeriana, Cascarilla, Xanthoxylum (Southern), Fœniculum, Tonka, Tobacco (pipe), Sabina, Rosa centifolia (pale), Chenopodium, Sarsaparilla (American), Xanthoxylum, Aralia spinosa, Zingiber (African), Insect powder (Dalmatian), Viburnum prunifolium, Aspidosperma, Powd. Opium, Cinnamon (Ceylon), Cinnamon (Saigon), Tr. Cardamom. Co. (powder), Tr. Lavandula Co. (powder), Aloes and Canella, Ext. Glycyrrhizæ, Tr. Catechu Co. (powder), Carum, Foeniculum, Pulv. Aromaticus, Coriander, Pimenta, Tobacco (cigar), Colchici sem., Guarana, Myristica, Caryophyllus, Cinnamon (Saigon), Cinchona nigra, Sassafras, Cinnamon (Cassia), Cinnamon (Ceylon), Quercus alba, Viburnum prunif., Cinchona flava, Tr. Cinch. Co. (powder), Composition (powder), Prunus virg , Geranium, Stillingia, Iris, Aloes (Barbadoes), Aloes (Soc.), Aloe et Canella (Hicra picra), Catechu, Cantharides (Russian), Clove stems, Goa powder, Cinnamon (Cassia), Conium fruit, Cubeb, Catechu, Larkspur seed, Corn Smut, Powder of Charcoal, Magnesia and Ginger, Willow charcoal Amylum iodatum.

I. Animal Tissues.

Fragments on being ignited on platinum foil give off odour of burning animal substance.

A. DO NOT COLOUR MOUNTS OF GLYCERIN OR GLYCERIN + CHLORAL.

234. *Cantharis (Russian).*—Not hairy.

235. *Mylabris Cichorii.*—Very hairy.

B. GLYCERIN MOUNTS COLOURED A CARMINE RED.

236. *Coccus.*

II. Presence of Vegetable Tissues, but no Fibro-Vascular Elements.

237. *Ergota.*—See No. 1.

III. Fibro-Vascular Elements Among Other Vegetable Tissues.

A. CONTAINING STARCH.

a. Possessing calcium oxalate crystals.

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* From the *American Journal of Pharmacy.* *Continued from page* 186.

α. Crystals rosette or star-shaped.

238. *Althæa (pecled).*—Crystals 25 μ; starch 14×10 μ; sklerenchyma fibres; mucilage; crystals of asparagin.

239. *Althæa (unpecled).*—As No. 238, but with appreciable quantity of cork cells.

240. *Aralia nudicaulis.*—See No. 2.

241. *Aralia spinosa.*—See No. 3.

242. *Asclepias.*—Crystals 35 μ (sometimes not numerous); starch 7 μ; numerous stone cells.

243. *Cascarilla.*—Crystals 15–20 μ; starch 3 μ; reddish brown secretion cells; sklerenchyma fibres.

244. *Canella alba.*—Crystals 20–30 μ; starch single to 3-compound (5 μ in diameter); large yellowish oil secretion reservoirs; peculiar stone cells thickened on but three sides.

245. *Composition powder.*—Starch, oil cells and crystals of Ginger (see No. 212); crystals and oil secretion reservoirs of cloves (see No. 346); oil and chromoplastids of capsicum (see No. 306); bayberry bark with characteristic crystal fibres and starch grains 7 μ.

246. *Euonymus.*—Crystals 20–35 μ; starch 4 μ; characteristic groups of bast fibres with 5–8 rows of medullary rays.

247. *Galla (Aleppo).*—Crystals 10 μ; starch single grains (10 μ) or sometimes in groups; stone cells; tannin; crystals of gallic acid.

248. *Geranium.*—Crystals, 60 μ; starch, 10–15 μ; numerous yellowish and reddish-coloured masses in cells; strong reaction for tannin.

249. *Gossypii Radicis Cortex.*—Crystals, 25 μ; starch, single (4 μ) to 3 to 4 compound (20 μ) grains; long bast fibres about 6 m.m long; secretion reservoirs; reddish and yellowish coloured masses.

250. *Jalapa.*—Crystals, 30–35 μ; much starch of characteristic form (18–36 μ); yellowish-brown secretion cells, as well as other characteristic, somewhat thickened cell with simple pores.

251. *Juglans.*—Crystals generally rosette-shaped (15–35 μ) or sometimes tetragonal (10×15 μ), occurring in parenchyma or occasionally in crystal fibres; bast fibres, 30 μ wide and very long; stone cells, 35×50 μ; oily drops and purplish-brown tannin masses in parenchyma. *J. cinerea*, L., is distinguished from *J. alba*, Mx., and *J. nigra*, L., in that each of the latter possesses numerous crystal fibres containing prismatic or rhombohedral crystals. *J. migra* has also in the medullary rays rosette-shaped crystals of calcium oxalate. *Juglans regia* appears more nearly to resemble *J. cinerea*, L. See Vogl.

252. *Myrica cerifera.*—Crystals either rosette-shaped (45 μ) or nearly cubical (15×15 μ to 15×20 μ), occurring in crystal fibres (as in licorice) accompanying the long bast fibres, which are as many as 100 μ in width and walls about 25 μ thick; starch either single (7 μ) or 2 to 4 compound.

253. *Podophyllum.*—Crystals, 50 μ in diameter; starch either single grains (5–8 μ), or 2 to 6 compound; numerous single yellow cells or groups of the same; sklerenchyma fibres and ducts.

254. *Pimenta.*—Crystals, 15 μ; starch, 7–10 μ; stone cells characteristic; oil secretion reservoirs are wine-coloured and characteristic.

255. *Pulv. Aloe et Canellæ (Hicra Picra).*—In addition to Canella alba (see No. 244) there is aloes, the appearance of which depends on the kind used (see Nos. 230, 486 and 487).

256. *Pulv. Jalapæ Co.*—In addition to Jalapa (see No. 250) has large irregular transparent crystals of potassium bitartrate (see No. 186).

257. *Pulv. Rhei Comp.*—Crystals and starch of Rheum (see No. 215); oil and starch of ginger (see No. 212), and crystals MgO (see No. 197).

258. *Hufland's Baby Powder.*—Crystals and starch of *Rheum* (see No. 215); carbonate of magnesia and sugar (as Oleo-sacch. of Fennel).

259. *Rubus.*—Crystals, 30 μ; starch, 7 μ; long bast fibres, 7 mm. long; reddish and yellowish-coloured masses.

260. *Rumex crispus.*—Crystals, 20–35 μ; starch, 10–18 μ; stone cells and sklerenchyma fibres; boil few milligrammes with water, filter, and to straw-coloured liquid add KOH = red chrysophanic acid reaction. In *Rumex hymenosephalus* starch grains characteristic, 4 × 8 to 7 × 16 μ; apparently no crystals.

261. *Serpentaria.*—Sometimes contains crystals (see No. 245).

262. *Stillingia.*—Crystals not numerous apparently (35 μ); starch (15 × 15 to 25 × 30 μ); sklerenchyma fibres very long, diameter, 20 μ; walls swell very perceptibly in KOH; oil secretion cells containing oil and reddish resin masses.

263. *Syr. Trifolii Comp.*—Rosette crystals, etc., of *Stillingia* (see No. 262); cubical crystals, stone cells and oil secretion reservoirs of *Xanthoxylum fraxineum* (see No. 29); tissues of *Lappa* (See No. 113); *Phytolacca* (see No. 301); *Berberis aquifolium* (see No. 557) *Cascara amarga* and *Red clover*.

264. *Sarsaparilla (American).*—See Aralia nudicaulis, No. 2.

265. *Viburnum prunifolium.*—Crystals, either rosette-shaped (35 μ) or cubical (15 μ), or somewhat coffin-shaped, occurring in crystal fibres like in licorice; numerous groups of yellowish stone cells (20 × 140 μ) of various shapes of numerous light cork cells; more stone cells and fewer sklerenchyma fibres in *V. prunifolium* than in *V. opulus*.

266. *Syr. White Pine Compound.*—See No. 285.

β. Tendency of crystals to cubical, tetragonal, hexagonal, or coffin-shape.

267.—*Aspidosperma.*—Crystals, 14–25 μ, in crystal fibres, about 8 mn. long, very characteristic.

268. *Calamus (pecled).*—Few crystals 7 × 10 or 5 × 5 μ in crystal fibres in outer part of cortex; sometimes get large acicular crystals in glycerin mounts about 55 μ long, which may be, however, 400 μ long; starch, 4 × 4 to 4 × 8; parenchyma characteristic; oil secretion cells; ducts and sklerenchyma.

289. *Calamus (unpeeled).*—More crystal fibres like in licorice and Uva ursi. (See No. 268.)

270. *Cardamom*—Crystals very small; starch in small grains, often in groups; thick, dark sklerenchyma being the outer and particularly the inner epidermis of the seed; the pericarp or fruit wall possesses sklerenchyma fibres and large parenchyma cells, some of which contain brown masses. The *Malabar* is distinguished from the *Ceylon* in that the latter has some 1-celled hairs; crystals are larger and more numerous; starch grains are larger; the outer epidermal cells are larger and contain one or more nearly cubical or hexagonal crystals. (See also Vogl and Mœller.)

271. *Cinnamon.*—See No. 292, sometimes find prismatic crystals.

272. *Ext. Glycyrrhizæ.*—Irregular wine-coloured fragments; starch grains altered and unaltered; few fragments of sklerenchyma and crystal fibres of glycyrrhiza. (See No. 276.)

273. *Ext. Sarsaparillæ Fld.*—Abundance of tissues and starch grains of sarsaparilla (see No. 40); sklerenchyma and crystal fibres of glycyrrhiza (see No. 275); tissues of sassafras (see No. 313); and mezereum (see No. 524).

274. *Frangula.*—Rosette-shaped crystals, 70 μ, cubical, pentagonal and hexagonal crystals (7 × 5 μ to 8 × 8 μ) in parenchyma cells or crystal fibres; starch grains not numerous, the grains occurring either singly or in groups; long, numerous bast fibres 15 μ wide; after section or powder lies in glycerin get numerous small globular and yellowish particles; boiling a few milligrams of the powder with water, filtering, and to the straw-coloured liquid adding KOH gives a red coloration. Absence of stone cells in *Frangula* distinguish it from *Rhamnus Purshiana*.

275. *Gelsemium.*—Crystals cubical (15 × 15 μ), tetragonal (15 × 20 μ) or prismatic (8 × 28 μ); starch grains 8 × 8 μ; numerous sklerenchyma fibres. Stem is distinguished from the root by the presence of groups of more or less altered sieve (*i.e.*, internal phlœm). Rhizome is distinguished from overground stem by the former having a stronger cork development and the latter chloroplastids.

276. *Glycyrrhiza* (*Spanish*).—Crystals of varying shapes, about 3 × 2 μ, occurring in crystal fibres in fragments of about 117 μ in length; starch grains about 5 μ in diameter; ducts and numerous sklerenchyma fibres. Spanish licorice is distinguished from the Russian in that a powder of the former is darker, due to the fact that the cork is retained and hence cork cells are relatively more numerous.

277. *Ginger, Charcoal and Magnesia.*—Few starch and oil secretion cells of ginger (see No. 212); crystals of MgO (see No. 197), and large number of wine-coloured or blackish wood fragments.

278. *Hufland's Baby Powder.*—Crystals and starch of rheum (see No. 215), crystals of MgO (see No. 197) and sugar (see No. 185).

279. *Iris.*—Crystals of shape like those of Quillaja; they arise in the intercellular spaces, and in powder are in broken pieces about 20 × 150 μ in size; parenchyma loose; cells contain reddish resin; ducts numerous.

280. *Krameria.*—Large crystals in shape like Quillaja, ranging from 10 × 45 to 25 × 110 μ, or even larger; starch 20–30 μ; bast fibres 400 to 875 μ long; about 15 μ wide and with a peculiar crook or bend; parenchyma containing bright, reddish-brown colouring substance. Bast in *Savanilla* rhatany longer and broader than *Peruvian* (see also Vogl).

281. *Myrica cerifera.*—See No. 252.

282. *Prunus Virginiana.*—Crystals rosette-shaped, cubical or hexagonal (20–30 μ); starch 4 μ; stone cells; bast fibres; taste and odour.

283. *Pulv. Glycyrrhizæ Co.*—Tissues of glycyrrhiza (see No. 275), and senna (see No. 21). Make chrysophanic acid test.

284. *Quillaja.*—Crystals prismatic varying from 15 × 60 to 35 × 100 μ, or even larger; starch 10 μ; sklerenchyma fibres; parenchyma with yellowish resin.

285. *Syr. White Pine Comp.*—Crystals, fibres and stone cells of *wild cherry* (see No. 281); characteristic crystals, etc., of *Aralia spinosa* (see No. 3); tissues of *sassafras* (see No. 313), sanguinaria (see No. 222), white pine bark and balm of Gilead buds.

286. *Ulmus.*—Hexagonal or coffin-shaped crystals 8 × 25 μ; starch 5–7 μ; groups of bast fibres and characteristic large mucilage cells.

287. *Viburnum Opulus.*—Crystals cubical (2 × 2 μ) or broadly prismatic (10 × 20 μ) in crystal fibres. More sklerenchyma fibres in *V. opulus* than in *V. prunifolium.* (See No. 265.)

288. *Viburnum prunifolium.*—See No. 265.

289. *Zanthoxylum.*—Tetragonal crystals 10 × 25 μ; starch 4–10 μ; large colourless secretion reservoirs; reddish cork; acicular crystals separate in glycerin mounts; apparently no bast or stone cells as in *X. fraxineum.* (See Mœller.)

β. Raphides (or needle-shaped crystals) of calcium oxalate.

290. *Cacao.*—Acicular crystals of theobromine and fat. (See No. 545.)

291. *Calamus.*—Acicular crystals in glycerin mount. (See No. 268.)

292. *Cinnamon.*—Raphides of calcium oxalate; stone cells; bast fibres; starch grains. The different cinnamons are distinguished in powder in that the *Ceylon* has little or no cork; *Cassia* has more lignified cells than *Saigon*; *Saigon* is more aromatic and pungent. The mounts of Ceylon cinnamon are lighter in appearance than those of either of the others. Regarding other characteristics the following may be of some service in distinguishing these barks; *Cassia* has on an average, starch grains 7 μ diameters; stone cells 60 μ wide; bast fibres 700 μ long; *Ceylon* has starch grains 3–7 μ diameter; stone cells 70 μ wide; bast fibres 60–100 μ long; *Saigon* has starch grains 10 μ diameter; stone cells 85 μ wide; bast fibres 750 μ long.

293 *Hydrangea arborescens.*—Needles 200 μ long; starch 4–15 μ; numerous sklerenchyma fibres.

294. *Ipecac.*—Acicular crystals 20–40 μ long; starch in single and 2–3 compound grains; tracheids, but no true ducts. Starch grains of *Rio Ipecac* on average 4–7 μ, may be 14 μ; that of *Carthagena* varies from 4–15 μ, the grains being uniformly larger. *Richardsonia* has true ducts.

295. *Pulv. Aromaticus.*—Tissues and cell-contents of Cinnamon (see No. 292) and Ginger (see No. 212) predominating; also Cardamom (see No. 23) and Nutmeg (see No. 496).

296. *Pulv. Ipecac. et Opii.*—Crystals of sugar of milk predominating (see No. 190); also Ipecac (see No. 294) and Opium (see No. 222).

297. *Tr. Catechu Comp.*—Tissues, etc., of Cinnamon (see No. 292) and Catechu (see No. 222).

δ. Crystal sand. (May occur as acicular crystals also.)

298. *Belladonnæ Radix.*—Starch in single (5–15 μ) and 2–3-compound grains; rather narrow ducts, with bordered pores; few sklerenchyma fibres; greyish-brown resinous masses. *Woody Belladonna* has more numerous ducts and sklerenchyma fibres; *Mealy B.* is richest in starch, and *Horny B.* is richest in greyish-brown resinous masses.

299. *Cinchona.*—Starch 4 μ in diameter; not very abundant characteristic bast-fibres 600 μ long by 50 μ wide; alkaloids can be crystallised out sometimes by use of KOH.

300. *Horsenettle* (*Solanum carolinense*).—Starch occurs in single (25 × 35 to 10 × 20 μ) or 2–4-compound grains; sklerenchyma and ducts.

301. *Phytolaccæ Radix.*—Acicular crystals 30 μ long or crystal sand; numerous starch grains 7–18 μ in diameter; large ducts; fragments of cork; sklerenchyma fibres short and long.

302. *Quassia* (*Surinam*).—See No. 358.

303. *Tinct. Cinchonæ Comp.*—Bast-fibres of *Cinchona* (see No. 303); parenchyma of *bitter orange peel* (see No. 206); sklerenchyma of Serpentaria (see No. 145.

304. *Zingiber* (*African*).—See No. 318.

(*b*) Containing starch, but few or no crystals of calcium oxalate and rather numerous fragments of tissues.

a. Possessing oil-cells or secretion reservoirs . . characteristic odour.

305. *Calmus* (*unpeeled*).—The crystal fibres occur only in outer portion of cortex, hence powder may contain few crystals; starch 4 × 8 to 4 × 4 μ; ducts and sklerenchyma; loose parenchyma; colourless or slightly yellowish oil-secreting cells.

306. *Capsicum.*—Starch grains very small; peculiar wavy stone-cells of seed, besides stone-cells of epicarp and endocarp; oil containing dissolved pigment of chromoplastids; characteristic secretion hairs of calyx; powder with H_2SO_4 becomes purplish and then purplish-red.

307. *Colchici semen.*—See No. 326.

308. *Cubeba.*—Starch, 1–4 μ in diameter; occurring also in aggregated masses; stone cells (50 × 50 μ), those of endocarp twice as long as wide; sklerenchyma fibres; needle-shaped crystals (cubebin) occur in stalk; much oil in numerous oil secretion reservoirs.

309. *Cinnamon.*—Crystals may not be observed. (See No. 292.)

310. *Piper nigrum.*—See No. 100.

311.—*Sabina.*—Starch 4 μ; characteristic hypodermis consisting of long fibres (15 μ wide) associated with epidermis.

312. *Sanguinaria.*—Starch grains single (4–8 μ), seldom 2–4-compound; orange and reddish-coloured secretion cells; mounts in glycerin are apt to contain sphere crystals.

313. *Sassafras.*—Starch grains single and 1–3-compound (7–20 μ diameter); bast fibres 455 μ long × 20–30 μ wide, being spindle-shaped much as Cinchona; yellowish and purplish-yellow fragments containing tannin; oil cells.

314. *Stillingia.*—Crystals may not be numerous. See No. 262.

315. *Sumbul.*—See No. 125.

316. *Syr. Trifolii Comp.*—See No. 263.

317. *Valeriana.*—Starch in single (7 μ) or 2–3-compound grains; oil in cells near hypodermis; peculiar cork; root hairs; sometimes in cells of epidermis or near them crystals (Valerianic acid salt) occur.

318. *Zingiber* (*African*).—Crystals likely to be overlooked, Distinguished from *Jamaica ginger* by possessing more numerous oil and resin cells and cork cells.

β. *Sklerenchyma as stone cells or fibres.*

319. *Aconiti Radix.*—Starch in single (4–12 μ) and compound grains, much resembling Colchici Cormis; tabular-*stone cells*; ducts; reddish-brown endodermis; taste characteristic.

320. *Apocynum.*—Starch; sklerenchyma and laticiferous vessels; ducts with bordered pores. In *A. album* starch 4–10 μ; stone cells 35×70 to 50×70 μ, with few large pores; bast fibres may not react readily, if at all, with phloroglucin; wood fibres react with phloroglucin; thick cork. In *A. androsæmifolium* starch 4–20 μ; stone cells 13×10 μ, possessing numerous fine pores; bast fibres may be absent; when present, behave towards phloroglucin like *A. album*. In *A. cannabinum* do not find stone cells or bast fibres; wood fibres are affected by phloroglucin; starch grains 7×15 to 10×10 μ, being larger than the other two; more numerous yellowish or nearly colourless fragments of laticiferous vessels than in the other two; numerous fragments of the yellowish and reddish-brown cork.

321. *Black Mustard Hulls.*—Characteristic stone cells and pigment cells of secd coat.

322. *Capsicum.*—See No. 306, stone cells.

323. *Chenopodium.*—See No. 108, stone cells.

324. *Coffee.*—Characteristic fragments of seed coat made up of parenchyma and spindle-shaped stone cells (175–200 μ long and 35 μ wide); most of the cells are those of endosperm with brownish-coloured walls, porous, 10 μ thick and contain oil, aleuron and starch. In commerce ground coffee is either made from the true coffee seed or is an artificial mixture of cereals, chicory, etc.

325. *Colocynthis.*—See No. 549.

326. *Colchici Semen.*—Starch 7–15 μ; characteristic thick-walled endosperm cells with simple pores and containing oil globules and protein; reddish-brown fragments of seed coat, the brown colouring matter soluble in KOH.

327. *Cubeba.*—See No. 308.

328. *Guarana.*—Parenchyma (60 × 70 μ) containing aggregated more or less altered starch grains (10 × 10 μ); stone cells (25 μ in diameter) nearly isodiametric; sklerenchyma fibres; on addition of KOH needle-shaped crystals (caffeine) may be obtained.

329. *Pareira.*—Yellowish stone cells (70 × 45 μ) occurring in groups; numerous starch grains, either single (7 × 10 to 15 × 15 μ) or compound; wood fibres.

330. *Physostigma.*—Starch, 25 × 40 μ; stone cells, also characteristic palisade sklerenchyma; stone cells, the contents of which are reddened by alkalies; oil and protein as granular masses.

331. *Phytolaccæ Radix.*—See No. 301.

332. *Podophyllum.*—Crystals sometimes apparently wanting; starch in single (5–8 μ) or 4 to 6 compound grains; numerous single cells or groups with yellowish resin; sklerenchyma fibres and ducts.

333. Sassafras.—Sec No. 313.

334. *Serpentaria.*—See No. 145.

(*c*) Containing starch; few tissue fragments and no calcium oxalate crystals.

335. *Amylum Iodatum.*—More or less angular grains (7–20 μ) of corn starch, coloured uniformly dark blue; on focussing above on the grain the edge is light blue.

336. *Bryonia.*—Starch in single (10–17) or two or more compound grains; somotimes find long acicular crystals (200 μ); ducts, 35–60 μ wide; cork yellow and yellowish-coloured cells, associated with ducts as in Colchici cormis; with H_2SO_4 powder coloured purplish and reddish-brown.

337. *Colchici Cormis.*—Starch in single (7–15 μ) and 2 to 4 compound (35 × 35 μ) grains; sometimes find needle-shaped crystals (70–200 μ long); few spiral ducts (21 μ wide); with H_2SO_4 powder coloured reddish-brown (port wine colour).

338. *Opium.*—In glycerin mounts consists of more or less greyish-brown and irregular granular masses (35–50 μ in diameter); little or no starch; epidermis of capsule cells, 40 × 40 μ in width, having lumen 7 × 7 μ; taste bitter and sparingly soluble in water or KOH. May get test for alkaloids with use of KOH. The *Smyrna* opium has most epidermal cells of capsule; the *India* few or none, and the *Persian* very little. The *Persian* always has an appreciable amount of starch. (See also Tschirch.)

339. *Tonka.*—Numerous starch grains, either single (5 × 7 μ) or aggregated; parenchyma containing brownish-red colouring substance; much oil.

B. WITH LITTLE OR NO STARCH.

(*a*) Containing calcium oxalate crystals.

α. *Crystals rosette or star-shaped.*

340. *Anisum.*—See No. 8.

341. *Carum.*—Crystals (1 μ) in aleuron (3 μ); characteristic brownish oil secretion reservoirs and epidermis of seed coat and pericarp.

342. *Chimaphila.*—See No. 12.

343. *Conium.*—See No. 13.

344. *Coriander.*—Crystals (3 μ) in aleuron (10 μ); light yellowish oil secretion reservoirs, with epidermis of seed coat and pericarp.

345. *Cusso.*—Crystals (20 μ); spherical pollen grains (25 μ); single celled, non-secreting hairs (210 μ long); small secretion hairs with a stalk; stone cells.

346. *Cloves.*—Crystals, 10–15 μ; numerous secretion reservoirs (125 × 125 μ to 120 × 210 μ; pollen grains somewhat triangular (15 μ); parenchyma loose; few bast fibres with the bundle. Heat powder with KOH get needle-shaped crystals possibly due to eugenol.

347. *Clove Stems.*—Numerous rosette-shaped, but also cubical (7 × 7 μ) crystals; sklerenchyma fibres 30 μ wide; numerous *stone cells* (30 × 100 μ to 100 × 100 μ); oil secretion reservoirs not so large or numerous as cloves.

348. *Fœniculum.*—Crystals (2 μ) in aleuron 6 μ; brownish oil secretion reservoirs with characteristic inner epidermis of pericarp running at right angles to the same; thickened latticed parenchyma.

349. *Quassia* (Surinam).—See No. 358.

350. *Santonica.*—Crystals 10 μ; pollen grains, spherical (15 μ); sklerenchyma fibres; secretion hairs containing crystals (santonin) soluble in alcohol and ether; powder, with H_2SO_4, becomes immediately blood-red. Santonica distinguished from *Artemisia* by the characteristic T-non-secreting hairs of the latter.

β. *Crystals cubical, tetragonal or prismatic.*

351. *Aurantii Amari Cortex.*—See No. 206.

352. *Aurantii Dulcis Cortex.*—See No. 207.

353. *Gaultheria.*—See No. 17.

354. *Gentian.*—Contains some small colourless or yellow prismatic crystals (may be calcium oxalate); in glycerin large prismatic crystals (5 × 15 μ) separate (possibly a sugar); spiral (30 μ wide), and scalariform (50 μ wide) ducts; yellowish oil globules; powder with Fe_2Cl_6 dark brown; characteristic "ersatzfasern" accompanying the sieve.

355. *Hamamelis.*—See No. 33.

356. *Illicium.*—Prismatic crystals (4–10 μ) of a stearopten in inner epidermis of seed coat; most characteristic are the sklerenchyma, of which there are 3-4 forms, of these the palisade sklerenchyma is most characteristic; loose parenchyma; oil in cells. In *I. religiosum* the stone cells are thicker than *I. anisatum*, and on treatment with KOH the latter becomes port wine red and the former a dirty orange-brown.

357. *Insect Powder.*—See No. 19.

358. *Limonis Cortex.*—See No. 208.

359. *Quassia.*—Cubical crystals (15 μ) in wood parenchyma; ducts and wood fibre. The *Jamaica quassia* is distinguished from *Surinam* in that the medullary rays of the former are 2–3 rows wide, whereas in Surinam they are but 1 row wide. In *Jamaica* we also find in addition crystal sand. When bark is ground with the wood the *Surinam* powder is distinguished by the presence of stone cells and rosette-shaped crystals of calcium oxalate. The latter are found only to a small extent in *Jamaica*.

360. *Quercus alba.*—Cubical crystals (15 μ), in crystal fibres 20 μ wide; large groups of characteristic stone cells; long bast fibres, which are 40 μ wide; colourless or light yellow parenchyma stained deep black with Fe_2Cl_6.

361. *Sambucus.*—Small crystals in calyx. See No. 474.

362. *Uva Ursi.*—See No. 37.

363. *Vanilla.*—Crystals, tetragonal and prismatic (7×17; 10×25; 7×35 μ) or needle-shaped (200–300 μ long); characteristic papillæ upon inside of pericarp; characteristic broadly ovate, brown to brownish black seeds with reticulate walls; lignified elements stained bright-red with phloroglucin; starch not found in ripe fruit. *Mexican Vanilla* has in connection with the elements of the fibro-vascular bundle a characteristic netted-pored parenchyma cell, distinguishing it from the other vanillas. Vanilla, distinguished from admixtures with *Tonka* by latter containing starch.

β. Crystals in Raphides.

364. *Vanilla.* See No. 363.

b Crystals in fine, sand-like particles.

365. *Cinchona.*—Contains small amount of starch. See No. 299.

366. *Quassia* (Jamaica).—See No. 358.

367. *Tobacco.*—Characteristic secreting and non-secreting hairs; sklerenchyma fibres; stomata characteristic.

C. NO STARCH OR CRYSTALS OF CALCIUM OXALATE, BUT MASSES OR CRYSTALS OF A CARBOHYDRATE (INULIN).

The *Inulin* occurs in numerous irregular nearly transparent or greyish fragments, sometimes perfect sphere-crystals. These masses or crystals are soluble in hot water; insoluble in alcohol and glycerin.

368. *Inula.*—Greyish-brown masses from secretion reservoirs; few sklereuchyma fibres (15 μ wide); reticulated ducts 32 μ wide; odour and taste.

369. *Lappa.*—Apparent absence of secretion reservoirs; more wood fibres and possibly larger reticulated ducts (as much as 70 μ wide) than Inula; cells of peridcrm brownish, becoming yellow with age; parenchyma very light coloured; no odour.

370. *Pyrethrum.*—Characterised by a stone cork (30 × 45 μ) with yellowish-brown contents; few sklerenchyma fibres; narrow reticulated ducts about 15 μ wide; characteristic parenchyma; oil secretion reservoirs; taste.

371. *Taraxacum.*—Characteristic milk vessels in chloral-iodine mount. See No. 165.

(*To be continued*).

THE PREPARATION OF VERMOUTH IN FRANCE.*

The manufacture of vermouth in France is confined almost exclusively to the city of Marseilles, where all the important manufactories exist. The article is made from ordinary white wine, which is produced extensively in the region of which Marseilles is the principal centre, and which on account of its aboundance is very cheap. A pure wholesome white wine may be bought in the South of France at an exceedingly low price. While returns showing the production of wine in France are published every year by the Government, no statistics are kept concerning either the production, consumption, or exportation of vermouth. The two principal points in Europe from which vermouth is exported are Marseilles and Turin. Vermouth, according to the United States Consul at Havre, is simply an infusion of certain plants and bitter aromatic herbs and roots in a quantity of wine, the degree of which has been strengthened by the addition of one-ninth of its bulk of alcohol, in order to bring the wine, which is usually of not more than 10° alcoholic strength, up to 15°. The alcohol used should be pure, clear, and of about 85° in strength. The following are the ingredients of ordinary French vermouth:—Dry white wine, muscatel wine, wormwood, bitter orange peel, camomile, water germander, Florentine iris root, centaury, Peruvian bark, aloes, cinnamon, nutmeg, alcohol at 85°, and raspberry juice. The herbs and other ingredients are sometimes allowed to remain in the wine for a period of two months, the solution being stirred every fifteen days. After the expiration of two months the wine is drawn off into another barrel and is allowed to remain therein for two weeks, after which it is drawn off a second time. In the event of the vermouth being cloudy, which is often the case, the manufacturer resorts to the simple process known as *collage*, which consists of stirring in some boiled milk in the proportion of one pint to 26 gallons of vermouth. The white of a single egg, well beaten, for each 26 gallons, or about half a fluid ounce of fish glue, is also used for this purpose. The vermouth should be allowed to remain in the barrel for about five days after the *collage*, after which time it may be drawn off and filtered. If the vermouth thus made is not sufficiently sweet, a little sweet wine or syrup may be added. Its degree of sweetness, however, should not exceed 5° to 7° on the Beaumé scale. Newly-made vermouth has a flavour of herbs, which is occasionally a little too pronounced. Age alone causes the disappearance of this. Certain manufacturers, instead of putting the herbs and other ingredients directly into the barrel, first inclose them in a linen sack, which is then suspended in the barrel of wine. The sack is withdrawn every five or six days, the liquid expressed from it into the wine, and the sack again suspended. It is left in the wine for a month, at the end of which time it is taken out, all the liquid pressed out of it, and the fluid thus expressed returned to the barrel. Other manufacturers first make an alcoholic extract of the ingredients, which extract is afterwards mixed with the wine in the proportions given below. To obtain the alcoholic extract referred to, it is but necessary to reduce the dry ingredients mentioned to powder, and to place the same in about 10 to 12 quarts of alcohol of 85° strength. The solution is allowed to remain standing for a week, after which 19 quarts of alcohol, and 7·35 quarts of white wine are added, together with the herbs cut into small pieces. The solution is then warmed in a water-bath, which should not be heated above 140° Fahrenheit. After half an hour's warming it is removed from the fire, allowed to cool, and to remain standing for eight or nine days, during which time it should be frequently stirred in order that the sediment may be brought as much as possible in contact with the liquid. The solution, when perfectly clear, is placed in a large glass vessel, and forms an extract of vermouth. To make the article of commerce, 1·58 quarts of the extract are mixed with 2·11 quarts of white wine. If, in the simple process of infusion first described, the addition of alcohol to the wine precipitates the tartar contained in the latter, and causes cloudiness, the solution should be allowed to stand a few days until it clears, after which the solid ingredients may be added. The quality of the vermouth manufacture in France depends in a great measure upon the sort of wine used. The wines most employed are those of the valley of the Rhone, certain Spanish wines, and the wines of the extreme South of France. There is a difference between the French and Italian vermouth. A number of French manufacturers make Italian vermouth, however, not for the purpose of deceiving the customer as to its origin, but merely as a type of vermouth, distinct in flavour from the article known as French vermouth. The following are the ingredients which enter into Italian vermouth:—Sweet white wine, wormwood, helenium, calamus odoratus, centaury, holy thistle, water germander, cinnamon, angelica root, gentian, nutmeg, fresh orange sliced, and alcohol at 85°. When the process of infusion, above described, is completed, the manufacturer, or an expert connoisseur identified with his manufactory, samples the vermouth in order to find whether or not it possesses the desired taste. Should the beverage be too bitter, the fault can be remedied by adding a small quantity of wine until, little by little, the proper flavour is reached. If not sufficiently bitter, a small quantity of the solid ingredients may be again infused in the wine. Nor is it necessary that vermouth should possess great alcoholic strength to be good. Some manufacturers make vermouth which contains 17° of alcohol, while others keep their product down to 12°. The average strength is from 14° to 15°.

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THE COMMERCIAL ASPECT OF MEDICINE.

THE commercial aspect of medicine receives attention in the current issue of the *Practitioner*, where it is remarked that for some time past the medical world has been troubled with the loud clamour of some medical practitioners, who have asserted that medical men can no longer make a living, and that the profession is going to the dogs. There has been no stint in the amount of advice proffered to the discontented ones, but, it is observed, to give advice is an art in itself, and interviews have therefore been sought with experienced practitioners who might be assumed to be capable of throwing some light upon the matter. The first interview was with an eminent member of the profession, "well known as a shrewd, level-headed observer of his time, and unequalled in applying to the wants and perils of the present the wisdom that his many years of discriminating observance have brought him." But this distinguished individual was disinclined to discuss the subject, and contented himself with the statement that very little good comes of good advice, and each man had better buy his own experience. The next individual approached was a practitioner of "the old school," who is tirelessly occupied with a large practice, but still continues to take the deepest interest in all things relating to his profession, and enjoys the reputation of being "one of the most trustworthy authorities of the day on medical ethics." To his mind, the art of giving advice requires as much aptitude as the ability to think out a really good prescription. He began by expressing the opinion that young medical men must be regarded as inexperienced in spite of their five years' training, and all their hospital work. Before starting practice on their own account, therefore, they should acquire a fair amount of *savoir faire* by going for a few months' voyage as ship's surgeon, taking up the post of house-physician or house-surgeon to hospitals and infirmaries, or by acting for a time as assistant or *locum tenens*. A nervous manner and an irresolute method of address must, he thinks, be regarded as very serious drawbacks, and individuals so unfortunate as to possess them are advised to take some appointment for a year or two at least.

The question of dispensing by medical men came up in the course of this second interview, the authority on medical ethics being asked how he considered the fact of a doctor not dispensing affected the professional standing of his practice. In reply, he quoted from a letter in the *British Medical Journal*, to the effect that the doctor is "an orderer" of drugs, and the chemist "a mixer up" of the same, adding that there is no doubt the professional standing of a practice where the medical man prescribes only is on a higher grade than that where the practitioner dispenses his own medicines. In this matter of dispensing, it was stated, every practitioner should consider whether it is desirable for medical men to be influenced in any way with regard to the actual sale of commercial commodities such as drugs. "But whether a man should dispense or not depends to a great extent upon the circumstances of the case, for, as things stand at present, it is absolutely necessary for the doctor to do his own dispensing in some districts, from the simple fact that there is no chemist within several miles of him." The suggestion that if country doctors did not dispense, then chemists would be needed, in obedience to the law of supply and demand, was met by the rejoinder that it was difficult to see how that would result unless the chemist reduced his charges very considerably, especially in the case of the very poor. Of course, it was remarked, the whole aspect of affairs would be altered if all doctors were to prescribe only, "because then the chemists would be able to lower their rates," and it was added that nothing but good would result from such a state of things, the profession as a whole being raised to a higher level. The public, it was added, certainly has an idea that a man who prescribes only is of a higher standing than one who doles out his medicines by the bottle, and it is very desirable in general practice to study carefully and follow out any method or plan of conduct which promises to result in a man standing well in public opinion.

A third leading practitioner who was interviewed also referred at length to this question of dispensing by medical men. In rural districts, he urged, dispensing is a necessity to a practitioner, and it is in no wise derogatory to him. According to this authority, even where chemists are to be found in the country, they will not, and indeed scarcely can, dispense so economically as a medical man with a fair-sized practice. The plan of delegating all dispensing to the country chemist was, therefore, said to result in a serious drawback to income, and it was also asserted that country chemists cannot always be depended upon for keeping fresh first-class drugs. Though no evidence was advanced in support of those assertions, there is no reason to doubt that general practitioners do in many instances realise a considerable profit from the sale of medicines dispensed by themselves or their assistants. That fact is virtually acknowledged in the statement that a large saving was effected in one practice by employing a resident dispenser instead of delegating all the dispensing to a chemist in the neighbourhood, as had formerly been the custom. Whether the patients benefited, physically and pecuniarily, to the same extent is not recorded, but it is somewhat inconsequentially asserted that, socially and professionally, the character of the partners and of the practice stands as high as when the dispensing was done by the chemist. Apparently, then, so long as a medical man's dignity does not suffer, and the character of his practice is maintained at a satisfactory level, he is to be commended by his fellow prac-

titioners for intercepting the chemist's profits, even though his patients do not receive the best possible service. The *Medical Press* also appears to regard the question of dispensing by medical men as a purely commercial one, for, in an editorial note in this week's issue, it seems to propose that a sort of bargain should be entered into, the chemist agreeing to refer all who ask him to prescribe to a neighbouring medical man, and the latter to send them back to the chemist with prescriptions to be dispensed. Such reciprocity, it is suggested, would be only natural, but can it be realised ?

THE GERMAN APOTHEKER-VEREIN.

THE twenty-eighth annual meeting of the German Apotheker-Verein, held last week at Danzig, was one of the most important in the history of this Association. In many respects the questions that now agitate British and Irish pharmacists have long been under consideration in Germany, and have now reached an acute stage, which gives rise to considerable anxiety. The old system of privileges and transferable concessions, which was long a source of advantage to the apothecaries as well as to the public, belonged to a past time, and is no longer sufficiently in harmony with modern conditions to be maintainable against a system under which any person having the personal qualification requisite for carrying on a professional occupation is free to practise. The difficulty is how to deal with the properties—in some instances very valuable—which have come into existence under the old system; how to liquidate them with due consideration for all interests concerned, and let the principle of free enterprise replace that of State protection, which has in the past ensured a high professional standard of qualification in the apothecaries of Germany. Under these conditions the interest taken in the discussions at the Danzig meeting was so great that, notwithstanding the remote situation of the town, the attendance was nearly double what had been anticipated. The proceedings were, perhaps, more animated than on any previous occasion, revealing also an amount of dissent in regard to important points which seems almost to equal that prevailing among chemists and druggists in this country, and also to betray a disregard for the necessity, not only of unanimous and concerted action by the apothecaries, but also of liberal consideration of all other interests that are concerned and would be affected by change of the mode in which the practice of pharmacy is regulated. Some further particulars in reference to these matters that will be of interest to readers of the Journal will be given in future issues, and for the present it will be sufficient to report that Herr FRÖLICH has retired from the position of President and member of the Council, in consideration of his appointment as a member of the ministerial department which has to deal with pharmaceutical affairs. He is succeeded by Herr BELLINGRODT, of Cologne. The other new members of Council are Dr. BAETCKE, of Berlin, and Dr. BEDALL, of Munich. Mr. MADSEN, of Copenhagen, was elected an honorary member of the Verein, and at the concluding meeting the same honour was conferred by acclamation upon Herr FRÖLICH, the retiring President, as a mark of appreciation of the important services he has rendered to German pharmacists during the many years that he has been a member of the Council and President of the Verein.

ANNOTATIONS.

THE PROPOSED CANADIAN ADDENDUM to the British Pharmacopœia, particulars of which are published at page 231, is the outcome of the labours of a committee consisting of Dr. Blackader, of McGill University; Dr. Hernieu, of Laval; Dr. Wilson, of Bishop's; Dr. Gordon Campbell; Mr. W. H. Chapman, President of the Montreal College of Pharmacy; Mr. R. W. Williams, President of the Pharmaceutical Association of the Province of Quebec; Dr. G. Adami, President of the Montreal Medico-Chirurgical Society; Dr. Bazin, Secretary; and Professor J. E. Morrison, Editor of the *Canadian Pharmaceutical Journal*. The presidents of the various provincial medical and pharmaceutical associations were also appointed members of the Montreal Committee. Professor Morrison had previously suggested the inclusion in the Pharmacopœia of certain drugs used in Canada, and the paper embodying his suggestions is reprinted at page 230. He was subsequently requested by the committee to undertake the practical work in connection with the carrying out of his suggestions, and the work of devising the formulæ and making the preparations for exhibition to the committee was entrusted to Messrs. Lyman, Sons and Co., of Montreal.

THE APOTHECARIES' HALL is the subject of an interesting article by Miss B. H. Maxwell, in the *Humanitarian*, and it is stated therein that the charter granted to the Society in 1633 gave it the right to acquire Cobham House and grounds, which belonged to Lady Howard of Effingham. The place was destroyed in the great fire of 1666, and the present buildings were erected subsequently. They comprise a spacious court-room, a parlour, a library, laboratories, dispensary, court rooms, and other buildings, occupying three-quarters of an acre There are many interesting pictures and portraits in the apartments, including a portrait of James I. dating from the sixteenth century, paintings of the former masters and patrons, engravings of the celebrated antique mortar, of the "Physic Gardens" at Chelsea, and of the Society's Arms. In Pennant's 'London' appears the following passage:—"Until these few years this house was possessed of a most curious antique mortar. On the body were several figures, such as two griffins, supporters to a tree; and two animals, perhaps antelopes, supporters to another; two lions in the same character to a third tree; and two others supporting a castle, triple towered. There is also an effigy of Gilbert de Laune, founder of the Hall, and its greatest benefactor, who was Apothecary to Anne of Denmark, and was the ambassador sent to escort her to be the bride of James the First. The immediate neighbourhood of the Apothecaries' Hall is interesting from its many old associations. Not far off was the Palace of Bridewell, built by Henry VIII., also the playhouse of Blackfriars, where Shakespeare acted, Play House Yard, and Printing House Square. The proximity of the river, to which the Society's premises originally extended, gave the name of Water Lane to the narrow street that leads directly to the entrance.

THE OLD APOTHECARY'S ART is said to have had two practical sides—the study of poisons, regarded as an interesting, necessary and praiseworthy occupation, and the supplying of drugs and spices for the concoction of medicines and unguents. "This was, in fact, the grocery department, and the apothecaries were originally grocers, trading in such goods as rue, hyssop, fennel, mustard, elecampane, southernwood, rosemary, lovage, coriander, savin, chervil, lupin, cummin, flax, savoury, obstratum, quicksilver, brimstone, myrrh, frankincense, ginger, petroleum, vulvage, mastick, ammoniacum, scammony, and many other drugs." These traders in England in the twelfth century were called pepperers, spicers, and Easterlings (referring to their dealings in merchandise with the Orient), and even at that early date had

formed themselves into a company which paid toll to the reigning monarch in the form of pepper and spices. For a period of two centuries the incorporatien of the grocers and apothecaries continued, but gradually the apothecaries proper drew themselves apart from the mere grocers, and we find them accusing their former colleagues of adulterating their goods, and "makynge of untrewe powder, of gynger, cynamon, and sawnders." The grocers retaliated by stating that the apothecaries monopolised the buying and selling of drugs, and the distillation and selling of all waters within the City of London and seven miles thereabouts. These mutual complaints were brought before James I., who championed the cause of the apothecaries and granted them the charter which sanctioned their existence as a separate society. He also gave them privileges which raised them at once to a superior position over any mere traders. He allowed them to incorporate the two unicorns in the Royal Arms of Scotland with their arms. Every applicant who desired membership had to pass an examination in Latin, and gradually this qualification was added to, and rendered more difficult, with a view to raising the status of the Society. "Then began a war with the physicians, who desired that the apothecaries should have the right only to dispense and sell medicines, and not to prescribe them; and in this the Great Plague played the part of advocate to the Society, for the ranks of practitioners were so devastated by the disease, and the number of sufferers so enormous, that the people were only too glad to call in the apothecaries, and to pay for their medical advice as well as for their drugs. The battle raged fiercely for a century, and in 1721 the apothecaries again triumphed by receiving at the hands of the Law Courts the right to practise medically, and to refuse that the physicians should make inspection of their drugs with the power of condemnation."

THE PHYSIC GARDEN AT CHELSEA appears, according to Miss Maxwell's account, to have originated in a somewhat accidental fashion. In 1673 the apothecaries leased some ground in Cheyne Walk, for the purpose of building a house convenient for the reception of their ornamental barge; and gradually the garden became more cultivated, until in 1722 Sir Hans Sloane, President of the Royal College of Physicians and Master of the Society of Apothecaries, made a deed of gift of it, with directions that it should be preserved as a Physic Garden, "for the manifestation of the power, wisdom, and glory of God in the works of creation." The word "physic" seems to imply that the produce of the garden was to be used pharmaceutically, but that was expressly forbidden, the object of the garden being simply the advancement of botany, and especially that portion of it useful to medical science. Of four cedar trees planted there in 1683, the only survivor at the present day is dying. Evelyn wrote of the Physic Garden that it contained many rare and interesting simples and annuals, comprising "the tree bearing Jesuit's bark, which has done such wonders in the quartan agues." He mentions also as a marvel of ingenuity "the subterraneous heat conveyed by a stove under the conservatory, all vaulted with brick, so as he (the gardener) has the doors and windows open in the hardest frosts, excluding only the snow."

"WIRELESS" TELEGRAPHY with kites is reported by Laffan's Agency to have been fairly successfully carried on between Harvard College and Milton, Massachusetts. The distance was twelve miles, and there were considerable difficulties owing to electric power houses, electric trollies, etc., on the route. In spite of that, however, it was found possible to telegraph at the rate of ten words a minute, and it is thought that greater success will be achieved when the disturbing elements have been overcome. The process employed was practically the same as Signor Marconi's, but wires hanging from the kites were substituted for poles. It is claimed that such wires have an advantage over poles, as being more easily adapted for any height or distance.

THE ROYAL PHOTOGRAPHIC SOCIETY asks us to remind our readers that all entries for the Forty-fourth Annual Exhibition of the Society, to be held at the Gallery of the Royal Society of Painters in Water Colours from September 25 to November 11, close on Wednesday, September 6, at 9 p.m. Exhibits in packing cases must be delivered at 66, Russell Square, on or before September 5.

THE EXAMINATION CRAZE which has so long affected the authorities of the Department of Science and Art is apparently beginning to die out, for a notice has been issued by the Lords of the Committee of Council on Education, stating that they have under consideration the assessment of the efficiency of instruction in the Elementary Stage of Science and Art subjects by inspection only. It is proposed to discontinue examinations, as a test for the purposes of assessing the grant in that stage, after the year 1900. It is also proposed that papers shall continue to be set in that stage for students who may desire to be examined and to possess a certificate of having passed the examination; but that in those cases a fee should be charged to cover the cost of examination. Presumably, therefore, the taking of the progressive step referred to is instigated by motives of economy rather than anxiety to improve upon existing methods. But, however that may be, the proposed breaking away from old traditions is one to be cordially welcomed, in the interests of science no less than those of education.

PENNY POSTAGE TO THE CAPE OF GOOD HOPE comes into force this week, the Postmaster-General having announced that on and after Friday, September 1, the postage to be prepaid on letters from this country for the Cape of Good Hope will be 1d. per ½ oz., instead of 2½d. as at present. The postage on letters for the Australian colonies, New Zealand, and Rhodesia will continue to be 2½d. per ½ oz. These are now the only British possessions of importance which have not adopted the penny postage scheme.

STORES PHARMACY is far from being an unqualified success, if one may judge from some facts brought to the editor's attention this week by an original subscriber to one of the large service stores in London. This gentleman ordered a dozen five-grain quinine powders, and received them in a box labelled accordingly, and bearing the name of the chemist in charge in addition to the name of the stores. On taking one of the powders, however, he was seriously upset, and he therefore decided to call upon the secretary of the stores and ask for an explanation. Suspecting that the weight of the powders was probably at fault, he mentioned his suspicion to the official and asked that the remaining powders might be weighed in his presence. The dispenser was summoned with his scales, and the eleven powders were separately weighed on the spot. The weights, as subsequently marked by the secretary on the papers enveloping the powders, were as follow:—No. 1, 8 grains; Nos. 2, 3 and 4, each 9 grains; No. 5, 9½ to 10 grains; No. 6, 10 grains; Nos. 7, 8 and 9, each 11 grains; Nos. 10 and 11, each 12 grains. The average weight of each powder was, therefore, twice the weight indicated on the label, and the reason of the unusual effect produced on the purchaser was at once revealed. Needless to say, the secretary of the stores was profuse with apologies, offered to exchange the powders, and displayed great anxiety to retain the box with its label. He also stated that the stores would suffer a loss by reason of the extra quantity of quinine supplied (*sic*). The price charged, by the way, was ninepence per dozen. The purchaser declares that he will not trust the stores to supply his medicine in future, and he seems now to doubt the fitness of stores to carry on the business of a chemist and druggist, even though a duly qualified person is, or is supposed to be, in charge.

SOME SUGGESTIONS FOR A CANADIAN ADDENDUM TO THE BRITISH PHARMACOPŒIA.*

BY J. E. MORRISON.

In 1893 the General Medical Council invited the co-operation of medical and pharmaceutical associations in the preparation of an addendum or addenda for use in the Colonies and India. The Australian and Indian associations responded, and their suggestions have been embodied in a report which was recently issued and distributed. This report includes only the suggestions of the previously mentioned bodies, none having been received from Canada. As we in this country use a number of drugs which are not official in the British Pharmacopœia, we have thought it advisable to offer a list of them for consideration. It will be noticed that the most of them are official in the Pharmacopœia of the United States; and on this point I might draw attention to the peculiar condition of affairs which exist in Canada as regards the pharmacopœias in use.

The Dominion Adulteration Act recognises the British and United States pharmacopœias as standards; the Ontario Pharmacy Act, only the British; while in the Maritime Provinces and even in certain parts of Ontario the preparations of the United States Pharmacopœia are much more frequently prescribed than those of the British, and in Montreal and in other parts of the Province of Quebec, Codex preparations are often ordered.

Being in a position to judge of what drugs and preparations are most in demand by physicians from Cape Breton to British Columbia, the writer is of the opinion that the following list includes those frequently prescribed, which it would be advisable to include in a Canadian addendum if such is to be published.

APOCYNUM.—The root of *Apocynum cannabinum*, L. The fluid extract of the U.S.P. is the form in which this drug is most used.

ARNICÆ FLORES.—The flower heads of *Arnica montana*, L. Employed in the form of tincture: that official in the B. P. being very seldom prescribed by physicians and never used in household medicine.

ELIXIRIA.—Elixirs are a very popular class of preparations. The U.S.P. recognises two, Aromatic Elixir and Elixir of Phosphorus. It would be advisable to officialise a simple or aromatic elixir as a basis for other compounds or as a vehicle in dispensing.

EMULSA.—An emulsion of castor oil is now official. Why not also given a formula for an emulsion of cod liver oil, which is much more frequently prescribed? An emulsion containing 50 per cent. of oil can easily be made, and there is more need of an official formula for this preparation than there is for that of castor oil.

EXTRACTUM APOCYNI LIQUIDUM.—The U.S.P. preparation is frequently prescribed, and a similar article should be official.

EXTRACTUM BUCHU LIQUIDUM.—Tincture of Buchu is, we may say, never prescribed in Canada, but the fluid extract is one of the most frequently prescribed, as it is the best preparation of this drug. The fluid extract of the U.S.P., using alcohol as a menstruum, is a satisfactory preparation.

EXTRACTUM CANNABIS INDICÆ LIQUIDUM.—The U.S.P. fluid extract is prescribed as often as the B.P. tincture, and could profitably be recognised for use in Canada.

EXTRACTUM GELSEMII LIQUIDUM.—More popular than the tincture or extract of the B.P. The U.S.P. preparation is satisfactory.

EXTRACTUM GRINDELIÆ LIQUIDUM.—The drug is also recommended by the Australian authorities. It is frequently prescribed in Canada in the form of fluid extract. The U.S.P. directs the use of alcohol in this preparation, but the objection to this is that the fluid extract is not miscible with syrup owing to the large percentage of resin which it contains. An excellent miscible preparation may be made by percolating with alcohol, 80 per cent., distilling off the greater part of the spirit, and adding a solution of sodium bicarbonate and alcohol to make up the volume.

EXTRACTUM HYOSCYAMI LIQUIDUM.—Preferred to the tincture, as it contains less alcohol.

EXTRACTUM PRUNI VIRGINIANÆ LIQUIDUM.—The drug is now official in the B.P. with two preparations, the syrup and the tincture. The latter is never prescribed or used in Canada, and never will be, whereas the fluid extract is one of those most largely in use. The U.S.P. preparation is very satisfactory.

EXTRACUM TRITICI LIQUIDUM.—Official recognition of the drug and the liquid extract is advisable.

EXTRACTUM SENEGÆ LIQUIDUM.—The remarks applied to the tincture of wild cherry hold with the tincture of senega. The only preparations of this drug which are used to any extent are the fluid extract and the syrup, both of which are official in the U.S.P.

EXTRACTUM VIBURNI OPULI LIQUIDUM, and

EXTRACTUM VIBURNI PRUNIFOLII LIQUIDUM.—Neither of these drugs is official in the B.P., but the fluid extracts of the U.S.P. are frequently prescribed.

GRINDELIA.—The leaves and flowering tops of *Grindelia robusta* (Nuttall), and of *Grindelia squarrosa* (Dunal). Recommended by the Australian authorities; fluid extract is frequently prescribed.

MUCILAGO SASSAFRAS MEDULLÆ.—Mucilage of Sassafras Pith. Its use as a vehicle for applications to the eye is constantly increasing and an official formula is desirable.

SANGUINARIA.—The rhizome of *Sanguinaria canadensis* is used to a considerable extent in the form of fluid extract and tincture.

SASSAFRAS MEDULLA.—The pith of *Sassafras varifolium*. The mucilage, as already noted, is employed as an emollient application in conjunctivitis, etc.

SYRUPUS ACIDI HYDRIODICI.—This is in constant demand, two or three semi-proprietary makes having a large sale. It would be advisable to have an official formula for its preparation. We think a 2 per cent. preparation would be preferable to that of the U.S.P.

SYRUPUS HYPOPHOSPHITUM.—An official formula for this preparation is needed. The syrup of the U.S.P. is in increasing demand.

SYRUPUS IPECACUANHÆ.—In certain sections this is more frequently prescribed than the wine of the B.P. In the Province of Quebec the compound syrup of the Codex is popular. A formula for a syrup similar to that of the U.S.P. could advantageously be added.

SYRUPUS SENEGÆ.—With the exception of the fluid extract this is the most popular preparation of senega.

TINCTURA ARNICÆ FLORES.—As already stated under "Arnica," this is always given when Tincture of Arnica is asked for. It would be advisable to officialise a tincture of the flowers, made with 50 or 60 per cent. alcohol.

TINCTURA OPII DEODORATA.—This is official in the U.S.P. and is much used in Canada, as in some respects it is superior to the ordinary tincture. It could be made of the same morphine strength as the present official tincture.

TRITICUM.—The rhizome of *Agropyrum repens*, L. Couchgrass is one of the standard remedies, being as frequently prescribed as buchu, in decoction or as fluid extract.

VIBURNUM OPULUS.—The bark of *Viburnum opulus*, L.

VIBURNUM PRUNIFOLIUM.—The bark of *Viburnum prunifolium*, L. The fluid extracts of these drugs are much used, especially that of the latter.

Besides the foregoing, which are official in the Pharmacopœia of the United States, a few others such as the following might advantageously be recognised:—

* From the *Canadian Pharmaceutical Journal* for March, 1899.

Syrupus Ferri Phosphatis Compositus.—Parrish's Chemical Food.—Probably in greater demand than any syrup in the British Pharmacopœia.

Tinctura Jalapæ Compositæ of the Codex is much more frequently prescribed by French-Canadian physicians than the tincture of the B.P.

Hydrargyri Iodidum Flavum.—This salt is generally preferred by physicians to the mercuric iodide. The pills have a very large sale as an anti-syphilitic.

PROPOSED CANADIAN ADDENDUM TO THE B.P.

The *Canadian Pharmaceutical Journal* publishes the following draft of a proposed Canadian Addendum to the British Pharmacopœia, which has been compiled by a committee specially appointed for the purpose, and copies of which have been sent to the presidents of all the medical and pharmaceutical societies of Canada so that the matter might be brought before those bodies and discussed :—

Elixir Simplex.
Simple Elixir.

Tincture of Orange	2 ozs.	100 C.c.
Tincture of Lemon	½ ,,	25 ,,
Orange Flower Water	2 ,,	100 ,,
Alcohol (90 per cent.)	3 ,,	150 ,,
Kaolin, Water	Of each a sufficient quantity.	

Mix the tincture of orange, tincture of lemon, orange flower water, alcohol, syrup and four fluid ounces (or two hundred cubic centimetres) of water with two ounces of kaolin ; set aside for twenty-four hours ; filter ; wash the filter with sufficient water to make twenty fluid ounces (or one thousand cubic centimetres) of simple elixir.

Note.—In response to a demand for a simple dilutent.

Emulsum Olei Morrhuæ.
Emulsion of Cod Liver Oil.

Cod Liver Oil	8 ozs.	500 C.c.
Gum Acacia (in powder)	2 ,,	125 grammes
Syrup	1 ,,	62½ C.c.
Oil of bitter almonds	5 minims	12 minims
Water	a sufficient quantity.	

Triturate the cod liver oil and gum acacia together ; add five ounces (or three hundred and thirteen cubic centimetres) of water, and stir briskly ; when the emulsion is formed add the oil of bitter almond, the syrup, and sufficient water to make sixteen fluid ounces (or one thousand cubic centimetres).

Note.—For the administration of cod liver oil, or as a basis for combination with the hypophosphites, creosote, quinine, etc.

Extractum Apocyni Liquidum.
Liquid Extract of Apocynum.

Apocynum (in No. 60 powder)	20 ozs.	1,000 grammes
Glycerin	2 ,,	100 C.c.
Alcohol (90 per cent.)	a sufficient quantity to make 20 fd. ozs.	1,000 C.c,

Process the same as for liquid extract of hamamelis.

Dose—2 to 5 minims.

Note—Valuable diuretic and cardiac stimulant. Occasionally used.

Extractum Buchu Liquidum.
Liquid Extract of Buchu.

Buchu leaves (in No. 40 powder)	20 ozs.	1,000 grammes.
Alcohol (90 per cent.)	a sufficient quantity to make 20 fd. oz.	1,000 C.c.

Process the same as for liquid extract of hamamelis.

Note.—The tincture is rarely used in Canada, as it contains too much alcohol. The fluid extract is frequently prescribed.

Extractum Hyoscyami Liquidum.
Liquid Extract of Henbane,

Henbane leaves (in No. 40 powder)	20 ozs.	1,000 grammes.
Alcohol (60 per cent.)	a sufficient quantity.	

Same as buchu.

Note.—More reliable than the succus as obtained in Canada, and contains less alcohol than the tincture.

Extractum Tritici Liquidum.
Liquid Extract of Couch Grass.

Couch Grass (cut small)	20 ozs.	1,000 grammes.
Boiling water	a sufficient quantity.	
Alcohol (90 per cent.)	5 ozs.	250 C.c.

Digest the couch grass with one hundred ounces (or five litres) of boiling water for six hours ; strain ; repeat the operation twice ; mix the infusions and evaporate to fifteen ounces (or eight hundred cubic centimetres) ; add the alcohol ; let stand twenty-four hours, and filter.

Dose—1 to 2 drachms.

Note.—Very often used. All the principles are in solution.

Extractum Grindeliæ Liquidum.
Liquid Extract of Grindelia.

Grindelia in No. 40 powder	20 ozs.	1,000 grammes
Sodium Carbonate	2 ozs.	100 ,,
Water	10 ozs.	500 ,,
Alcohol (80 per cent.)	a sufficient quantity.	

Moisten the grindelia with eight ounces (or four hundred cubic centimetres of alcohol) ; macerate in a closed vessel for twenty-four hours ; pack the moistened powder in a percolator, and add sufficient menstruum to saturate it thoroughly ; when the liquid begins to drop, close the lower orifice of the percolator ; set aside for twenty-four hours ; then allow percolation to proceed, gradually adding menstruum till the grindelia is exhausted. Recover the alcohol by distillation, and dissolve the residue in the water containing the sodium bicarbonate, and after effervescence ceases add sufficient alcohol to make twenty ounces (or one thousand cubic centimetres) of liquid extract,

Dose—10 to 20 minims.

This preparation mixes clear with watery fluids as the resins are saponified by means of the sodium carbonate. It is preferable to the alcoholic fluid extract.

Extract Senegæ Liquidum..
Liquid Extract of Senega.

Senega (in No. 40 powder)	20 ozs.	1,000 grammes.
Solution of Soda	2 ,,	100 C.c.
Alcohol (70 per cent.)	a sufficient quantity.	

Moisten the powdered senega with the solution of soda and six ounces of alcohol ; pack the moistened powder in a percolator, etc., the same as for buchu.

Dose—5 to 20 minims.

Note.—Is in considerable demand.

The non-volatile alkali is preferable to the ammonia directed in the U.S.P. formula.

Extractum Sanguinariæ Liquidum.
Liquid Extract of Blood Root.

Blood Root (in No. 60 powder)	20 ozs.	1,000 grammes.
Glycerin	2 ,,	50 C.c.
Acid Acetic	¼ ,,	26 C.c.
Alcohol (80 per cent.)	a sufficient quantity.	

Mix the glycerin and acetic acid with eight ounces (or four hundred cubic centimetres) of alcohol. Moisten the blood root with the mixture ; pack the moistened powder in a percolator ; and proceed as with buchu.

Dose—3 to 10 minims.

(Less Important.)

Extractum Viburni Opuli Liquidum.
Liquid Extract of Cramp Bark.

Cramp Bark (in No. 60 powder)	20 ozs.	1,000 grammes
Alcohol (70 per cent.)	a sufficient quantity.	

Same as buchu.

Dose—1 to 2 drachms.

(Less important.)

Extractum Viburni Prunifoli Liquidum.
Liquid Extract of Black Haw.

Black Haw (in No. 60 powder)	20 ozs.	1,000 grammes.
Alcohol (70 per cent.)	a sufficient quantity.	

Same as buchu.

Dose—1 to 2 drachms.

Note.—Valuable and much in use.

LIQUOR THYMOL COMPOSITION.
Compound Solution of Thymol.

Benzoic Acid	10 grammes	½ oz.
Boric Acid	20 „	1 oz.
Borax	10 „	½ oz.
Thymol	2 „	44 grs.
Eucalyptol	10 drops	4 drs.
Oil, Wintergreen	10 „	4 drs.
Oil of Peppermint	6 „	2 drs.
Glycerin	100 C.c.	
Alcohol (90 per cent.)	300 C.c.	
Water	a sufficient quantity.	

Dissolve the thymol, oil of wintergreen, and oil of peppermint in the alcohol; dissolve the benzoic acid, boric acid and borax in twelve ounces (or six hundred cubic centimetres) of water; add the glycerin; mix the two solutions; set aside for twenty-four hours; filter through kaolin, and add sufficient water to make twenty fluid ounces (or one thousand cubic centimetres).

NOTE.—Similar proprietary preparations are in constant demand.

OLEUM GAULTHERIA.
Oil of Wintergreen.

The oil distilled from the leaves of *Gaultheria procumbens*.

Characters and tests.—Colourless or slightly yellowish tint. Specific gravity, 1·180 to 1·187. It should rotate the plane of a ray of polarised light not less than 0·25 to the left in a tube 100 millimetres long. (Powers and Kleber.)

NOTE.—A favourite aromatic oil in Canada.

SYRUPUS ACIDI HYDRIODICI.
Syrup of Acid Hyrdiodic.

Potassium Iodide	236·25 grains	27 grammes.
Tartaric Acid	223 „	25 „
Calcium Hypophosphite	17½ „	2 „
Water	525 minims	60 C.c.
Alcohol (45 per cent.)	440 „	
Syrup to make		1,000 C.c.

Dissolve the potassium iodide and calcium hypophosphite and the tartartic acid in 440 minims (or fifty cubic centimetres) of alcohol; mix the solutions; shake well and set aside in ice water for half an hour; then filter through a small filter, washing the filter with alcohol (45 per cent.) till the filtrate amounts to two ounces (or one hundred cubic centimetres). Mix this solution with sufficient syrup to produce twenty fluid ounces (or one thousand cubic centimetres).

NOTE.—Official in U.S.P. 1 per cent., but 2 per cent. is frequently demanded; this formula, therefore, meets all requirements.

SYRUPUS FERRI PHOSPHATIS COMPOSITUS.
Compound Syrup of Ferrous Phosphate.

Iron wire	37½ grains	4·3 grammes.
Precipitated Calcium Carbonate	120 „	13·7 „
Potassium Acid Carbonate	9 „	1 „
Sodium Phosphate	9 „	1 „
Cochineal	30 „	3·5 „
Sugar	14 „	700 „
Water	a sufficient quantity.	

Dissolve the iron wire in one fluid ounce (or fifty cubic centimetres) of phosphoric acid and half an ounce (or twenty-five cubic centimetres) of water in a flask, heating gently till dissolved. Dissolve the precipitated calcium carbonate, potassium carbonate and sodium phosphate in half an ounce (or twenty-five cubic centimetres) of water. Mix the solutions, filter and set aside. Boil the cochineal and six fluid ounces (or three hundred cubic centimetres) of water for fifteen minutes; cool, filter and wash the filter with sufficient water to make seven ounces (or three hundred and fifty cubic centimetres). In this dissolve the sugar with the aid of heat, and strain. When cold, add the solution of phosphates and sufficient water to measure twenty fluid ounces (or one thousand cubic centimetres).

NOTE.—Frequently prescribed by physicians.

SYRUPUS HYPOPHOSPHITUM COMPOSITUS.
Compound Syrup of the Hypophosphites.

Calcium hypophosphite	80 grains.	12 grammes.
Potassium Hypophosphite	40 „	6 „
Manganese Hypophosphite	40 „	6 „
Iron Hypophosphite	40 „	6 „
Potassium Citrate	30 „	4·5 „
Strychnine Hydrochloride	2 „	0·3 „
Quinine Hydrochloride	3 „	1·3 „
Sugar	14 ounces	700 grammes.
Water	a sufficient quantity.	

Dissolve the calcium, potassium, and manganese hypophosphites in four ounces of water. Dissolve the iron hypophosphite in four ounces of water with the potassium citrate. In this solution dissolve the quinine and strychnine hydrochlorides, mix the solutions, filter on to the sugar, dissolve by agitation and make up to twenty fluid ounces.

This formula is proposed, as there is a demand for such a preparation.

SYRUPUS SENEGÆ.
Syrup of Senega.

Liquid Extract of Senega	4 ounces	200 C.c.
Sugar	14 „	700 grammes.
Water	a sufficient quantity.	

Mix the liquid extract of senega with ten ounces (or five hundred and fifty cubic centimetres) of water; through kaolin, washing the filter with distilled water; dissolve the sugar in the filtrate; strain and add water to make twenty fluid ounces (or one thousand cubic centimetres) of the syrup.

Dose—½ to 1 fluid drachm.

NOTE.—Preferred to tincture.

SYRUPUS IPECACUANHÆ.
Syrup of Ipecacuanha.

Liquid Extract of Ipecacuanha	1 fld. oz.	50 C.c.
Acetic Acid	90 minims	10 „
Glycerin	2 ounces	100 „
Sugar	14 „	700 grammes.
Water	a sufficient quantity.	

Mix the liquid extract of ipecacuanha, acetic acid, and ten ounces (or five hundred cubic centimetres) of water, filter through kaolin into a vessel containing the glycerin, add the sugar and dissolve without the aid of heat, strain and add water to make twenty fluid ounces (or one thousand cubic centimetres) of the syrup.

Dose—1 to 2 drachms.

NOTE.—Strongly recommended.

TINCTURA ARNICÆ FLORES.
Tincture of Arnica Flowers.

Arnica Flowers (in No. 20 powder)	2 ounces 100 grammes.
Alcohol (45 per cent.)	a sufficient quantity.

Moisten the powder with four fluid ounces (or two hundred cubic centimetres) of the alcohol, and complete the percolation process. The resulting tincture should measure one pint (or one thousand cubic centimetres).

Dose—Half to one fluid drachm.

NOTE.—This tincture is the preparation exclusively used in this country.

TINCTURA JALAPÆ COMPOSITA.
Compound Tincture of Jalap.

Jalap, No. 40 powder	1 oz., 262 grains	80 grammes.
Scammony „	175 grains	20 „
Turbeth „	88 „	10 „
Alcohol (60 per cent)	a sufficient quantity.	

Moisten the powder with two fluid ounces (or one hundred cubic centimetres) of the alcohol, and complete the percolation process. The resulting tincture should measure one pint (or one thousand cubic centimetres).

Note.—Ordinary tincture never used; this preparation is a favourite among French physicians.

Tinctura Sanguinariæ.

Tincture of Blood Root.

Sanguinaria (in No. 40 powder) ..	2 ozs.	100 grammes.
Acetic Acid.....	192 minims	20 C.c.
Glycerin	1 oz.	50 ,,
Alcohol (80 per cent.)	A sufficient quantity.	

Mix the acetic acid, glycerin and alcohol. Moisten the sanguinaria with two fluid ounces (or one hundred cubic centimetres) of the menstruum, and complete the percolation process. The resulting tincture should measure 1 pint (for one thousand cubic centimetres).

Note.—This menstruum was adopted as yielding the best results after a series of experiments commencing in 1898. It differs slightly from that official in the U.S.P.

Hydrargri Iodidium Flavum.

Yellow Iodide of Mercury.

Mercurous iodide obtained by interaction of mercurous and potassium iodide.

Note.—Prepared according to this formula it is stable, and is frequently prescribed.

Syrupus Hypophosphitum.

Syrup of Hypophosphites.

Calcium Hypophosphite.....	394 grains	45 grammes.
Sodium Hypophosphite	131 ,,	15 ,,
Potassium Hypophosphite....	131 ,,	15 ,,
Tincture of Lemon	87 minims	10 C.c.
Sugar.....	14 ozs.	700 grammes.
Water to make	20 ,,	1,000 C.c.

Dissolve the salts in ten fluid ounces (or four hundred cubic centimetres) of water; dissolve the sugar in the solution without the aid of heat; add the tincture of lemon, and finally enough water to make twenty fluid ounces (or one thousand cubic centimetres) of the syrup.

Dose—1 to 2 drachms.

Note.—Less important.

Ferri Phosphas Solubilis.

Soluble Phosphate of Iron.

Made according to the process of the U.S.P.

Resina Laricis.

Red Spruce Gum.

A resinous exudation from the stem and branches of *Larix americana*.

Tinctura Resinæ Larcis.

Tincture of Red Spruce Gum.

Red Spruce gum	2 ozs.	100 grammes.
Alcohol (90 per cent.).....	20 ozs.	1,000 C.c.

Made by maceration process, as tincture of myrrh.

NEW REMEDIES.

Eudoxine.—Eudoxine is the bismuth salt of nosophene; it has been given by Landiewski in doses of 18 to 20 centigrammes in follicular enteritis, dysentery, chronic and subacute enteritis in children from two to seven years of age. Although contra-indicated in infantile cholera, it acts well in mucous or purulent diarrhœa.—*Bull. Gen. de Therapie*, **138**, 140.

Amyl Valerianate as an Antispasmodic and Anæsthetic.—Amyl valerianate has been found to be specially serviceable as an anæsthetic and antispasmodic in the treatment of female nervous affections, being readily absorbed, and well tolerated by the most delicate patients. In addition to this, it is an active solvent of cholesterin, which renders it of value in the treatment of biliary lithiasis. The ordinary dose is 10 to 30 centigrammes per diem: but as much as 1 Gm. may be taken without inconvenience.—*Union Pharm.*, **40**, 291.

LETTERS TO THE EDITOR.

Prospects of Pharmaceutical Legislation.

Sir,—Your article on the above subject clearly defines the present position, but you seem to entertain the possibility of giving away the principal rights secured to us, the only ones worth defending—viz., the privileges conferred by examination. Those privileges were upheld by law until the quibble was propounded that person is not included in the word persons. Are the Excise laws so enforced? In the law of conspiracy the greater number creates the greater crime. You say, if the business of a chemist and druggist is to be carried on by a company, let the legally qualified person conducting the business be properly respected by putting him in a position, as the Lord Chancellor says, *bonâ fide*, and so that he would not only be master of the business but of the company as well. If that is intended to be serious it is most fallacious. The qualified man might be dismissed at a moment's notice; instead of being master of the company, he would be merely the tool of the directors, to be cast aside when found to be inconvenient. The Pharmacy Act has been the cause of much inconvenience and expense to the trade; since it became law the profits of the trade have diminished principally by the action of those who, without qualification, evade the Act. Let us support no delusive half-measures. That will be worse than useless. The spirit of the Act must be upheld. I think if this is unequivocally claimed our demand will be respected and granted by Parliament. The store interest will oppose us, but our political influence throughout the country is considerable, and if we systematically exercise it for this purpose we will prevail. Nothing less than this is worthy of our consideration.

London, August 23, 1899. Wm. MacGeorge.

Application to Kill Plantains.

Sir,—As a reader of the Journal for a number of years, and noticing your reply to a correspondent last week, I feel interested to say that there is nothing more effective in the world to kill plantains than a full teaspoonful of common salt, in the heart of each, applied during dry weather. Sulphuric acid is apt to leave all the root that is necessary to grow another plant.

Botanic Gardens, Cambridge,
August 26, 1899. R. J. Lynch.

Assay of Antimonous Oxide, B.P.

Sir,—For the benefit of my fellow-students I desire to call attention to the B.P. method of assay of antimonous oxide. I gather that after solution of the oxide in cream of tartar, the solution of sodium bicarbonate should be added whilst still hot. If such a method is adopted a heavy precipitate appears, which cannot satisfactorily be titrated. If, however, the solutions are mixed in the cold, no precipitate occurs if the operation is concluded in a reasonable time. The quantity operated upon is much too large, and could well be divided by two, and two experiments made, the mean being taken as the truth.

West Bromwich, August 28, 1899. J. R. Allen.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Coloured Poultry Food (M. P. S.—33/10).—Your sample appears to be a mixture of the red, non-pungent bird pepper and annatto, as far as we can examine it.

Satiny Appearance of Shaving Cream (H. H. C.—33/3).—The appearance is due to the use of white Naples soft soap as a basis. If that is rubbed in a mortar, with a pulling out of the mass it will assume this peculiar satiny appearance.

Household Ammonia (W. B. and S.—33/14).—Dissolve yellow soap, 2 oz., in warm distilled water, 3 pints ; add pearlashes 1 oz., and when nearly cold add strong solution of ammonia, 5 fl. oz. Keep well corked.

Titles on Labels (G. E. H.—33/15).—It is illegal for a person not registered under the Pharmacy Acts to style himself a "photographic chemist," but it is doubtful if any offence is committed by an unqualified person using the second label you submit.

Botanical (R. G. M.—33/20).—It is a specimen of *Helianthus multiflorus*, in which some of the double flowers have been developed in the normal form of single flowers, probably owing to the exceedingly dry season. Please address all communications for the Journal to the Editor.

"Cocand Fluoride" (A. S.—33/11).—There is no such thing used in medicine; probably your customer has mispronounced the name of the article he requires. It might be cocaine hydrochloride, but that salt should not be supplied for internal administration without a doctor's prescription.

Bird-lime for Fly Papers (O. S.—33/16).—This is usually nothing but a mixture of linseed oil and resin, about 40 of the latter to 20 of the oil. Much care is required in the boiling to obtain the correct degree of viscosity. You probably failed because you did not heat the linseed oil long enough.

Potassium Superoxalate (F. P. B.—33/6).—The odour you notice is frequently given off, both by powdered oxalic acid and its salts, on keeping. The dry quadroxalate is somewhat hygroscopic in the powdered state; probably in that condition it loses part of its water of crystallisation, and then becomes hygroscopic. Your sample contains a trace of lead, whether as an accidental admixture or as an impurity we cannot say; probably the latter, since many commercial samples of potassium quadroxalate contain quite an appreciable quantity of that metal.

Preserving Infusions Without Alcohol (J. B.—32/34).—We have not found that chloroform gives unsatisfactory results as a preservative for aqueous preparations of drugs. On the contrary, it is eminently satisfactory, and if the preparations are carefully stored they will keep indefinitely. Even preparations of ergot, which are notoriously difficult to preserve, will be perfectly good if properly treated. A convenient method of adding the chloroform is to emulsify it first with a little tincture of quillaia, and shake the emulsion well before each addition. We know of nothing better, or less objectionable, than this for the purpose. In many instances it is preferable to spirit. Acetic acid has several times been advocated as a substitute for spirit, for the extraction and preservation of pharmaceutical fluid extracts and the like. As to the wines, they could not, obviously, be used to substitute the B.P. tinctures without sanction. There would be no legal difficulty about the compounding of prescriptions with such preparations; but the sale of such wines as could be used as beverages would, of course, necessitate a wine licence.

Examination of Liniment of Camphor (D. W. R.—33/9).—A communication on the determination of the strength of liniment of camphor was published by Norman Leonard and H. M. Smith in the *Analyst*, **23**, 281. They state that the amount of camphor may readily be determined by exposing a known weight of the oil in a flat-bottomed dish to a temperature of 120° C. for two hours, when the camphor will be volatilised; the loss in weight is therefore taken to represent the camphor. Olive oil under those conditions gains in weight to the extent of 0·15 per cent., hence this figure should be added to that of the loss observed. An approximation of the amount of camphor present may be obtained by merely taking the specific gravity of the liniment; each per cent. of camphor raises the gravity 0·00045. The mean of the official limits for the specific gravity of olive oil being 0·9165, it is easy to calculate from these data the amount of camphor present. According to the formula—

$$\text{Camphor per cent.} = \frac{\text{sp.g. of sample} - 0{\cdot}9165}{0{\cdot}00045}$$

Rhubarb and Tomatoes for Gouty Subjects (W. T. F.—32/30).—Doubtless after partaking of rhubarb, oxalates are excreted in considerable quantities; the typical crystals of calcium oxalate are constantly met with in the urine under such circumstances. Cooking would probably not alter this; as a matter of fact, we have never heard of rhubarb being eaten raw. The preponderant acid in tomatoes is probably citric, not oxalic acid. With regard to their reputed value as a liver tonic, that may be due to the trace of volatile oil, probably containing sulphur, which they contain, or possibly to the presence of some ferment or enzyme; most fruits contain those. That of the pineapple has been shown to possess active peptic powers; probably the juice of the melon has similar properties, since a slice of melon taken on an empty stomach will often relieve the sick headache due to excessive indulgence in the pleasures of the table. If tomatoes exercise any special action on the liver, they would be likely to be more active raw than cooked. On the other hand, the tissues would be less digestible. Sorrel is so little eaten in this country that it scarcely enters into the question; the cultivated sorrel used as an ingredient in salads in France is a much larger and more succulent plant than the wild sorrel, and tastes much less acid.

Liberation of Iodine (D. G.—33/19).—It is probably due to the presence of hydrogen peroxide, which has been shown to be produced from ether under certain conditions. See *Pharm. Journ.* [3], **20**, 989.

INFORMATION WANTED.

Colonial Hospital Appointments (C. and D.—32/32).—Where can I find information *re* appointments as chemist and druggist in connection with hospitals and infirmaries in British colonies (South Africa, New Zealand, etc.), and if the Minor qualification is what is required for such situations?

Seltzogene (H. and F.—33/17).—A lady client has asked us to get a new head for a seltzogene manufactured by Monroy et Cie, Paris. Who are the agents in this country for above makers?

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Allen, Bartlett, Bostock, Burns, Burroughs, Burrows, Chaston, Coomber, Cowie, Durrant, Ferguson, Gair, Hare, Hunter, Lloyd, Lynch, Mumbray, Pollard, Prince, Shuttleworth, Taylor, Wellcome, Wyatt.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PICOLINE DERIVATIVES.

In the endeavour to produce amido-oxypicoline by the action of nitrous acid on dioxypicoline and subsequent treatment with a reducing agent, Arnold Hess unexpectedly obtained trioxypicoline, $C_6H_7NO_3$. It melts at 263–265°, gives an intense blue coloration with ferric chloride, and is therefore distinct from Sedgwick and Collie's trioxypicoline (m.p. 179°), obtainod by the oxidation of dioxypicoline with potassium permanganate, although it may be the same body that they described as melting at 252° (corr. 262°).—*Berichte*, **32**, 1985.

GOSSYPOL.

From the soda liquors obtained in the purification of cotton seed oil, L. Marchlewski has separated by extraction with ether a substance, gossypol, to which the formula $C_{13}H_{14}O_4$ is provisionally assigned. Gossypol is a finely crystalline, yellow substance, which dissolves readily in alcohol, ether, benzol, and in alkalies, but is insoluble in water. Concentrated sulphuric acid gives it a cherry red colour, and hence it is concluded that the red colour produced when crude cotton seed oil is treated with sulphuric acid is due to gossypol.—*Journ. für Prakt. Chem.*, **60**, 84.

TOXIC ACTION OF SODIUM FLUORIDE.

H. B. Baldwin is of opinion that sodium fluoride should be classed among the less violent poisons, and quotes a number of facts in support of his contention. It appears that the compound is largely sold in New York as an insecticide, put up in tins resembling baking-powder boxes. In an instance, of which details are given, some fluoride was added to pancakes in mistake for baking-powder, and several persons who ate the pancakes became ill, whilst one man died. It is estimated that at least 10 Gm. of the fluoride must have been taken in the fatal case.—*Journ. Am. Chem. Soc.*, **21**, 517.

NEW ANIMAL FERMENTS.

E. Abelous and E. Gérard find that most of the internal organs of animals contain a soluble ferment in variable proportions which reduces nitrates. From the influence of temperature upon this body it would appear to be of a diastasic nature. It is most active between the temperatures of 20°–40° C. and is destroyed at 72° C. The liver and kidneys are richest in this ferment, striated muscular fibre and brain substance contain the least.—*Comp. rend.*, **129**, 56.

RESIN OF CONVOLVULUS ALTHÆOIDES.

Since the dried root of *Convolvulus althæoides* contains approximately 7 per cent. of a purgative resin, and the plant, being very common in Syria, is readily obtainable, N. Georgiades suggests that this resin might find a place in medicine as a substitute for the more costly scammony or jalap resins. The resin of *Convolvulus althæoides* is of a greenish yellow colour and is glucosidal in reaction. Only a portion of it is soluble in ether.—*Journ. de Pharm.* [6], **10**, 117.

CRYSTALLINE BLOOD ALBUMIN.

By freezing the serum of the blood of guinea-pigs and other animals, previously centrifugated, and freed from globulins by means of ammonium sulphate, S. Gruzewska has succeeded in obtaining blood albumin in a crystalline condition. The length of time necessary to expose the serum to a freezing temperature is not constant; in one case a better crop was obtained in twenty-four hours than in twice that time. Albumin crystals were obtained thus from the blood serum of the guinea-pig, cat, ox, and common snake.—*Journ. de Pharm.* [6], **10**, 125.

NEW ARSENIDES.

By reducing the arseniates of strontium, of barium, and of lithium, by heating mixtures of these salts with charcoal in the electric furnace, P. Lebeau has succeeded in preparing the three corresponding arsenides, As_2Sr_3, As_2Ba_3, and $AsLi_3$. Strontium arsenide thus prepared closely resembles calcium arsenide, being a reddish-brown substance having a micro-crystalline structure. It closely agrees with that body in its chemical reactions; it is decomposed by water into arsenuretted hydrogen and strontium hydrate; it reduces most metallic oxides, and is acted upon with much energy by reducing agents. Barium arsenide has similar properties, but is more energetic in its action. Lithium arsenide occurs as a deep brown substance, with a crystalline fracture, the chemical reactions of which are similar to the arsenides of strontium, calcium, and barium.—*Comp. rend.*, **129**, 47.

TITRATION OF ZINC.

Pouget precipitates zinc as sulphide, decomposes the ZnS with a known excess of iodine solution, the residual iodine being then titrated back with thiosulphate solution. To obtain accurate results all filtration and washing of the zinc sulphide must be avoided. The process is conducted thus: To the zinc solution 20 C.c. of sodium acetate 10 per cent. solution is added for each 0·1 Gm. of Zn present; then ammonia, drop by drop, until a permanent precipitate is formed; finally, an excess of saturated solution of H_2S. The liquid is boiled until every trace of H_2S is driven off, cooled, a known quantity, in excess, of standard iodine solution run in, and after standing to complete the decomposition of the ZnS, the excess of iodine is determined with thiosulphate in the usual manner.—*Comp. rend.*, **129**, 45.

BROMINE IN THYROID.

Baldi finds that bromine is a constituent of sheep's thyroid glands. He demonstrates its presence as follows: The aqueous solution of the ash of the glands, incinerated with potassium nitrate and caustic soda, is evaporated to dryness, and the residue treated with permanganate until distinctly coloured, then heated to 100° C. On cooling the liquid is acidulated with H_2SO_4, and transferred to a flask fitted with two tubes, one dipping below the surface of the liquid, the other shorter, merely entering the flask; the latter carries a piece of test paper saturated with fluorescein. Through the longer tube from 3 to 7 C.c. of a 16 per cent. solution of cupric sulphate is added, and gentle aspiration started. In a few minutes the test paper becomes reddened by the formation of cosin by the action of the bromine liberated.—*Repertoire* [3], **11**, 308, after *Achiv. Ital. de Biol.*

EGOLS: NEW ANTISEPTICS.

When the parasulphonic derivatives of phenols are nitrated, the ortho-nitro-parasulphonic acids obtained readily combine with an atom of mercury for each two atoms of the phenol present. In this way E. Gautrelet has obtained ortho-nitro-phenol, cresol and thymol parasulphonates of mercury and of potassium, to which the generic name egol has been given, the phenolic constituent being denoted as a prefix, thus, phenegol, cresegol, thymegol, etc. These bodies are very stable, occurring as reddish-brown powders; they crystallise with difficulty in rhombohedra from dilute alcoholic solutions. They are readily soluble in water and insoluble in strong alcohol. The aqueous solutions are odourless and tasteless, and are neither caustic nor irritant, do not coagulate albumin, and are not decomposed by organic matter, but precipitate toxins. They are non-toxic in doses of 2 Gm. per kilo. of body weight when injected hypodermically; taken in the stomach they act as emetics. They are powerful bactericides, since, in the proportion of 4:1000, they arrest all development in bacterial cultures, and added to sterilised media, prevent any development of germs.—*Comp. rend.*, **129**, 113.

THE OFFICIAL TEST FOR CHLORAL HYDRATE.

BY F. H. ALCOCK, F.I.C., AND T. H. THOMAS.

The B.P. test for the determination of the above is: "If 4 grammes be treated with 30 C.c. of volumetric solution of sodium hydroxide, no more than 6 C.c. of volumetric solution of sulphuric acid should be required to neutralise the soda which remains free on the completion of the reaction."

When experimenting in the above manner, and calculating the results in terms of chloral hydrate, the results obtained showed that the examples under examination appeared to contain considerably more than 100 per cent., which is practically what the B.P. requires. Where 6 C.c. of the sulphuric acid solution ought to have been required, in one case, only 2·4 C.c. was required. That was the experience of many other students at the same time, following the same directions.

The sample under examination was undoubtedly pure, and contained no chloral alcoholate.

An attempt was made to discover the cause of this anomaly. With this object in view, 4 grammes of chloral hydrate was mixed with 30 C.c. of volumetric solution of sodium hydroxide, shaken well, and allowed to stand for eighteen hours, at the temperature of the laboratory, which never rose above 80°F.; then 2·4 C.c. of sulphuric acid solution was required to neutralise the surplus alkali. To this same solution, now neutral, 30 C.c. of sodium hydroxide solution was added, shaken, and left at the same temperature as before for forty-eight hours, and titrated back, indicating that 4·6 C.c. of sodium hydroxide solution had been attacked. Then 10 C.c. of sodium hydroxide solution was added, and after forty-eight hours titrated back, when 5·6 C.c. of sulphuric acid was required, thus indicating that 4·4 C.c. of sodium hydroxide had been attacked. That is to say, that the yield of chloroform produced in the original experiment had used 12·2 C.c. of sodium hydroxide solution, and had suffered further decomposition.

From these experiments we infer that the sodium hydroxide solution, standing in contact with the chloroform, undergoes decomposition into sodium chloride and formate, and thus vitiates the result. An experiment was made on a sample of pure chloroform in order to ascertain this. 2·875 grammes of chloroform was taken, and mixed with 30 C.c. of sodium hydroxide solution, and allowed to stand for eighteen hours, and then titrated back with sulphuric acid, which indicated that 6·4 C.c. of sodium hydroxide solution had been used. To this 10 C.c. more of sodium hydroxide solution was added, and allowed to stand for two days, and then titrated back with sulphuric acid (3·8 C.c.), which showed that 6·2 C.c. of sodium hydroxide solution had been consumed. 10 C.c. of sodium hydroxide solution was again added, and allowed to stand for two days, and then titrated back, requiring 4·4 C.c. of sulphuric acid, indicating that 5·6 C.c. of sodium hydroxide solution had been used. That is, in 114 hours 2·875 grammes of chloroform had consumed 18·2 C.c. of sodium hydroxide solution. That the alkali does attack the chloroform with production of sodium chloride and formate would therefore seem to be really the case. This was found to be the case.

On reference to the 'Year Book of Pharmacy,' 1887, page 126, a process for ascertaining the purity of chloral hydrate is mentioned, and referred to A. Kremel.

In this note no mention is made of the quantity of chloral hydrate, nor of the amount of sodium hydroxide used. The titration of the acid is conducted after a few minutes, using normal hydrochloric acid with litmus as the indicator. It is then stated that 1 gramme of chloral hydrate requires for complete decomposition into chloroform and sodium formate 6·04 C.c. of sodium hydroxide solution, whilst chloral alcoholate requires 5·17 C.c.

Now, this requires for 4 grammes of chloral hydrate (30—24·16) 5·84 C.c. of sulphuric acid. The B.P. method differs from that of Kremel's in recommending the application of heat, whereas Kremel makes no mention whatever of heat; its use in the B.P. process seems to us to be a faulty part of the operation.

By taking 4 grammes and mixing in a stoppered bottle with 30 C.c. of sodium hydroxide solution, and shaking vigorously for a few minutes, without the use of heat, using litmus as an indicator, and then adding the acid, we found that 5·8 C.c. of sulphuric acid was necessary for complete neutralisation. We, therefore, suggest this modification, and think that concordant results will be obtained. By the use of less quantities, say two grammes, equally correct results are obtainable.

THE OFFICIAL TEST FOR CHLORAL HYDRATE.

BY F. PILKINGTON SARGEANT, PH.C.

The pharmacopœial quantitative test for chloral hydrate does not appear to be of any value in the assay of solutions of chloral hydrate, or even for the determination of real chloral in the substance itself; special precautions must be used if correct results are to be obtained. In Thorpe's 'Dictionary of Applied Chemistry' it is stated that chloroform has no action upon caustic alkali in aqueous solution even when boiled with it. That may be so with absolutely pure chloroform, but with chloroform containing traces of alcohol a rapid formation of potassium chloride is noticed on boiling under a reflux condenser with decinormal potassium hydroxide. Perhaps this reaction takes place on heating together chloral hydrate and caustic alkali, in fact, the following experiments appear to lead to this conclusion, and that the equation

$$CCl_3CH(OH)_2 + KOH = HCOOK + CHCl_3 + H_2O$$

only represents the reaction when certain precautions are taken.

The chloral hydrate used was in small crystals, and answered the B.P. chemical tests. It indicated 101 per cent. real $CCl_3CH(OH)_2$ when assayed by Wood's process (*P.J.* [3] **1**, 703), and also when treated in a tube with ammonia (Paul, *P.J.* [3] **1**, 621), and 99 per cent. by Muller's process (*Journ. Chem. Soc.*, **24**, 444); it had a boiling point of 94·8° C., and solidifying point 48·9° C.

A solution was made containing 1·677 Gm. of the substance in 100 C.c.; 10 C.c. of this solution after treatment with 10 C.c. of normal potassium hydroxide at 60° C. was found to require 6·2 C.c. to 6·8 C.c. of normal sulphuric acid (according to the length of time it was retained at 60° C.) for neutralisation, whilst when heated to 100° C. only 5·8 C.c. of sulphuric acid was required. Assuming liberation of chloroform, as in above equation, only 1 C.c. of potassium hydroxide should have been neutralised; that is, 9 C.c. of sulphuric acid should have been required, but if the liberated chloroform had been decomposed *in toto* by the caustic alkali, thus—

$$CHCl_3 + 4KOH = HCOOK + 3KCl + 2H_2O,$$

then 5 C.c. would have been required.

Five per cent. solutions of chloral hydrate also reacted in the same manner, *i.e.*, the more highly heated solutions absorbed the most alkali; thus, whilst 10 C.c. of a solution containing 5·25 Gm. in 100 C.c. absorbed 4·0 C.c. of normal potassium hydroxide when heated at 60° C. for five minutes, the same amount absorbed 5·55 C.c. when heated at 100° C. for the same time. In these cases the amount of chloride was estimated by Volhardt's method; the former solution required 9 C.c. decinormal silver nitrate, the latter 25 C.c. These figures (which were approximately obtained in a series of determinations) show that some interaction other than represented by the two equations given above must take place; for, taking the alkalinity of potassium hydroxide after the reaction, in conjunction with the chloride determination, only 70 to 80 per cent. of the chloral is accounted for.

Solutions of chloral of strength varying from 7 to 50 per cent yielded results corresponding very closely with the above secondary reactions diminishing as the strength of solution increased.

Finally the choral hydrate was added to the normal alkali solution in about B.P. quantity, *i.e.*, about 4 Gm. to 30 C.c., when secondary decompositions appeared to take place above 60° C. wi

formation of potassium chloride, while below 45° C. the primary reaction did not appear to take place. The most nearly correct results (differing only by 1 per cent. in twelve determinations) were obtained by warming for five minutes at 50° C. before titrating back.

Hence it would appear that the B.P. or Meyer's process is not suitable for determining the amount of choral hydrate in a solution, that the choral hydrate should be added direct to the alkali and not previously dissolved, and that secondary reactions take place in inverse proportion to the amount of choral hydrate and excess of alkali present, and in direct proportion to the heat applied.

THE SOCIETY'S MATERIA MEDICA MUSEUM AND ITS USE.

BY E. M. HOLMES, F.L.S.,

Curator of the Pharmaceutical Society's Museums.

It has been suggested to me that some information concerning the Museum and its contents might be useful to students of pharmacy. This has become the more necessary seeing that the Museum catalogue has been out of print for some years, and the complete catalogue of the Museum would probably not prove so useful to students as to the more limited number who utilise it for the purposes of reference. I propose, therefore, to give a few preliminary remarks concerning the scope and contents of the Museum, and then to notice in detail the specimens of more especial interest to students attending schools of pharmacy.

SCOPE.

In the *Pharmaceutical Journal* for 1842, vol. 1, p. 436, it is stated that the Museum should contain specimens of every substance comprised in the materia medica, not only of undoubted purity and of the finest quality obtainable, but also specimens of different qualities and different degrees of purity. Also preserved plants in different stages of their growth and manufactured drugs which undergo several processes in their progress from the raw state into the condition in which they are used, arranged in a connected series in order to familiarise the student with every aspect in which they exist.

CONTENTS.

In course of time the Museum naturally became the repository of specimens of historic interest, *i.e.*, specimens which had been the subject of papers at evening meetings of the Society, and of articles in the *Pharmaceutical Journal*, a considerable number of which related to matters or substances not now of interest to students, although valuable for reference, and for purposes of identification. Gradually also as members of the Society became domiciled abroad, collections of the native remedies of other countries were presented to the Society, so that it has now become one of the richest Museums of Drugs in the world. The Chomical Museum grew in the same degree, with the difference that its contents possess fewer characters which can be recognised by the eye, and that changes in the chemicals, especially those of an organic nature, rendered the specimens of value as types only for a limited period.

ARRANGEMENT.

The vegetable materia medica was formerly arranged according to the natural orders of plants, but in this way the official and non-official became so intermixed and so crowded that it was difficult for the student to find or for the Curator to render visible the rich collection of official articles. The specimens were therefore separated into two classes :—(1) Those of direct interest to students as regular articles of commerce, either official or non-official. (2) Those of historic interest, useful only for purposes of reference and comparison. The specimens of the first class were subsequently arranged under the heads followed in the lectures on the subject, *e.g.*, Leaves, Flowers, Fruits, Seeds, Herbs, stems, etc.

In this way comparison between one drug and another becomes easier, and the specimens consequently more instructive. The exigencies of space do not allow of free display of all the specimens, consequently the following plan has been adopted :—The room on the left-hand side of the Entrance Hall has been reserved for purposes of study. On the central table are placed in glazed frames dried specimens of all the plants of which a knowledge is required in the examinations, and on side tables are placed open drawers containing specimens of all the ordinary drugs dealt with in the lectures, with few exceptions, such as prunes, almonds, figs, liquorice, manna, which are apt to disappear, and with which students are evidently too familiar to need to examine—also a few poisonous drugs. Specimens of all these are, however, kept in the wall cases, and can be seen on application to the Curator. These drawers are arranged in groups under the headings adopted in the School of Pharmacy prospectus, page 14–15.

In the wall cases immediately behind, or as near as practicable, similar drugs are placed. Thus in the wall case immediately facing the drawers containing barks, specimens of the commercial varieties, or grades of barks and their adulterations, or substitutions, are so placed that the student having studied the ordinary article in the drawers can turn round and see the different commercial qualities, adulterations, substitutions, etc., without going to another part of the room.

Of course, it often happens that in the brief time available after the lecture, during which the specimens on the lecture table can be examined, the students in front press forward, and those behind cannot carefully examine the more interesting specimens. This loss can be made good in the Museum, where similar specimens in the wall cases can be seen and examined under the Curator's charge at certain hours, or at any time during which the Museum is open by making an appointment and bringing a list of the objects which it is desired to see.

There are two or three points concerning which it is necessary to make a clear statement, since some misunderstanding seems to exist in the minds of students concerning them.

(1) The use of the Museum is not confined to students of the Society, but is the right of all who subscribe to the Society, at whatever school of pharmacy they may study.

(2) Students or members of the Society have not the right to bring any friend or relative to *study* in the Museum, but can, with the Curator's permission, show any friend over the Museum who does not wish to study there.

(3) A card or letter of introduction from an ordinary or honorary member of the Society presented to the Curator is sufficient to obtain for a medical student limited admission during the vacation, or at such times as there is room.

(4) There is a large herbarium of medicinal plants in the Hanbury Room, any specimens in which can be seen on bringing a list to the Curator.

(5) A collection of microscopic slides illustrating botanical structure and the histology of drugs is in the charge of the Curator, and selections from these can be borrowed from him and examined in the Library of the Society, borrowers being answerable to the extent of 1s. for each slide broken by them. Students borrowing slides must enter their names and addresses in a book provided for the purpose. A microscope can be obtained from the Librarian, another, when required, from the Curator. Both slides and microscope must, however, be used only on the premises, and must be returned the same day.

(6) An impression seems to exist in the mind of some students that the specimens of drugs in the Museum of the Society are the exact counterparts of those that are employed in the Examination Room. This is not the case. Anyone acquainted with the commerce of drugs knows that samples vary exceedingly in appearance in different importations. It is, therefore, of no use to learn to recognise mere samples.

Distinctive characters, odour, taste, colour, and especially structure, as seen under a lens or microscope, are necessary to be learned before a drug can be recognised in all its different grades and qualities. Students are recommended to bring with them when studying in the Museum a good lens, a sharp knife, and a note-book, and their handbook of materia medica, and to map out their work at the commencement of the session, going through a definite number on the occasion of each visit. There are 182 drawers, so that making allowance for some specimens not placed in the drawers, 200 may be used as a basis of calculation.

The specimens are renewed each Monday when necessary, but it must not be forgotten that students are apt sometimes to inadvertently put specimens in the wrong drawer, aloes and substances closely resembling each other becoming sometimes thus mixed, so that "spotting" the specimens, *i.e.*, attempting their recognition by a passing glance is not advisable. Students found taking specimens from the drawers without permission will be refused subsequent admission to the Museum, since the possibility of study by others is thus affected. Small specimens, for purposes of experiment or verification, can, however, be obtained by application to the curator.

THE EXAMINATION OF MOUNTED SECTIONS OF DRUGS.

BY WILLIAM KIRKBY.

The study of microscopy is becoming of increasing importance to the pharmaceutical student in the department of materia medica. There is no need in this place to emphasise its importance beyond saying that with each change made by the Board of Examiners in the subjects of examination microscopy occupies a more prominent position. No doubt the best plan to adopt in the anatomical and histological study of drugs is for the student to prepare the material and put up his own mounted specimens; but there are many who are unable to devote the time to so long a course, and they are, in consequence, obliged to work over a few drugs, and for the rest have to be content to acquaint themselves with the microscopic characters as exhibited in drawings and mounted specimens. Drawings are always more or less diagrammatic. They should not be relied upon by the student for the recognition of microscopical preparations of drugs. To the expert a drawing may be of value, but the student should look upon it simply as a key to assist in identifying the tissues and cells in an actual specimen. Mounted sections are, therefore, greatly to be preferred; but the temptation to indulge in so-called "spotting" should be strictly avoided because of the numerous pitfalls into which the "spotter" may fall. Anyone trusting for the recognition of a section to the *tout ensemble* may be easily misled by differences between stained and unstained material, cleared and uncleared specimens, glycerin, glycerin jelly, and balsam mounting media, as well as by variations in the size and age of the plant from which the sections have been cut. For the most part the cursory examination which many students vouchsafe to specimens of this class is quite unproductive of knowledge, and in some cases may lead to positive confusion. It is clear that only a systematic examination of every specimen can be of any real value, and it seems desirable to indicate some lines upon which such an examination may be undertaken.

The characters to which attention should be directed fall into two categories, namely, those inherent in the mounted specimen, and those resulting from the methods of preparation. Dealing with the latter first, the variations due to mounting media, stains, and methods of clearing should be noted.

Mounting Media.—Those most generally used are Canada balsam and glycerin jelly; more rarely used are glycerin, dammar, carbolised water, and, still more rarely, solutions of potassium acetate and calcium chloride. Sections of plant structures put up in glycerin jelly, glycerin, carbolised water, and solutions of the salts mentioned exhibit the cell walls more nearly in their natural condition as to thickness than do those mounted in the resins; the contours of the cells and of the cell contents, starch, crystals, etc., are also much more clearly defined; but the field of view is darker and the tissue systems are not so well differentiated as in Canada balsam. Generally only stained material is mounted in Canada balsam, and the coloured cell walls stand out with great clearness, while the unstained cell contents are to a great extent suppressed from the field of vision. The various kinds of tissue may be readily distinguished, but the characters of the cells are not so evident because of the dehydrating process to which the material has been submitted, the cellulose walls being thin and often wavy. Starch is occasionally mounted in balsam for the purpose of examining it with polarised light, but the medium is a most unsuitable one for exhibiting the general characteristics of starch.

Stains.—Sections are generally stained with two colours, green and red being the favourite ones. If the cell contents have been removed it will not be difficult in such slides to distinguish between the lignified tissues, which are stained green, and the cellulose tissues, stained red. Carmino and hæmatoxylin are the stains usually used for cellulose. The former of these, when used as a general stain, does not attack the lignified tissues, but the latter does so to a varying extent, so that in the absence of a counter stain the distinction between cellulose and lignified tissue is not at all clearly marked. Indeed, the intensity of colour diminishes in proportion to the extent to which the lignification has taken place. Therefore the student cannot rely upon hæmatoxylin as a means of separating lignified from non-lignified tissues. In connection with hæmatoxylin and carmine it should be remembered that the section may have been cut from fresh material, in which case cells with protoplasmic contents will exhibit stained nuclei. In sections stained with Hanstein's violet the cellulose will be found to be violet, and the different kinds of lignified tissue will exhibit different shades of red. Some sections may have stained cell contents; proteids may be coloured red with borax carmine; starch may be coloured pink with safranin or corallin; the callose of sieve tubes may be stained pink with corallin or steel-blue with aniline blue. Sufficient has been said to indicate that stains cannot be relied upon solely to differentiate between the various elements in a specimen; they do, however, assist in differentiation being accomplished with greater clearness and certainty.

Clearing.—The student should be careful to observe whether the cell contents have been removed by clearing, as the difference between a cleared and a non-cleared slide is so great as to mislead a casual observer.

Sketches.—How can the inherent characters of the specimen best be apprehended? By observing the various tissues in a regular order, and transferring the observations to paper in the form of a sketch. The value of the observations will be greatly increased if the sketch is afterwards compared either with a published drawing or description. The characters to be noted will, of course, differ, according to the nature of the specimen; but an outline applicable to a few general cases may be useful.

Stems, Roots, Rhizomes.—Beginning with the periphery in plants in which secondary growth has not begun, the epidermis and its appendages would be noted; but in drugs, if of the dicotyledonous type, the thickness of the cork would be recorded. Then the primary cortex; the extension and comparative size of its cells; the presence and location of collenchymatous tissue; the presence and location of sclerenchyma, and whether in groups or a continuous ring, and if in groups their freequency and form, also if accompanied or otherwise with calcium oxalate crystals; the nature of the cell contents in the different parts of the primary cortex. In the secondary cortex, including the phloem, should be observed its width; the width of the phloem rays; the frequency, width, and direction of the medullary rays; the presence and location of bast fibres; the presence and location of other sclerotic elements in the phloem; the presence of sieve elements, and the proportion and arrangement of phloem parenchyma accompanying them; the

presence and location of laticiferous vessels ; the nature and quantity of cell contents, particularly the presence of crystals and their form and size. After the cambium would be noticed the xylem ; the kind and proportion of xylem fibres ; the size, proportion, kind, and arrangement of the vessels when present ; the presence of wood parenchyma, its proportion and distribution ; the presence of specialised cells, with their contents ; the medullary rays, their frequency, width, and contents. When vessels are absent from the xylem particular care should be taken to notice whether the xylem is composed of fibres only, or whether tracheids are present, and to what extent ; also the character of the fibres should be determined. This, of course, can only be accomplished by the examination of longitudinal sections. If a pith is present the character and contents of its cells should be noted, as well as the presence or absence of phloem strands, indicating bicollateral bundles. The foregoing sketch refers more particularly to structures in which a more or less concentric arrangement of the tissue systems prevails. Any eccentric arrangement of the tissues should be particularly recorded. If the fibro-vascular elements are scattered it should at once be ascertained whether the section is dicotyledonous or monocotyledonous, or whether it belongs to the Pteridophyta. In the case of monocotyledons the outer integument should be observed ; the presence or absence of fibro-vascular bundles in the cortex, their frequency, if present, especially as compared with the frequency of the bundles in the central cylinder ; the endodermis, whethe homogeneous or heterogeneous, the shape and thickening of its cells ; the frequency and arrangement of the fibro-vascular bundles of the central cylinder, the relation of the phloem and xylem to each other ; the cells of the fundamental tissue and their contents, and the presence or absence in it of intercellular spaces. In the Pteridophyta, in addition to characters which are indicated by what has already been said, attention should be directed to the characters of the endodermis and the pericycle. The limits of an article do not permit of all the various details of microscopical analysis being dealt with fully, so it will perhaps suffice to mention one or two other classes of slides, and the method of examination to which they should be subjected. Leaf sections should be examined with a view to observing if the leaf is of the bifacial or centric type ; the epidermis of the upper and lower surfaces should be compared, the size, form, and thickening of the individual cells being noted, the presence of hairs, glands, and stomata, as well as the size and other characters of the same should be observed. Attention should be directed to the palissade cells, if present, their form and location ; to the remaining parenchyma of the mesophyll, whether closely or loosely compacted, and the nature of its contents. The presence of hypoderma should be particularly recorded, as should also the presence, location, and characters of other sclerotic cells. Crystals and specialised receptacles, such as oleo-resin and tannin sacs, should be noted. The fibro-vascular system must be examined to ascertain whether it is restricted to a central strand only, or is accompanied by lateral ones. In connection with this system should be observed the relation to each other of the phloem and xylem, and the presence of stereom in the form of a continuous or discontinuous sheath. As a type of other classes of slides starch may be taken. In this case observations should be made of the form, size, position, and character of the hilum, and the presence, frequency, and direction of the striæ. It is only by a systematic survey of the characters of each slide upon similar lines to those laid down that the student can hope to obtain from mounted specimens an intelligent apprehension of the anatomical and histological features of vegetable drugs.

Turpentine Lotions for Smallpox.—As soon as the eruption appears, M. S. Nazarov has obtained good results by sponging the whole body, twice daily, with the following solution :—Rectified turpentine oil, 16 ; alcohol, 30 ; distilled water, 150.—*Bull. gen. de Therap.*, **128**, 240, after *Sem. Med.*

THE STUDY OF PRACTICAL CHEMISTRY.

Since the study of practical chemistry in the sense of laboratory practice in qualitative and quantitative analysis is necessary to pharmaceutical students in the curriculum required for success in the Minor and Major Examinations, it may be of interest to students if a short account is given of a course that may be followed with some degree of satisfaction.

It must not be supposed that the student can have much success in laboratory practice except under the guidance of a good teacher, and this may be gained by a course of study in many of the Science Institutions in the kingdom, for it must be remembered that carrying out analytical operations "with no resources but his own," as suggested in a text-book lately published, will be found uphill work to the most zealous student.

Elementary practice in chemistry so far as the preparation of the gases and the analysis of simple salts is now so general in such public schools as may be expected to be the nursery of the future pharmacist, that it is hardly necessary to dwell on this part of the subject. Failing, however, an early acquaintance with the rudiments of laboratory practice, it is certainly necessary that the student should make a start in this direction and become familiar with the preparation and the properties of the various gases, the fitting up of apparatus, glass blowing, and such incidental laboratory operations. The student would then proceed to the reactions of the metals, taking them in the order of each group, Na, K, Mg; Ba, Sr, Ca, etc. In operating with saline solutions it is a good practice to employ solutions of known strength in order to accustom the student to the relative solubility of the precipitate, and thus induce discrimination and intelligent work. It is particularly to be noted that only small quantities of material should be taken—such as a few decigrammes to a gramme. The fault of employing large quantities of material in analytical operations is a very common one with the pharmaceutical student in the early stage of his study. In all cases the reactions should be tabulated in the laboratory book, clearly, concisely, and with equations. At the same time noting the condition of the precipitate, whether crystalline or amorphous, the colour, etc., all of which will be found useful in subsequent work. Having finished the reactions of the metals, the same plan should be followed with the reactions of the acids. The student having thus familiarised himself with the action of reagents on known saline solutions, is prepared to proceed to qualitative analysis of simple salts, if necessary, then of complex mixtures. In the analysis of an unknown substance, if a solid, much information can be gained by submitting it to the dry reactions before proceeding to ascertain its behaviour in solution with the group reagents. It is well early to recognise the fact that a systematic method of analysis is more satisfactory than a premature and frequently erroneous conclusion from a simple reaction or from a preliminary observation.

Having thus become acquainted with the general outlines of qualitative analysis as applied to inorganic bodies, the student should then direct his attention to the methods of detecting the commonly occurring organic substances. The student, having now no group reagent, has to make himself acquainted with specific rather than with general reactions. In dealing, for example, with alkaloids and their salts, he should not be satisfied merely with colour tests, which are apt to lead him in the wrong direction, especially when dealing with mixtures or with impure materials. It is necessary, also, to ascertain the solubility of the base in various solvents, like ether, chloroform, etc., as well as in alkalies ; then proceed to prepare a salt of the base, in order again to note its relative solubility in various menstrua. Finally, the melting point of the base should be taken when possible. A colour test, it must be understood, is of use when dealing with pure materials, but at the best, except in a few instances, is merely to be regarded as one link in the chain of evidence.

As a further extension of the qualitative course, attention should be directed to the detection of traces of impurities in medicinal chemicals as directed in the British Pharmacopœia, with due regard to understanding the reason of each test; such as, for example, the reaction ensuing when testing for butyric acid in glycerin and the production of phenyl-isonitrite from acetanilide. If all reactions occurring in the practical work have been expressed in the form of equations there will be now no difficulty in an intelligent rendering of the B.P. tests.

Quantitative analysis is the natural sequence of the student's laboratory practice. Gravimetric and volumetric analysis become extremely simple to a student who has conscientiously performed the operations of qualitative analysis. Having carefully considered from the work of the best authorities the scheme of separation, the chief point is to be certain of the purity of the precipitate before weighing. This is generally assured either by effectual washing or by reprecipitation. In weighing the precipitate it is quite unnecessary to attempt weighing to 0·0001 Gm., as is very commonly practised. Such pretension to accuracy may be more than counterpoised by carelessness in washing the precipitate or in imperfect separation.

In volumetric analysis the student will do well not to attempt at first to operate with normal solutions, which are seldom used in practice, but with $\frac{1}{5}$ or $\frac{1}{10}$ normal solutions, as errors of reading and of manipulation are too much intensified with normal solutions to be conducive to concordant results at the hands of inexperienced operators. Pharmaceutical students will, of course, give attention to the analysis of drugs and the separation of the active principles. In the official preparations the B.P. methods, although far from being immaculate, must be accepted until the student is able to suggest improvement from his own experience. Alkaloidal determination—a frequent stumbling-block in Major Examinations—is an extremely simple operation. It merely consists in the elimination of the alkaloid in a nascent condition in the presence of a solvent such as ether, acetic ether, amylic alcohol, or chloroform, and taking the precaution of washing the solvent with water until the aqueous layer is colourless before evaporation. Moreover, the residue from the solvent should not be accepted as the basis of the determination, but invariably titrated with weak acid, preferably sulphuric acid. Litmus paper is the best indicator of neutrality in preference to cochineal, phenolphthalein, etc., which are quite unnecessary.

The Major student should not be satisfied with the course of instruction thus shortly sketched. He should proceed to the preparation of pure salts and other pure materials, and follow out the organic course as that given in Emil Fischer's little work on the subject, then to the determination of carbon, hydrogen and nitrogen in pure materials, of physical constants—boiling and melting points—of vapour densities, of molecular weights, by gold and platinum salts and by Raoult's and Beckmann's methods. After such a training the pharmaceutical student would be fairly well equipped for undertaking a research that shall be worthy of the name, and not ephemeral work for conference meetings. The field of research for the pharmacist is large, but the labourers are few, at all events in this country, and the pharmaceutical student should early awaken to the fact that on him depends whether British pharmacy is still to turn to Continental rivals for such medicinal products as result from the study of scientific pharmacy

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TENALINE, A NEW VERMIFUGE.—Hodbay states that a new vermifuge, which has been named tenaline, derived from areca nut, is very active. It is given in the dose of 1 drop for each 500 Gms. of body weight of the subject. As it is a powerful poison, this dose must not be exceeded. In toxic doses it gives rise to diarrhœa, and tenesmus; and death may result from paralysis of the respiratory muscles.—*Nouv. Rem.*, **15**, 352, after *Therap. Monats.*

THE STUDENTS' LIBRARY.

Constant activity in the book world on the part of both author and publisher renders it necessary, year by year, to give the pharmaceutical student advice in the choice of his library. Well-chosen books are as vitally important to the student as hammer and anvil to the blacksmith, or defensive armour and weapons of offence to the soldier. The wise and far-seeing student will no more think of stinting his library at the outset than will the successful general start a campaign with a lack of ammunition or a meagre commissariat department.

In the course of these suggestions it will be taken for granted that considerations of usefulness outweigh those of cost; at the same time, a line will be drawn between text-books and others that are only of occasional service as books of reference. As a case in point, the only work on materia medica that the elementary student need buy is that lately written by Professor Greenish; though an occasional reference to Hanbury and Flückiger's 'Pharmacographia' will be necessary. If he has access to a good library there will be no need to buy the latter, whilst the former is indispensable.

It cannot be too strongly emphasised that the correct time to buy text-books is as early in the period of apprenticeship as time can be found to study them. To put off the purchase on the plea that after a lapse of four or five years much of the subject matter becomes out of date is unwise, inasmuch as the principal point to be gained is steady and quiet assimilation of knowledge from the very beginning of the pharmaceutical career.

In the following lists the text-books that are essential will be marked with an asterisk. For convenience

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requirements will first be studied. Many of these books will be found necessary for the Major, so that by slightly increasing the primary cost an ultimate economy will be effected.

I.—CHEMISTRY.—(1) *Theoretical:*—*Newth's 'Inorganic Chemistry' (Longmans, 6s. 6d.); Bloxam's 'Chemistry' (Churchill, 18s. 6d.); *Woodward's 'Chemical Arithmetic,' Part I. and Part II. (Simpkin, Marshall, 2s. and 3s. 6d.); Tilden's 'Chemical Philosophy' (Longmans, 3s. 6d.); *Perkin and Kipping's 'Organic Chemistry' (Chambers, 6s. 6d.); Stainer's 'Synopsis of Chemistry' (McDougall's Educational Co., Ltd., 1s. 6d.).

A brief discussion of the merits of these and subsequent works will enable the student to appreciate their separate uses, and to decide upon those which shall serve his purpose not only for his examinations, but also in every-day work in after life. Newth's 'Chemistry' is undoubtedly the book which best fits in with the requirements of the Minor syllabus in the inorganic part of theoretical chemistry. The matter is sufficiently explanatory, without being too voluminous. It is well arranged in three sections, of which the first deals with the theory of the subject—*e.g.*, the law of Boyle, electrolysis, dissociation, and the periodic law. The last-named law is very clearly expressed, and of great value in the perusal of the rest of the volume. The second section treats of the non-metallic elements, and the third deals with the metals. What little matter is superfluous is printed in small type, and may be neglected by the Minor student. Bloxam is rather too ponderous, and bewilders the beginner. It is extremely useful as a work of reference. If it be chosen in place of Newth, then Tilden's 'Chemical Philosophy' should be read, in order to gain a clear knowledge of that important branch of the subject. Indeed, the last-mentioned is so superior to any other treatise of its size that it is preferable to read it in place of the first part of Newth. Woodward's little books are essential to all. They treat of the arithmetical side of the question, explaining the fundamental principles, as found in Tilden or Newth, by means of ingenious diagrams and well-chosen numerical examples. At the end of each chapter may be found examples to be worked out (with answers), without which no real progress can be made in philosophical study. Perhaps the neglect of this part of chemistry—

viz., calculations dealing with alteration in volume of gases with varying temperature and pressure, and the like, is responsible for a large number of failures in the Minor. Certain it is that a large percentage of candidates present themselves for examination without knowledge on these points. In Part II. only certain sections are necessary, especially those dealing with the vapour density and other methods of determining molecular weights, Dalton's law of partial pressures, and Avogadro's hypothesis.

Stainer's 'Synopsis of Chemistry' is a valuable little book just before examination, enabling a rapid revision to be undertaken.

The small amount of organic chemistry required by the examiners is best obtained from Perkin and Kipping's interesting book. It will be found useful later on for the Major.

(2) *Practical.*—In few subjects is there so wide a choice of books as in practical chemistry. Some years of experience have demonstrated clearly that there is considerable danger in relying upon many authors in one part of it—viz., qualitative analysis—owing to the fact that different authors have different analytical methods. In recommending the following works, therefore, a system of rigid exclusion has been adopted, for which the Minor student will afterwards be grateful:—

*Attfield's 'Manual' (Gurney and Jackson, 15s.); *Briggs and Stewart's 'Analysis of a Simple Salt' (W. B. Clive, 2s. 6d.); *Owens College 'Laboratory Tables' (Cornish, 1s. 6d.); *Muter's 'Short Manual of Analytical Chemistry' (Baillière, 6s. 6d.); *Clowes and Coleman's 'Quantitative Analysis' (Churchill, 10s.).

In order to fulfil the requirements of the syllabus in practical chemistry it is necessary to prepare the important inorganic salts, and certain of the organic preparations of the British Pharmacopœia—*e.g.*, chloroform and ether. Information on the methods employed in those preparations, together with practical details of manipulation, can be obtained from Attfield's 'Manual.' Another part of the work is the analysis of double salts. In order to prepare for the task there is no better course open than to work carefully through the 'Analysis of a Simple Salt,' an excellent little book, containing a choice selection of tests for the commoner bases and acid radicals. Stress is laid on the preliminary examination of a substance, in accordance with the experience of the best authorities, which proves that a carefully conducted preliminary examination will give the operator a sure indication, in nearly all cases, as to the composition of the substance, thus enabling him to complete the analysis by means of the group reagents and acid chart with a saving of time and labour. Having mastered the contents of this little book, he should now turn to a 'Laboratory Series of Tables,' compiled by the demonstrators at Owens College, Manchester. These are printed on separate cardboard sheets, and are so arranged that they can be most conveniently hung up on the bench during use. The group separations are the best known to modern chemists, and are copiously annotated by means of footnotes, which clear up difficulties as they are met with, and convey a thorough grasp of the chemical principles on which the separations are based. The student is strongly urged to confine himself to these tables, and not to use others except for occasional reference, or his ideas will become confused and his methods faulty. Afterwards, when he has become perfectly familiar with this method of analysing a double salt, he will be in a position to intelligently use other works, and judge for himself as to the comparative value of certain alternative analytical methods.

II.—Botany.—*Lowson's 'Text-book of Botany' (Clive, 6s. 6d.); *Scott's 'Introduction to Structural Botany,' Vol. I. (A. and C. Black, 3s. 6d.); Bower's 'Practical Botany for Beginners' (Macmillan, 3s.); Holmes' 'Botanical Note-book' (Dulau, 3s.); Wishart's 'Botanists' Vade-mecum' (Livingstone, 2s. net).

It is fortunate for the pharmaceutical student of botany that at last a suitable text-book has been written that covers his requirements without burdening him with extraneous matter, or rendering the subject tedious with an unnecessary accumulation of technical terms. Lowson's admirably-written treatise is the very book that has been wanted for years. The various sections are well arranged, so that the beginner should have no difficulty in acquiring a good grasp of the subject in the order written. The information required by the new syllabus concerning the eight natural orders may be readily found. To those who can find the time a perusal of Scott's first volume will prove helpful. The entire book is devoted to a lucid and interesting description of three types only, the wall-flower, the lily, and the spruce-fir, representing the dicotyledons, monocotyledons, and gymnosperms respectively. In this way the reader is introduced to the three main groups, comprising the flowering plants. For those who wish for a more advanced knowledge, Green's 'Manual' forms a useful book of reference. For practical work Bower's 'Practical Botany' is a sure guide. It contains full instructions for fitting up a working bench for histological study together with formulæ for the commoner reagents and stains, and hints as to their proper use. The type system is followed, and precise manipulative details are given throughout, together with pithy descriptions of the parts examined. These last serve as a model of description, and are well worth studying on that account. The field botanist will find Wishart's 'Botanists' Vade-mecum' a handy book for the pocket, helping in the identification of plants, whilst Holmes' 'Botanical Note-book' will be of good service at home in writing out descriptions of plants in technical language.

III.—Materia Medica.—*Greenish's 'Introduction to the Study of Materia Medica' (Churchill, 15s.).

This work alone will convey all the information necessary in materia medica. Thanks to clear and precise phraseology, coupled with excellent illustrations and bold type, much of the drudgery usually associated in the student's mind with this subject is now removed. The value of the book for teaching purposes is enhanced by the frequent use of italics, thereby throwing in relief the salient points. Thus, after the description of a drug, there will be found in italics the diagnostic characters. This has never before been attempted in this class of text-book; by its means, however, the student may acquire the soundest instruction in a readily assimilable form

IV.—Pharmacy.—*British Pharmacopœia, 1898 (Spottiswoode, 10s. 6d.); Squire's 'Companion to the British Pharmacopœia' (Churchill, 12s. 6d.); *Caspari's 'Pharmacy' (Lea, 18s.); or, Coblentz's 'Pharmacy' (Blakiston, 18s.); Proctor's 'Lectures on Practical Pharmacy' (Churchill, 14s.); *Lucas's 'Practical Pharmacy' (Churchill, 12s. 6d.); Knight and Wootton's 'Elements of Pharmacy' (Wootton, 4s. net).

The British Pharmacopœia gives full details of the galenical processes employed. Where explanation is necessary it will be well to refer to a series of articles on the 1898 B.P. in the Students' Column of the *Pharmaceutical Journal*, commencing 1898, Vol. II., p. 182. This series refers back to similar notes on the 1885 Pharmacopœia when necessary. For abstract pharmacy the large work of Caspari is the best; as a book of reference it is invaluable. Lucas's 'Practical Pharmacy' is worth buying, more especially on account of the chapters dealing with the most modern methods in pharmacy—*e.g.*, the preparation of eye-discs, cachets, and capsules. It is regrettable that this book contains so many errors, especially in the chemical portion. The index, also, is not to be relied upon. Proctor's well-known 'Lectures on Practical Pharmacy' are now more suitable for the apprentice than for the student preparing for an approaching examination. It gives many simple tests that can be readily performed in any pharmacy, and illustrates important principles in galenical pharmacy.

Knight and Wootton's little book is included as a guide in the compiling of tables. The student is recommended first to make his own tabulations of the official galenicals, and then compare them with this book. In this way he will learn far more of his pharmacopœia than he will by merely committing other people's tables to memory. Scattered through the book will be found some useful notes on the official galenicals. As a work of

reference Squire's 'Companion' is too well known to need much recommendation. It should be in the hands of every apprentice.

V.—PHARMACEUTICAL LATIN.—*Ince's 'Latin Grammar of Pharmacy' (Ballière, 5s.); Will's 'Prescription Reading' (Metropolitan College of Pharmacy, 12s. 6d. net).

The grammar affords a sufficient introduction to the subject to satisfy the needs of the Minor student, to whom it is indispensable. He is advised, however, not to trouble to learn the archaic words and phrases that occasionally occur throughout the book. The latest edition is improved by the addition of an English-Latin vocabulary.

VI.—PHYSICS.—Aldous' 'Elementary Course of Physics' (Macmillan, 7s. 6d.).

The Minor syllabus demands but a small knowledge of physics; at the same time it is well to remember that the subjects mentioned therein are so disconnected that it is preferable to read rather more than bare necessity dictates. Thus, the syllabus requires a knowledge of:—"The law of the conservation of energy; the law of gravitation; the balance; specific gravity; atmospheric pressure; pressure of aqueous vapour; the barometer, air-pump, and siphon; the law of Boyle; temperature; thermometers; the law of Charles; the law of gaseous diffusion; V. Meyer's method for determining vapour densities." These points are conveniently taken under their respective headings.

(*a*) *Mechanics.*—To understand the law of the conservation of energy it is necessary to know what the term energy implies. To do this the student must become acquainted with other terms—*e.g.*, force, work, mass, inertia, and momentum. Chapters II. and III. of Aldous deal with this question, whilst gaseous diffusion is also treated of in the former. Chapter IV. discusses gravitation, and incidentally are explained the various units employed in physical calculations. The balance is described in Chapter V., but it would be unwise to neglect the sections in that chapter dealing with force, moments, couple, centre of gravity, equilibrium, and friction.

(*b*) *Hydrostatics.*—Here, again, the proper elucidation of the subjects mentioned in the syllabus necessitates a wider reading than is at first sight apparent. Thus, the whole eight chapters on hydrostatics are not too much to convey an adequate idea of the general principles involved.

(*c*) *Heat.*—Chapters I. and II. of the section on Heat treat of temperature, the thermometer, and the law of Charles. So far Aldous well covers the ground; the only point omitted is the Victor Meyer method of determining vapour densities. Woodward's 'Arithmetical Chemistry,' Part II., clearly explains this method, with numerical examples.

Physics has received fuller attention here than the other subjects, on account of the trouble it frequently causes the average candidate—(1) from the difficulty of finding a suitable text-book, and (2) from the habit, unfortunately common, of turning up in the index the items mentioned in the official syllabus, and simply learning the paragraph referred to.

A small space will now be devoted to a consideration of the

MAJOR TEXT-BOOKS.

The value of a careful choice of books for the Minor will be appreciated when commencing study for the Major. In addition to the books previously asterisked comparatively few others—about twenty-five shillings' worth—need be bought.

I.—*Chemistry.*—*Valentin's 'Qualitative Chemical Analysis' (Churchill, 9s.); Bernthsen's 'Organic Chemistry' (Blackie, 7s. 6d.); Wade's 'Introduction to the Study of Organic Chemistry' (Sonnenschein, 7s. 6d.).

Clowes and Coleman is full enough for volumetric and gravimetric work, and excels in manipulative instructions. Valentin will be found useful in supplementing the knowledge already gained in qualitative analysis, although the system learnt from the Manchester tables should still be adhered to. Perkin and Kipping will prove almost sufficient in organic chemistry; when necessary Bernthsen or Wade may be referred to in case fuller information is desired. Newth's 'Inorganic Chemistry,' Tilden's 'Chemical Philosophy,' and Woodward's 'Arithmetical Chemistry,' Part. II., will be ample in those branches of the subject.

II.—*Botany.*—*Scott's 'Introduction to Structural Botany,' Vol. II.

The books already purchased, supplemented by Scott's second volume, should carry the student well over the ground. This work is written on the type system, and deals in order with the Vascular Cryptogams, Bryophyta, Algæ, and Fungi. The Bacteria and Myxomycetes also receive attention.

III.—*Materia Medica.*—Hanbury and Flückiger's 'Pharmacographia' (Macmillan, 21s.); *Collin's 'Guide Pratique pour la Détermination des Poudres Officinales' (Octave Doin, 4s.); Planchon and Collin's 'Drogues Simples' (Octave Doin, 22s. net, unbound); *Maisch's 'Materia Medica' (Kimpton, 10s. 6d. net).

Pharmacographia is strictly a work of reference. Greenish will be found ample in the ordinary way for information concerning the sources, description, varieties, and constituents of drugs. The only work in English referring to the microscopic examination of vegetable drugs is Maisch's book. For those who read French the little book of Colin is useful for examining powders, and the larger work, by Planchon and Collin, which is generally found only in large libraries, contains good descriptions and diagrams of the histological features of vegetable drugs. For the assay of drugs the student must rely on a good teacher for the necessary information.

IV.—*Physics.*—*Woodward's 'Arithmetical Physics,' Parts IA. and IIA. (Simpkin, Marshall, 2s. and 3s. 6d.); *Glazebrook's 'Light and Heat' (Cambridge Press, 5s.); *Hydrostatics (Clive, 3s. 6d.); *Electricity and Magnetism (Clive, 3s. 6d.).

Complaints about the present syllabus in physics have long been made. It requires a knowledge of the subject such as cannot be acquired without a considerable amount of practical work. It follows that the student must either devote his attention to the subject during his apprenticeship, or content himself with such incomplete knowledge as can be got together during his six months' Major course. Aldous forms a good general basis of knowledge, but other works must be used in order to cover the syllabus. Those mentioned are all carefully chosen from a multitude of text-books. The two volumes of Woodward's 'Arithmetical Physics' will give sufficient practice in the necessary calculations involved.

The books recommended can be bought for about £6, and, for the most part, will remain useful long after the period of examination has gone by.

PREPARATION FOR THE BELL SCHOLARSHIP EXAMINATION.

BY A SUCCESSFUL CANDIDATE.

After having successfully passed the Preliminary examination, or one of its alternatives, and having been duly enrolled in the Society as a student-associate, a large number of those on the threshold of their pharmaceutical career look longingly towards those prizes which are stepping stones to pharmaceutic and, in some cases, world-wide fame. They read in the regulations for the Jacob Bell Memorial Scholarships that "a scholar is supposed to be *commencing* his studies, or, at least, to have made only that progress which may be reasonably looked for during an apprenticeship." For a few weeks, or it may be months, they work assiduously at the subjects set, but their energies fail after a time, and, when the end of their apprenticeship comes, they have done nothing. They may have nine months or a year before the examination, and they try to cover in a few months subjects over which two or three years should have been spent in slow, steady, persevering study, which has always its own reward in the fact that the knowledge so gained is permanent. To avoid the Scylla of being overwhelmed by the large amount of work to be done, they rush into the Charybdis of a coach or crammer. But, as the writer has proved in his own case such external assistance is not necessary.

To those, therefore, who wish to attain to the dignity of a Bell Scholarship without the aid of a coach, the following remarks may be in some measure helpful. A great and almost inestimable help towards the goal is to have passed some other statutory examination instead of the present preliminary. The alternative examination should be preferably the London Matriculation or either of the Senior Local Examinations of Oxford or Cambridge Universities. To those who are the fortunate possessors of one of these certificates the first paper on the Arts subjects will present no difficulty at all, and all the work necessary will be to read the set books in the Latin and spend a short time on the revision of the school work in the other subjects. For them the only paper requiring new ground to be covered is the second, or scientific, paper, which need have no terrors if they have had a grounding in elementary chemistry, such as is to be had now in most grammar schools, in a good many Board schools, and in all technical schools.

To take the subjects seriatim, we have first the Latin. The set books of Virgil are best studied in the Elementary Classics Series, published at 1s. 6d. per volume by Macmillan. The text is very good and the notes are both full and lucid, covering all the grammatical questions that can be asked on the text, and, if I remember rightly, any *variæ lectiones* which are likely to puzzle the student are mentioned. The remainder of the Latin is grammar, composition, and translation from Latin Pharmacopœia. In the grammar all the requisite knowledge can be acquired from Allen's 'Latin Grammar' (Clarendon Press, 3s. 6d.). Special attention should be paid to the sentences towards the end of the book illustrative of various constructions, as they are most helpful in the Latin prose composition. This latter is very lucidly explained in the First and Second Latin Exercise Books by the same author, from the same publisher, at the same price each. The First Exercise Book should be found to be quite sufficient if it is worked through from beginning to end. A vocabulary of pharmaceutical Latin for the translation from Latin pharmacopœias can be obtained from Ince's 'Latin Grammar of Pharmacy (Baillière, 5s.); but it is desirable that the intending candidate should have a little practice in this by trying to translate from the old London Pharmacopœia, a copy of which is likely to be found in many old-established businesses which take a pride in their dispensing.

In French the extent of the paper is a short piece to be translated from French into English, and a shorter one for translation from English into French. The chief requisites are a fairly good vocabulary, for a few uncommon words usually appear, and a general knowledge of French grammar and syntax. For the vocabulary there is no better book published than Bossert and Beljame's 'Les Mots Anglais Groupés d'après le Sens,' published by Hachette at 1s. 6d. For practice in translating French into English there is, in my opinion, nothing to equal that obtained by the use of such newspapers as the *Figaro* or such weeklies as the *Revue des Debats*, which can be obtained in most important cities. One copy of each will supply sufficient material to last weeks. For the grammar and syntax books like the Oxford and Cambridge French Grammar' (Parts I., 2s., and II., 2s. 6d., Hachette) contain far more than is required, but their value is enhanced by the fact that they contain plenty of material for French prose composition. An excellent set of books, which do not make such a prominent feature of the grammar, but are splendid for composition, are Roulier's First and Second Books of French Composition, published by Hachette at 1s. 6d. and 3s. respectively. The second one is perhaps too far advanced for the Bell Scholarship requirements.

Most of the above remarks about French may be applied to the German. For grammar and elementary composition the 'Oxford and Cambridge German Grammar,' Part I. (Hachette, 2s. 6d.), contains all that can be required. For those who wish to undertake more advanced prose composition H. Lange's 'German Composition' (Clarendon Press, 5s.) may be used. The pieces included make it easy to acquire a good vocabulary as the student goes along. If the intending candidate takes German, he may as well learn the German handwriting, which can be acquired with a little practice. I suppose it will be almost a work of supererogation to offer any remarks on the English; but I expect some will find it necessary to rub up the parsing and analysis, which will in all probability have been allowed to lapse. For this any good English grammar will suffice, *e.g.*, Meiklejohn's, Mason's, Hewitt's, etc. It is specially desirable to become acquainted with the various methods of parsing words such as "methinks," which are merely a kind of grammatical gymnastic. For the Essay a good style can always be obtained by a study of leading articles in the best dailies or in the articles of any leading literary weeklies, *e.g.*, *Spectator*, *Athenæum*, etc., which are usually to be found in the reading-room of all free libraries.

The Arithmetic is simple in the extreme, and any person with a good school education should always be able to do all the sums set correctly at the first attempt. To those who require a little practice, Pendlebury's 'Arithmetic' (Bell, 4s. 6d.) may be recommended. We have now reached the end of the Arts subjects, and it is hoped that the reader will have no difficulty in following any of the hints. Keys are published to all the books that are of such a nature as to require one, but in some cases they are only available for teachers. They may be obtained in each case from the same publishers as the book.

Turning now to the scientific side of the subjects of examination, we read in the Calendar that "an elementary knowledge of Chemistry, Pharmacy, and Botany" is required. At the outset it may be necessary to remind intending candidates that there is a distinction between the elements of a subject and an elementary knowledge of that subject. The elements usually cover just a general knowledge of the more important branches, while the elementary knowledge referred to in the Calendar demands a general acquaintance with all the divisions of the subject.

For Chemistry the first four hundred pages of Attfield's 'Chemistry' just about suffice for every possible question except those on the non-metallic elements. To those pages must be added the short note on dialysis towards the end of the volume. This must be by no means forgotten, as it has quite a fatal fascination for examiners, and is usually served up in some form or another two years out of five. In working through Attfield special notice should be taken of the reactions and the equations involved in the chief tests. To obtain a proper knowledge of the non-metallic elements a book like Newth's 'Chemistry' (Longman, 6s. 6d.) should also be consulted.

In Pharmacy a systematic study must be made of the British Pharmacopœia and a knowledge obtained of all the B.P. processes and the reasons for the various steps. Some book like Lucas's 'Practical Pharmacy' (Churchill, 12s. 6d.) will be found to be helpful; but if Lucas be taken as a guide, discretion should be employed, as the statements in his book cannot in all cases be absolutely depended upon. An excellent knowledge of pharmacy may be acquired by a study of those articles dealing with the Pharmacopœia which have been appearing for some time past in the Students' Columns of the *Pharmaceutical Journal*.

In Botany a very general acquaintance with the subject is required both from a physiological and morphological standpoint. A knowledge of Elementary Botany, as defined by the South Kensington authorities, is a good point at which to start. By this means the greater part of the innumerable confusing definitions (*e.g.*, obvolute, involute, revolute, supervolute, etc.) are learnt and a good acquaintance obtained with the vagaries of the flowering plant in its various forms. Those who are unable to attend such a class will find all they want, or, rather, more than they want—but all of which they must learn—in Edmunds' 'Elementary Botany' (Longman, 2s. 6d.). After this work—which may be made much more interesting by endeavouring to write out a correct botanical description of any plant which can be obtained—has been mastered, the most instructive book to read is Scott's 'Botany' (two volumes, Black, 7s.). The whole of the volume on flowering plants should

be read through and mastered, and in the second only those types should be dealt with which are common, *e.g.*, Fucus, Saccharomyces, Penicillium, Mucor. If a small amount of microscopic work is done the student will have a much clearer idea of the subject. The chapters on Physiology in Green's 'Botany,' vol. ii. (Churchill, 10s.), will be found to be most helpful.

To sum up, it may be stated that no assistance of any kind is required by an intending candidate, other than that which it should be possible to obtain from the principal or assistant in the pharmacy at which he is employed. If he follows out the method of study advocated here, draws up a time table of study for himself and adheres to it, and is then successful in gaining one of the scholarships, he may derive additional satisfaction from the knowledge that he has fulfilled both the spirit and the letter of the conditions under which the examination has been held. To quote from the regulations as printed in the Society's Calendar, a Bell Scholar "is supposed to be *commencing* his studies, or at least to have made only that progress which may be reasonably looked for during an apprenticeship. The object of the examination is to ascertain that the candidate has such an amount of ability, and affords evidence of having made such use of it in the acquirement of elementary knowledge as will justify the expectation of his proving a successful student, who may do credit to the appointment and become a useful and accomplished member of the pharmaceutical body."

UNIVERSITY DEGREES IN SCIENCE.

The comparative value of a University degree and the diploma of a corporate professional body lies in the fact that whereas the latter is usually accepted more as a proof of training and efficiency in some department of applied knowledge, the former is generally looked upon as a stamp of education and scholarship pure and simple, and for this reason is an honour much coveted by the studiously minded.

Except in the University of London the degrees of British Universities are only granted after certain conditions as regards residence or curricula, or both, have been fulfilled. London University, however, grants degrees (except in medicine) to all candidates, no matter where or how educated, who can pass its somewhat high standard. Its medical degrees are only obtainable after the usual prescribed course at a recognised school.

It is quite possible for any young pharmacist of average ability, who is prepared to devote his spare time to study for two or three years to obtain a London degree, provided he cultivates patience enough to keep on plodding, and method enough to make the best use of his time—and many have already done so. As the science degree is the more appropriate one for a pharmacist to take, we shall only give an account of the proceedings in Science.

The Matriculation Examination takes place twice a year, in January and June, and candidates must be sixteen years of age on or before the 14th day of the month in which he is examined. The fee is £2 at first entry, and £1 subsequently. There is no exemption from this examination by reason of any other certificate whatever. Candidates must pass in Latin, English Grammar and History, Mathematics, General Elementary Science, and one optional language *or* science. The Mathematics includes the geometry of Euclid's first four books, and Algebra up to quadratics; the General Elementary Science syllabus requires the elementary facts of Chemistry, Mechanics, and Physics (without sound). The optional languages are Greek, French, German, Sanskrit, and Arabic, and the optional sciences are Mechanics, Chemistry, Electricity and Magnetism, Sound, Light, and Heat, and Botany, all in an elementary way. Candidates are expected to show that they have witnessed experiments, but no practical work is required of them except a little very elementary work in botany.

The Intermediate Examination is held once a year, in July. The fee is £5 at first, and £2 10s. subsequently. Candidates must have matriculated a year previously, but honour men at Jan. Matric. are admitted to Inter. Sci. in July the same year. An examination must be passed in four out of the following six subjects:—Chemistry, Botany, Physics, Zoology, Mathematics, and Mechanics, the first four practically as well as theoretically. Candidates may take honours in one or more subjects, and, failing honours, will be credited with a pass if they reach that standard. Exhibitions are given to the candidates under twenty-two who stand first in honours in each subject.

Minor men under the new regulations will find that they have well covered the necessary ground in chemistry and botany, but the examination in physics is more exhaustive and more mathematical than the pharmaceutical exams.

The B.Sc. Examination is held every October. The fee is £5, and subsequently £2 10s. Candidates must have passed the Intermediate one year previously. They must pass an examination in three out of the following eight subjects, or they must take first-class honours in one subject and first division pass in a second subject:—Pure Mathematics, Mixed Mathematics (Dynamics and Theoretical Astronomy), Chemistry, Physics, Botany, Zoology, Physiology, Geology. The B.Sc. examination is undoubtedly very stiff. The Major man under new regulations will be in a fair way to pass in Chemistry, but in other subjects he will have to do a good deal more work, both theoretical and practical. The honours examination at B.Sc. is an exhaustive one on each subject, a thorough acquaintance with recent and current research work being required. Candidates for honours in practical subjects must send up a certified record of their laboratory work.

The D.Sc. Examination is held once a year, in June. The fee is at first £10, and on subsequent entries £5. Candidates must have passed the B.Sc. examination two years previously, and must present a thesis giving results or original research in some one of the subjects of the B.Sc. syllabus. A candidate must pass an examination of the subject matter of his thesis, and also, unless he took first-class honours in his subject at B.Sc., a general examination in it, and will be expected to "satisfy any test of his acquirements that it may be thought expedient to apply." As a matter of fact, he must know more than his examiners.

CHOICE OF SUBJECTS.

A student, in choosing his subjects, will do well to take as his motto *Respice finem*, as he may thus simplify matters very much. His choice will depend first on his possible objects in life, and secondly on his predilection. In the Matriculation examination, should he intend taking a medical qualification *other* than the M.B. degree, he must take one of the optional languages. (We would here remind students that after August, 1900, this certificate will be useless as a pharmaceutical preliminary unless the owner has passed in a modern foreign language.) Again, if a student is independent of the above considerations, and makes a hobby of any science, he will obviously help himself if he takes that science.

At Inter. Sci.: If the student intends taking up medicine as well as science, he must pass in Physics, Chemistry, Botany, and Zoology. A student uninterested in Zoology will find Mathematics of more use, and, indeed, should he fancy Physics as one of his B.Sc. subjects he must have Intermediate Mathematics at his finger ends.

At B.Sc. a good mathematician will, of course, take mathematics, there being no practical work, but others will be obliged to be well up in the practical work of three subjects unless they are honours candidates, and it is in this that the difficulty in obtaining the degree arises to those who are engaged in some regular occupation. At any rate, he who tries has nothing to lose, for knowledge is invaluable and no one denies that the University has done good work in offering an inducement to intelligent men and women to spend their leisure in its pursuit.

Write to the Registrar, University of London, Burlington Gardens, W., for a copy of regulations, and to Messrs. Clive and Co., 13, Booksellers Row, W.C., for a catalogue of books suitable for Matriculation.

QUALITATIVE EXAMINATION OF POWDERED VEGETABLE DRUGS.*

BY HENRY KRAEMER.

GROUP No. 4 (*Continued*). COLOUR TAN, BUFF, ECRU TO DARK BROWN OR BROWNISH, BLACKISH AND BLUISH BLACK.

IV. Possessing Secretion Hairs, Cells or Reservoirs and of Somewhat Characteristic Odour.

A. SECRETION HAIRS.

372. *Anthemis.*—Non-secreting and secreting hairs; spherical prickly pollen grains (32 μ) which may not be numerous; papillæ of corolla and stigma; sklerenchyma fibres (10 μ wide) the walls of which are very much thickened; small rosette-shaped calcium oxalate crystals sometimes found; characteristic cells of anther.

373. *Arnicæ Flores.*—Numerous spherical prickly pollen grains (30 μ); secretion hairs; sklerenchyma fibres; characteristic non-secreting hairs of pappus (like top of pineapple fruit); outer portion of corolla and ovary.

374. *Belladonnæ Folia.*—See No. 46.

375. *Cusso.*—See No. 345.

376. *Lupulin.*—Large characteristic secretion hairs (20 × 20 μ). In *fresh* Lupulin more light yellow coloured secretion hairs than in *old*. In latter there are, browner or greyish-brown resinous masses replacing the light yellow oil. The amount of *Humulus* fragments should not be too large in good quality. See No. 537.

377. *Santonica.*—See No. 350.

B. SECRETION CELLS OR RESERVOIRS.

378. *Aurantii Amari Cortex.*—See No. 206, crystals of calcium oxalate.

379. *Aurantii Dulcis Cortex.*—See No. 207, crystals of calcium oxalate.

380. *Inula.*—See No. 368, Inulin masses or crystals.

381. *Limonis Cortex.*—See No. 208, crystals of calcium oxalate.

382. *Macis.*—A peculiar starch (becomes red with iodine and called "dextrin starch") in small irregular particles; yellowish (oil) and reddish (resin) secretion cells (75 μ); few ducts; H_2SO_4 stains contents of secretion cells bright red; KOH stains contents of secretion cells a yellow. *Bombay mace* gives with H_2SO_4 a yellowish reaction; the oil secretion cells and "dextrin starch" grains are possibly larger; the epidermal cells are radially elongated and the collenchymatic layer underneath may be wanting in Bombay mace.

383. *Pyrethrum.*—Stone cork. See No. 370.

V.—Presence of Sklerenchyma Cells (Stone Cells) or Fibres (Bast or Wood).

A. STONE CELLS.

384. *Aconiti Radix.*—Starch. See No. 319.

385. *Asclepias.*—Crystals and starch. See No. 242.

385a. *Black Mustard Hulls.*—Chiefly fragments of seed coat.

386. *Cocoa Shells.*—Little or no starch; oil globules; characteristic brownish adhesive fragments, possessing more or less hexagonal epidermal cells; peculiar small tubular mucilage cells and a layer of nearly isodiametric stone cells (10 × 10 μ) the walls of which are 4 μ thick.

387. *Canella alba*,—Crystals, starch, secretion reservoirs. See No. 244.

388. *Capsicum.*—Small starch grains might not be observed; reddish-coloured oily drops; peculiar wavy cells of seed coat besides stone cells of epicarp and endocarp; secretion hairs of calyx; powder with H_2SO_4 becomes purplish, changing to purplish red.

389. *Cardamom.*—Starch and crystals. See No. 270.

390. *Clove Stem.*—The presence of stone cells distinguish it from cloves. See No. 347.

391. *Coffee.*—Oil, aleuron, starch and epidermis with spindle-shaped stone cells. See No. 324.

392. *Colchici Semen.*—Starch, oil and protein. See No. 326.

393. *Colocynthis.*—Stone cells (70 × 50 μ) of fruit, the walls of which are 15 μ thick; also find characteristic yellowish, nearly isodiametric stone cells of seed containing very thick walls and but little lumen; embryo contains oil and aleuron. The *amount of seed* in powder can be determined from the amount of oil in the form of globules. The U.S.P. directs only pulp, and not seeds or edicarp.

394. *Composition Powder.*—Tissues of ginger, cloves, capsicum and bayberry. See No. 245.

395. *Cubeba.*—Starch and secretion reservoirs. See No. 308.

396. *Delphinium.*—No starch; oil and protein; characteristic stone cells (32 × 175 μ) forming the inner epidermis and containing a reddish-brown colouring substance; also spatulate cells (outer epidermis of seed coat) with simple pores.

397. *Galla.*—Crystals and starch. See No. 247.

398. *Guarana.*—Starch. See No. 328.

399. *Hicra Picra.*—Canella and aloes. See No. 255.

400. *Illicium.*—Palisade sklerenchyma. See No. 356.

401. *Jalapa.*—Crystals and starch. See No. 250.

402. *Juglans.*—Crystals and oil. See No. 251.

403. *Pareira.*—Starch. See No. 329.

404. *Prunus Virginiana.*—Starch and crystals. See No. 282.

405. *Pulv. Jalapæ Comp.*—Jalapa and potassii bitartras. See No. 256.

406. *Quercus alba.*—Crystals and tannin. See No. 360.

407. *Pimenta.*—Crystals, starch and oil. See No. 254.

408. *Pyrethrum.*—Inulin and stone cork. See No. 370.

409. *Rumex crispus.*—Crystals and starch. See No. 260.

410. *Syr. Trifolii Comp. (Powder).*—Stillingia, Xanthoxylum fraxineum, Lappa, Phytolacca, Berberis aquifolium, Cascara amarga and red clover. See No. 263.

411. *Vanilla.*—No starch. See No. 363.

412. *Viburnum prunifolium.*—Crystals, more stone cells and fewer sklerenchyma fibres. See No. 265.

B. SKLERENCHYMA FIBRES.

413. *Althæa.*—Crystals, starch and mucilage. See No. 238.

414. *Anthemis.*—Pollen. See No. 372.

415. *Apocynum.*—Starch. See No. 320.

416. *Arnicæ Flores.*—Pollen. See No. 373.

417. *Aspidosperma.*—Crystals in crystal fibres. See No. 267.

418. *Belladonnæ Radix.*—Starch. See No. 298.

419. *Cardamom.*—Crystals and starch. See No. 270.

420. *Cascarilla.*—Crystals and starch. See No. 243.

421. *Cinchona.*—Characteristic bast fibres. See No. 299.

422. *Cinnamon.*—Starch, crystals and stone cells. See No. 292.

423. *Cloves.*—Few sklerenchyma fibres and numerous large secretion reservoirs. See No. 346.

424.—*Clove Stems.*—Stone cells, numerous sklerenchyma fibres. See No. 347.

425. *Cubeba.*—Starch, oil, stone cells. See No. 303.

426. *Euonymus.*—Crystals and starch. See No. 246.

427. *Ext. Glycyrrhizæ.*—See No. 272.

428. *Ext. Sarsaparillæ Fld.* (Powder).—Tissues of sarsaparilla, glycyrrhiza, sassafras and mezereum. See No. 273.

429. *Frangula.*—Crystals, starch, but *no* stone cells. See No. 274.

430. *Gelsemium.*—Crystals and starch. See No. 275.

431. *Ginger, Charcoal and Magnesia.*—Tissues of ginger, willow charcoal and particles of MgO. See No. 277.

432. *Glycyrrhiza.*—Crystals and starch. See No. 276.

434. *Gossypii Rad. Cort.*—Crystals, starch and secretion reservoirs. See No. 249.

435. *Hydrangea.*—Crystals and starch. See No. 293.

436. *Illicium.*—Palisade sklerenchyma. See No. 356.

437. *Inula.*—See No. 368.

* From the *American Journal of Pharmacy*. *Concluded from page 226.*

438. *Ipecac.*—Crystals and starch. See No. 294.

439. *Juglans.*—Crystals, oil and tannin. See No. 251.

440.—*Krameria.*—Crystals, starch and colouring substance. See No. 279.

441. *Lappa.*—Inulin. See No. 369.

442. *Myrica Cerifera.*—Crystals in crystal fibres. See No. 252.

443. *Pareira.*—Starch and numerous stone cells. See No. 329.

444. *Phytolaccæ Radix.*—Crystals and starch. See No. 301.

445. *Podophyllum.*—Crystals and starch. See No. 332.

446. *Prunus Virginiana.*—Crystals and starch. See No. 282.

447. *Pulv. Aromaticus.*—Tissues of cinnamon, ginger, cardamom and nutmeg. See No. 295.

448. *Pulv. Glycyrrhizæ Comp.*—Tissues of glycyrrhiza and senna. See No. 283.

449. *Pulv. Ipecac. et Opii.*—Tissues of ipecac and opium; also crystals of sugar and milk. See No. 296.

450. *Pyrethrum.*—Inulin, stone cork. See No. 370.

451. *Quassia.*—Crystals. See No. 359.

452. *Quercus Alba.*—Crystals and stone cells. See No. 360.

453. *Quillaja.*—Crystals and starch. See No. 284.

454. *Rubus.*—Crystals and starch. See No. 259.

455. *Rumex Crispus.*—Crystals, starch and stone cells. See No. 260.

456. *Sabina.*—Starch and "hypodermis fibres." See No. 311.

457. *Sassafras.*—Starch, oil and tannin. See No. 313.

458. *Serpentaria.*—Starch. See No. 145.

459. *Stillingia.*—Crystals, starch and oil. See No. 262.

460. *Sumbul.*—Starch and oil. See No. 125.

461. *Syr. White Pine Comp.*—Tissues of wild cherry, Aralia spinosa, sassafras, sanguinaria, white pine bark and balm of gilead buds. See No. 285.

462. *Tr. Cinchonæ Comp.* (*Powder*).—Tissues of cinchona, bitter orange peel and serpentaria. See No. 303.

463. *Ulmus.*—Crystals, starch and mucilage. See No. 285.

464. *Viburnum opulus*—Crystal fibres and sklerenchyma fibres. See Nos. 287 and 265.

465. *Willow Charcoal.*—In glycerin mounts, wine-coloured or dark reddish or blackish irregular-shaped fragments containing wood fibres; transverse fragments with lumen.

466. *Xanthoxylum.*—Crystals, starch and oil. See No. 289.

VI.—Absence of Sklerenchyma.

467. *Gentian.*—Yellowish oil globules; spiral (30 μ wide), and scalariform (50 μ wide) ducts; small colourless and yellow prismatic crystals (which may be calcium oxalate crystals), large (5 × 15 μ) prismatic crystals separate in glycerin mounts which may be a sugar; characteristic "Ersatzfasern" accompanying the sieve.

VII.—Characteristic Pollen Grains.

468. *Anthemis.*—See No. 372.

469. *Arnicæ Flores.*—See No. 373.

470. *Carthamus.*—Glycerin, of mount, coloured yellow; numerous elliptical, prickly pollen grains, which are more or less elliptical (50 × 60 μ); brick-red secretion vessels; cells of anther; hairs of stigma; chaff or pappus.

471. *Caryophyllus.*—See No. 346.

472. *Crocus.*—Glycerin of mount coloured deep orange; few nearly smooth, nearly spherical pollen grains (85–100 μ); papillæ of stigma; colouring principle soluble in water and not in fatty oils, being the reverse in *Capsicum;* with H_2SO_4 fragments become blue immediately.

473. *Rosa centifolia.*—Pollen grains nearly smooth and elliptical (17 × 30 μ); fragments of corolla pinkish with chloral; papillæ of corolla are somewhat rounded; cells of anther; long, 1-celled fibres around ovary and akenes being 875 μ long and 10 μ wide. In *Rosa gallica* the pollen grains are ovate (28 × 32 μ) rather than elliptical; the papillæ of corolla are acute rather than rounded; absence o many anthers or fibres of ovary.

474. *Sambucus.*—No starch; numerous smooth, nearly sphefical pollen grains (18 × 18 μ); numerous fragments of broken or whole anthers; corolla with dentate papillæ; oil globules from secretion cells; in calyx some rosette-shaped crystals of calcium oxalate; in flower stalk large spiral ducts (30 μ wide), and parenchyma with brown contents.

475. *Santonica.* See No. 350.

VIII.—Little or no Indication of Plant Tissues.

A. CONTAINING STARCH.

476. *Amylum Iodatum.*—See No. 335.

477. *Bryonia.*—See No. 336.

478. *Colchici Cormis.*—See No. 337.

479. *Ext. Glycyrrhizæ.*—Irregular, wine-coloured fragments; altered and unaltered starch grains; few fragments of bast and crystal fibres of glycyrrhiza; soluble in water and taste sweetish.

480. *Opium.*—Insoluble in water; taste bitter. See No. 338.

B. WITHOUT STARCH.

a. Particles of organised form.

481. *Corn Smut.*—Greyish-brown, nearly spherical spores (7 × 7 μ); little or no foreign substances. Spores of *Coprinus comatus*, blackish and elliptical (10 × 5 μ). Spores of *Agaricus campestris* more brownish than corn smut, are egg-shaped and in size about 5 × 7 μ.

b. Particles of inorganic form.

a. Remain Opaque (not affected) in glycerin.

482. *Aloes* (*Socotrine*).—Partially unaffected. See No. 487.

483. *Benzoin.*—Colourless and wine-coloured irregular fragments; some rosette-shaped groups and collection of small tetragonal or plates of crystals. Upon covering a fragment on a slide with a watch crystal and cautiously heating crystals of benzoic acid are sublimed on the watch crystal.

484. *Elaterium.*—Greyish and greyish-brown, more or less opaque and irregular fragments. Heat fragment with phenol, and when cool add H_2SO_4, a deep red coloration is produced. KOH has no action on elaterium.

485. *Goa Powder.*—Small, somewhat transparent, wine-coloured irregular angular fragments. With KOH a bright, reddish colour produced.

β. Become more or less transparent in glycerin.

486. *Aloes* (*Barbadoes*).—In a glycerin mount the particles become clear and behave like Cape aloes, but generally numerous acicular or large prismatic crystals remain or separate in clear yellow space where fragment of aloes was originally.

487. *Aloes* (*Socotrine*).—In a glycerin mount the fragment is not very perceptibly affected. At the most there is but a faint yellowish colour around the greyish or greyish-brown masses. In old Socotrine aloes the grey masses look like rosette crystals.

488. *Catechu.*—Large opaque dark brownish-red masses which on the edge gradually become transparent and dissolve with a sherry wine colour, also fragments of sklerenchyma.

489. *Kino.*—Fragments become clearer and a deeper red (port wine colour), compared to catechu.

GROUP NO. 5. COLOUR REDDISH.

Kino, Cochineal (black), Cochineal (grey), Lupulin (old), Macis, Myristica, Capsicum, Crocus, Carthamus, Santalum rubrum Krameria, Sanguinaria, Pine shavings, Breakfast cocoa, Illicium, Sassafras, Lupulin (new), Rosa gallica, Pulv. Rhei. Comp., Hufland's Baby Powder.

I. Animal Fragments (Test by Burning).

490. *Cochineal.*—Carmine red colour in mounts of glycerin or glycerin + chloral.

II. Vegetable Fragments.

A. CONTAINING STARCH.

a. Containing calcium oxalate crystals.

491. *Krameria.*—See No. 279.

492. *Hufland's Baby Powder.*—Fragments of Rheum, MgO and sugar. See No. 278.

493. *Pulv. Rhei. Comp.*—Fragments of Rheum, ginger and MgO See No. 257.

b. Few or no Calcium oxalate crystals.

494. *Cocoa.*—See No. 386 and 545.

495. *Capsicum.*—See No. 306.

496.—*Myristica.*—Starch grains (5–7 μ) generally in groups; numerous oil globules; parenchyma and "Hullperisperm," with reddish coloured contents; in "Hullperisperm" some prismatic crystals; some tetragonal or prismatic crystals (5 × 10 μ) of myristic acid, which are soluble in KOH; heat powder in chloral get tabular or acidular crystals. Myristica distinguished from *Macc* in that latter has no starch, and on treatment with KOH the secretion cells of Mace are coloured blood-red, whereas Myristica becomes brownish.

497. *Sanguinaria.*—See No. 312.

498. *Sassafras.*—See No. 313.

B. WITH LITTLE OR NO STARCH.

a. Containing Calcium oxalate crystals.

499. *Cocoa.*—See No. 386 and 545.

500. *Ilicium.*—See No. 356.

501. *Santalum rubrum.*—Hexagonal or coffin-shaped crystals (15 × 25 μ) in crystal fibres; long sklerenchyma fibres, 10 μ wide ducts (150 μ wide) with bordered pores; all cell walls coloured yellowish-red; some cells contain reddish granular resin-like masses. Distinguished from other woods possessing red dye in only possessing one row of medullary ray cells (in hæmatoxylon the medullary rays are 4–5 cells in width) and colouring matter not dissolved by water.

III. No Vegetable or Animal Tissues.

502. *Kino.*—See No. 489.

GROUP No. 6. CONTAINING POWDERS THAT ARE RELATIVELY COARSE.

Sugar (granulated), Sago (imitation), Sago (real), Grits (corn), Corn Bran, Quillaja, Orris Root (Florentine), Viburnum opulus, Sarsaparilla (Mexican), Sarsaparilla (Honduras), Taraxacum, Mezereum, Strophanthus, Linum, Dulcamara, Sinapis nigra, Humulus, Matricaria, Triticum, Sassafras medulla, Sweet Orange Peel, Terebinthina, Manna, Canella alba, Colocynthus, Sambucus, Pepo, Amygdala dulcis, Amygdala amara, Berberis aquifolium, Asafetida Myrrha, Gentian, Rheum, Frangula, Anise, Black Mustard Hulls Cannabis Indica, Cardamom (seeds hulled), Syr. Trifol. Co., Arnicæ Flor., Chirata, Staphisagria, Cocculus, Zea (corn silk), Juniper Coffee, Pix Burgundica, Confect. Rosæ, Rubus idæus, Lactucarium, Juglans, Mylabris, Rhus glabra, Hæmatoxylon, Chicory, Stramonii Semen, Tea, Cochineal (black), Cochineal (grey).

I. Containing Numerous Vegetable Fragments.

A. CONTAINING STARCH.

a. Containing crystals of calcium oxalate.

α. *Crystals rosette or star-shaped.*

503. *Canella alba.*—See No. 244.

504. *Frangula.*—See No. 274.

505. *Juglans.*—See No. 251.

506. *Rheum.*—See No. 215.

507. *Syr. Trifolii Comp. (Powder).*—See No. 263.

β. *Crystals cubical, tetragonal, prismatic or more or less coffin-shaped.*

508. *Berberis aquifolium.*—Crystals cubical (4 × 4 μ; starch in single (2 × 2 to 5 × 7 μ) and 2 to 3-compound grains; libriform fibres 30 μ wide; all tissues light yellow and very hard and resistant.

509. *Cardamom.*—See No. 23.

510. *Frangula.*—See No. 274.

511. *Iris Florentina.*—Crystals either like in quillaja very long and 10–20 μ wide, or long needles; starch characteristic (15 × 30 to 15 × 15 μ); parenchyma; no cork; fibrovascular tissue.

512. *Juniperus.*—Crystals hexagonal (30 × 30 μ) in stone cells which are 60 × 60 and walls 15 μ thick; small amount of starch (5–7 μ); oil secretion reservoirs; brown pigment cells.

513. *Myristica.*—Crystals are of myristic acid. See No. 496.

514. *Quillaja.*—See No. 284.

515. *Syr. Trifolii Comp.*—See No. 263.

516. *Viburnum opulus.*—See No. 287.

γ. *Crystals acicular.*

517. *Cocculus.*—Crystals are soluble in alcohol and not in dilute acids. See No. 547.

518. *Iris Florentina.*—See No. 511.

519. Sarsaparilla. See No. 40.

δ. *Crystals in fine sand* ("crystal sand").

520. *Dulcamara.*—Numerous starch grains (7 μ); ducts reticulated 55 μ wide or with bordered pores (35–45 μ) associated with libriform cells 4 μ thick; cork; all elements grey or yellowish-grey colour.

(*b*) Containing starch but no calcium oxalate crystals.

521. *Chenopodium.*—See No. 108.

522. *Corn Bran.*—Less parenchyma containing characteristic grains of corn starch but more fragments of coat (bran); oil-globules.

523. *Grits.*—More or less altered and unaltered starch grains; almost free from coat (bran); oil.

524. *Mezereum.*—Starch in single grains (7–10 μ) or in masses; numerous very long colourless bast fibres about 15 μ wide; light parenchyma; yellowish-brown or pinkish cork.

525. *Myristica.*—See No. 496.

526. *Orris Root.*—Starch of varying but rather characteristic shape (15 × 15 to 15 × 30 μ); may find tetragonal (20 μ wide) or acicular crystals; fibrovascular bundles; no cork.

527. *Pepo.*—Few starch grains (2 × 2 to 3 × 4 μ) occur in outer epidermis and endosperm; characteristic, pear-shaped, thick-walled (possessing simple pores) cells about 70 × 45 μ; yellow pigment cells of seed coat; oil and protein in embryo.

528. *Sago (True).*—Slowly affected by cold water when there separates the characteristic elliptical, or truncate-elliptical starch grains (15–20 μ).

529. *Sago (Imitation).*—Breaks down quickly in water and shows characteristic *corn starch* grains.

530. *Strophanthus.*—Starch grains (4 μ) characteristic; long non-secreting hairs (10 to 15 μ wide); narrow, almost colourless, collapsed cells and parenchyma containing starch, oil and aleuron; with H_2SO_4 should become green, indicating fresh and unimpaired strophanthus.

B. WITH LITTLE OR NO STARCH.

a. Animal tissues.—On burning fragment on platinum foil gives off odour of burning tissue.

(*a*) *Does not colour glycerin.*

531. *Cantharis.*—Green metallic particles; not hairy.

532. *Mylabris.*—Very hairy.

(β) *Gives a carmine-red colour to glycerin.*

533. *Cochineal.*

(*b*) Without starch but containing vegetable tissues.

a With secreting or non-secreting hairs.

534. *Anisum.*—See No. 8.

535. *Arnicæ Flores.*—See No. 373.

536 *Cannabis Indica.*—Characteristic crystoliths, with or without broad base attached, in latter $CaCO_3$ in a granular mass. Entire crystolith about 200 μ long; oil secretion hairs; rosette-shaped calcium oxalate crystals (20 μ); characteristic cells of pericarp.

537. *Humulus.*—Characteristic secreting hairs (Lupulin); numerous rosette-shaped calcium oxalate crystals (8 μ); non-secreting hairs; characteristic epidermis; ducts yellowish.

538. *Rhus glabra.*—Hairs may be numerous, long, broken, 1-celled or spatulate (consisting of a chain of cells), containing a red pigment dissolved; pigment cells; characteristic stone cells of pericarp (20 μ in diameter and walls 4–10 μ thick; oil in protein.

539. *Rubus idæus.*—Characteristic long, more or less curved, 1-celled hairs (7 μ diameter), containing a reddish pigment; loose parenchyma, containing pigment and rosette-shaped crystals of calcium oxalate (7 μ); also characteristic hairs of receptacle and calyx.

540. *Strophanthus.*—Starch grains might be overlooked as small grains and in small amount. See No. 530.

541. *Tea.*—Characteristic stone cells (idioblasts); numerous long non-secreting hairs (10 μ wide); rosette-shaped crystals of calcium oxalate (10 μ); characteristic stomata (28 × 28 to 30 × 35 μ), with 4 or 5 "Nebenzellen"; adulterants are distinguished by possessing chiefly other forms of calcium oxalate crystals and hairs. (See also Mœller.)

β. Sklerenchyma cells (i.e., stone cells).

542. *Amygdala Amara* and 543. *Amygdala Dulcis.* Characteristic lignified yellow epidermal cells (70 × 65 μ), the walls of which are 4 μ thick and possess simple pores; endosperm layer 15 × 15 μ; crystals, may be rosette-shaped or cubical, about 7 × 7 μ and occur near the ducts; or there may be acicular crystals, 40 μ long. Bitter almond distinguished by putting a few fragments in cold water for some hours, when odour of HCN develops; or take solution and add $(NH_4)_2S$, evaporate in a porcelain dish nearly to dryness, and add Fe_2Cl_6=a deep blood-red colour.

544. *Black Mustard Hulls.*—Consist chiefly of characteristic fragments of seed coat.

545. *Cocoa.*—Consists chiefly of protein grains and oil; starch grains 4–8 μ; fragments with brownish contents (cacao red); fat crystals in little prisms or needles; few fragments of seed coat, consisting of hexagonal epidermal cells, a peculiar mucilage layer of small tabular cells and a layer of nearly isodiametric stone cells (10 × 10 μ), whose walls are 4 μ thick.

546. *Cocoa Shells.*—Chiefly of fragments of seed coat. See No. 545.

547. *Cocculus.*—Characteristic reddish-brown pericarp with elongated stone cells of varying shape, but walls about 7 μ thick; crystals either needle-shaped (single or in groups about 35 μ long) or prismatic (10 × 100 μ long), soluble in alcohol, but not in acids.

548. *Coffee.*—Characteristic fragments of seed coat, consisting of altered parenchyma and spindle-shaped stone cells (35 μ wide and 175–200 μ long); most cells are those of endosperm, with thick (10 μ) porous brownish-coloured walls, the contents are oil, aleuron and starch. In commerce coffee generally either "straight" or artificial. Latter consists of cereals, chicory, etc.

549. *Colocynthis.*—Stone cells of fruit, 70 × 50 μ, the walls of which are 15 μ thick; characteristic, nearly isodiametric, thick-walled stone cells, with but small lumen; the cells of embryo contain oil and aleuron. The amount of seed in powder is determined by number of oil globules and fragments of seed coat. The U.S.P. directs only pulp, not seeds or epicarp.

550. *Cydonium.*—Without starch or calcium oxalate; characteristic seed coat consists of an outer layer of clear mucilage cells, as in linum; beneath these are cells with thick walls and contain a pigment reacting like tannin; parenchyma contains oil, protein, and tannin.

551. *Linum.*—Numerous fragments, possessing characteristic tabular reddish-brown pigment cells; when seen in surface view (15 × 30 μ) associated with small yellowish-coloured stone cells; mucilage layer prominent, being the outer epidermis; relatively thin-walled parenchyma, containing oil and aleuron.

552. *Pepo.*—See No. 527.

553. *Sinapis Alba* and 554. *Sinapis Nigra.* No starch, tannin or crystallisable carbohydrate; mucilage layer not so prominent as in cydonium or linum; much oil and aleuron (latter in small grains); not infrequently find complete transverse sections of seed coat in the powder. In *Sinapis alba* the coat consists of hexagonal epidermal cells (45 μ); then follows a sub-epidermal collenchyma, a light yellowish or colourless pigment layer and a layer of stone cells (8 × 10 μ), the walls of which are 4 μ thick. In *Sinapis nigra* the unequal hexagonal epidermal cells are larger, 45–70 μ, the pigment layer is reddish-brown and stone cells are about as in *Sinapis alba.* Both mustards are turned blood-red in colour by H_2SO_4. Likely to find fragments of turmeric in yellow mustard.

555. *Staphisagria.*—Characteristic fragments of seed coat with brown pigment, and possessing prominent hexagonal stone cells (80 μ wide) with thick walls (20 μ); long spindle-shaped cells, such as occur in delphinium are present; parenchyma contains oil and aleuron.

556. *Starmonii Semen.*—Peculiar greenish fluorescence of mount in glycerin or glycerin + chloral. Nothing behaves like this. Characteristic seed coat, with yellowish and brownish thick-walled stone cells; most characteristic are the groups (of train-like) brownish stone cells, whose walls are very thick, with scarcely any lumen sometimes; parenchyma contains oil and aleuron, but *no* starch.

γ. Sklerenchyma fibres.

557. *Berberis aquifolium.*—Ducts (50 μ wide), with bordered pores, wood fibres (20 μ wide, walls 8 μ thick) and medullary rays (9 rows wide, containing starch grains 10 μ) are yellow; bast fibres 15 μ wide and walls 4 μ thick; cork prominent; parenchyma of cortex contains brownish-coloured substance.

558. *Chicory.*—Inulin masses; characteristic cork; numerous fragments of ducts of varying size; parenchyma (25 × 140 μ); laticiferous vessels 7–20 μ wide.

559. *Chirata.*—No starch; pollen grains (4 × 10 to 7 × 10 μ); parenchyma large, with simple pores; spiral and scalariform ducts (30 μ wide); numerous sklerenchyma fibres (20 μ wide and walls 4 μ thick); yellowish epidermis with brownish-coloured collenchyma beneath; seeds reticulate and in shape like hyoscyamus; mycelial-like development containing dark-brown-coloured substance.

560. *Hæmatoxylon.*—Cubical crystals (20 μ) in crystal fibres associated with yellowish libriform fibres (15 μ wide and walls 4 μ thick); large ducts (140 μ wide) containing brownish masses; medullary rays are 4–5 cells wide; characteristic violet or purple coloration with alkalies; oil globules, resin and tannin masses.

561. *Matricaria.*—Numerous nearly spherical pollen grains (18–25 μ); fragments of corolla with secretion hairs; cells of anther; stigma with papillæ; peculiar ladder-like cells of wall of akene; sklerenchyma fibres of involucral scales.

562. *Pine Shavings.*—Characteristic tracheids with bordered pores.

563. *Taraxacum.*—Characteristic laticiferous vessels and inulin. See No. 165.

564. *Triticum.*—Without starch or calcium oxalate crystal; parenchyma containing irregular masses, soluble in water (sugar); yellow hypodermal cells with lignified thickening (walls 10 μ or more thick) and simple pores; three kinds of characteristic sklerenchyma of varying length and width; some of the fibres are marked here and there, apparently at regular intervals, with a tabular cell (duct) of same composition as fibre; ducts spiral and annular (30–50 μ in diameter).

δ. *Sklerenchyma cells or fibres wanting.*

565. *Aurantii Amari Cortex.*—See No. 206.

566. *Aurantii Dulcis Cortex.*—See No. 207.

567. *Gentian.*—See No. 467.

568. *Limonis Cortex.*—See No. 208.

569. *Sambucus.*—Numerous smooth pollen grains (18 × 18 μ); cells of anther; sometimes find small crystals of calcium oxalate in calyx; fragments of corolla with characteristic slight, dentate, papillæ; in flower stalk are large spiral ducts (30 μ diameter); also parenchyma, with brown contents and collenchyma.

570. *Sassafras Medulla.*—Consists only of parenchyma cells, whose walls consist of cellulose and mucilage, and hence swell perceptibly in water. Mount sticky, mucilaginous.

571. *Taraxacum.*—Characteristic (not lignified) "Ersatzfasern," laticiferous vessels and inulin. See No. 165.

572. *Zea.*—Style with spiral and annular ducts, and from the epidermis there arises secretion hairs which are 300 μ long.

II. Containing Few Fragments of Tissues.

A. POSSESSING OIL.

573. *Asafetida.*—In a glycerin mount the powder shows irregular greyish (or grey streaked with brown) masses; opaque and becoming milky white on edge from oil. The *Stony* asafetida is pulverulent and contains less oil.

574. *Myrrh.*—In glycerin mount powder appears in yellowish or yellowish brown irregular fragments made up of a greyish matrix and containing yellowish or yellowish-brown oil globules.

B. NO OIL; AND GLYCERIN MOUNTS NEARLY TRANSPARENT.

575. *Manna.*—Collection of long, transparent tetragonal or prismatic crystals of varying length and about 4 to 10 μ wide; fragments in glycerin leave clear crystal and little amorphous opaque residue.

576. *Pix Burgundica.*—More pulverulent (m. p. lower) than terebinthina; lemon-yellow transparent, or greyish, somewhat translucent, more or less rounded and opaque masses. Soluble in glacial acetic acid, giving a yellowish-brown solution.

577. *Sugar.*—Like rock candy; dissolves in glycerin without residue.

578. *Terebinthina.*—More adhersive (softer in summer) than Pix Burgundica; nearly transparent colourless or light yellowish masses of irregular rounded outline. Solution in glacial acetic acid of a light yellow.

C. NO OIL, AND MOUNTS IN GLYCERIN MORE OR LESS OPAQUE.

579. *Confectio Rosæ.*—Fragments of red rose petals with characteristic more or less rounded papillæ; few elliptical pollen grains (18 × 32 μ); mass greyish and made up of rounded grains; some transparent sugar crystals.

580. *Lactucarium.*—Greyish brown and dark brown, irregular and rather angular masses; with alkalies they become reddish brown and then a dirty brown; with H_2SO_4, but slightly (faint yellow) affected.

No. 7. Vegetable (also Animal) Drugs which do not Occur in Powders but in Masses or Liquids.

I. LIQUIDS.

581. *Balsam Peru.*—Colour blackish.

582. *Copaiba.*—Colour amber.

583. *Gurjun Balsam.*—Colour amber.

584. *Mel.*—Colourless or faint yellow.

585. *Styrax.*—Peculiar grey colour.

II. SEMI-FLUID OR NEARLY SOLID.

586. *Bals. Tolu.*—Characteristic odour.

587. *Prunum.*—Characteristic tissues of pericarp and seed.

588. *Resina Podophylli.*

589. *Tamarindus.*—Characteristic tissues of pericarp and seed.

III. SOLID.

590. *Elastica.*—Not pulverulent.

591. *Resina Podophylli.*

REMARKS.

This investigation, which has occupied the attention of the author for several years, is based on the careful study of the crude (sometimes also fresh) drug as well as authentic commercial powders (some of these have been furnished by Gilpin, Langdon and Co.) and in many instances drugs ground by the author.

In publishing these results at this time no one realises more than the author that the whole scheme is but tentative and that additional study and the application of the method outlined will, no doubt, cause some changes to be made in practice. It would be surprising, furthermore, if there are not some errors of either commission or omission in that in some cases the characteristics given or withheld may be due to the examination of diseased, deteriorated, or even spurious drugs. But all this is due to the fact that the collecting and caring for drugs is not carried out on scientific principles. Even should there be oversights or errors, the publication of this work must be of some value to pharmacognocists. We must realise that a communication of this kind to be complete in any sense must have incorporated with it the results and experiences of numerous investigators from rather widely scattered sections of the country and world.

The scheme is based on scientific principles, but it has been considered desirable at the outset to open up the subject by dividing the powders into groups depending on their colour. It is true that colour varies in the plant itself in nature and according to the time of gathering, mode of collecting and subsequent treatment, exposure to light, etc. But it is very necessary that these things be thoroughly studied before we are prepared economically to properly exhaust drugs, make preparations and pronounce on the therapeutical value of them. In this connection, it must be stated that in the study of powdered drugs the education of the eye to colour is very important, and, indeed, necessary. Old and freshly-powdered drugs are to be distinguished by this means alone, as also a properly prepared drug from one carlessly treated. To the author's mind the eye and nose, and possibly the taste are very important factors in the study of powdered drugs in connection with the microscope.

A number of interesting features have been brought out in this investigation. In fact it opens up possibly an entirely new method in the study of our drugs at large.

(1) In the first place, in the colour of the powder certain characteristic and diagnostic features are brought to light. Leaf and herb drugs in the powdered condition should be greenish or greyish, and not blackish or brownish-black; many roots and rhizomes ought to be a light tan rather than a dark brown, etc. The value of taraxacum and other more or less important drugs rich in reserve materials, as inulin, starch, etc., may be ascertained, as these reserve materials are contained, no doubt, in greatest abundance in the plant at the time that the active medicinal agents are present in likewise greatest amount.

(2) Certain facts, as the presence of pollen grains in chestnut leaves, will cause us to go into the woods and study the ecological and biological relations of the plants which yield us our drugs. For, without this study upon nature herself, we shall never know what value to place upon such observations or their real significance.

(3) The presence of reserve starch in leaves and a diminution in calcium oxalate in any part of the plant where normally it is present, will cause us to open our eyes to the study of micro-organisms and inquire as to what these things have to do with the deterioration of drugs and the spoliation of medicinal preparations.

When these pharmacognostical problems are understood then we will cease to devote our energies to indiseriminately mixing certain things together in our attempt to make elegant pharmaceutical preparations, but will start out to know what causes the difficulty, and, knowing this, we know how to proceed intelligently and in a scientific manner, just as we proceed in certain chemical pharmaceutical work.

(4) The use of the microscope in the examination of vegetable drugs (whether they be crude or powdered), as also in the examination of animal substances and chemical compounds is an application of this instrument to a degree that this communication indicates—to some extent at least—the widest practical application. In fact, it opens up the necessity for making microscopical examinations and micro-chemical tests to a much greater degree than heretofore on the crude as well as powdered drug.

The author would impress again upon all investigators the necessity for accurate measurements of tissues and contents of materials which are studied; as also the name of the media or reagent in which the specimen lies or to which it has been subjected. Potassium hydroxide, chloral, glycerin, etc.—all of these have the property of affecting the thickness and character of the cell walls and cell contents, and it is upon these characteristics that we must rely for our useful studies of crude and powerful drugs.

GOVERNMENT AND PUBLIC APPOINTMENTS.

DISPENSERS IN NAVAL HOSPITALS are appointed by Government, and on entering the service must be not less than twenty nor more than twenty-five years of age. Candidates must possess either the Minor or Major certificate of the Pharmaceutical Society of Great Britain, or the certificate of competency granted by the Irish Society. The appointments are conferred as the result of open competition conducted by the Civil Service Commissioners, to whom application should be made by intending candidates. On appointment, dispensers are required to serve in any of Her Majesty's Naval Hospitals either at home or abroad, to which they may be sent, and are included in the list of salaried officers, with all the advantages pertaining thereto, and are entitled to pensions under the Superannuation Acts. There are fifteen appointments as follow:—At Haslar, 4; Plymouth, 3; Haulbowline, 1; Chatham, 1; Malta, 2; Cape of Good Hope, 1; Jamaica, 1; Bermuda, 1; Hong Kong, 1. The rate of pay on entry is 5s. per day (with quarters and an allowance of 6d. per day in lieu of fuel and lights), gradually rising to 10s. per day after 22 years' service. Dispensers in charge of stores have an additional allowance at Haslar and Plymouth of 2s. per day, and at any other hospital at home or abroad 1s. Extra pay to meet the increased cost of living is also granted to those serving at several of the foreign stations, viz., Malta, Cape of Good Hope, Jamaica, Bermuda, and Hong Kong. Twenty-eight days' annual leave, exclusive of Sundays, is granted to dispensers serving either at home or abroad, in the latter case liberty being given to reserve it from year to year so as to obtain a lengthened period of absence, which, however, must not exceed six calendar months. When on sick leave, which must not exceed twelve calendar months, full pay is allowed for six months, and after that period half-pay only, except when the dispenser would, if superannuated, be entitled to a higher amount, in which case he may be paid at the superannuation rate. When vacancies occur they are advertised in the *Pharmaceutical Journal*, and examinations are held in London, Edinburgh, and Dublin. The subjects of examination include: (1) Pharmaceutical chemistry; (2) Materia medica, including the B.P. and its Appendix, poisons and their antidotes, dosage of remedies, and preparation of antiseptic solutions; (3) Recognition of chemicals and drugs employed in medicine; (4) Practical pharmacy, reading of prescriptions and detection of errors in prescribing. The examination in subjects 3 and 4 are *viva voce*. The fee is 10s., and successful candidates have to satisfy the Civil Service Commissioners as to their physical fitness to serve abroad.

ARMY COMPOUNDERS are selected from the Army Medical Corps non-commissioned officers who must pass certain examinations in pharmacy, materia medica, etc., conducted by the medical officers. If a qualified chemist desires to become an army compounder he must first enlist in the corps as a private and work his way up.

POOR-LAW DISPENSERS are appointed by the Local Government Board, and must be qualified chemists and druggists, pharmaceutical chemists (Ireland), apothecaries, apothecaries' assistants, or Army compounders. The salaries range from about £120 to £150 per annum.

PRISON DISPENSERS are required to possess the qualifying certificate of the Pharmaceutical Society, and must join the service as warder between the ages of 24 and 30 years. A uniform is supplied, also quarters in the prison and medical attendance, the salary paid being somewhat similar to that received by poor-law dispensers. Vacancies are advertised as they occur.

GOVERNMENT LABORATORY APPOINTMENTS.—Assistant chemists in the Government (Somerset House) Laboratory, recently transferred to new premises in Clement's Inn Passage, Strand, W.C., are selected by examination, chiefly from assistants and junior officers between 19 and 22 years of age in the Inland Revenue and Customs Department, who are appointed after competitive examination by the Civil Service Commissioners to whom application should be made for particulars. Eight assistants are appointed to the Government Laboratory annually. Candidates are required to pass an examination in (1) Elementary inorganic chemistry; (2) Elementary organic chemistry, with special reference to the chemistry of brewing, distilling, and other industries, subject to Revenue control; (3) Elementary physics, (4) Algebra (up to quadratic equations), (5) Euclid (Books I. and II.). They are then sent to the Royal College of Science, South Kensington, for instruction in theoretical and practical chemistry, a grant of £10 being given, in addition to their salaries, for books and apparatus. Two years are spent at South Kensington, after which candidates are appointed as temporary assistants in the Government Laboratory, where they remain not less than three years. Assistants who show special aptitude for their work are granted by the Treasury, on the recommendation of the principal, an allowance of £20 per year. On attaining to the rank of second-class analysts they receive a salary of £160, increasing by £15 yearly to £350; first-class analysts begin with £400 rising by £20 to £550; superintendent analysts receive £600 to £650; and the deputy principal £700, increasing to £800. After completion of the full period of service, or enforced resignation through ill-health, members of the staff are entitled to a pension in proportion to their annual pay.

PUBLIC ANALYSTS.—The Local Government Board, which has a voice in the appointment of public analysts, requires that candidates shall be Fellows of the Institute of Chemistry, and that they possess a competent knowledge of therapeutics, pharmacology, and microscopy. The student who wishes to gain his F.I.C. must first pass one of the examinations approved by the General Medical Council, when, if he is seventeen years of age, he may apply for election as a student of the Institute. Two years' attendance at lectures and classes of practical instruction in chemistry, physics, mathematics, and one other specified subject, and a further two years in the laboratory of a Fellow of the Institute, is then necessary before a student may be examined for the Associateship. Candidates are required to pass an examination in general theoretical and practical chemistry, and a Final Practical examination in one of the following branches of chemical science—mineral chemistry, metallurgical chemistry, physical chemistry, organic chemistry, and analysis of food and drugs. The fee is £7 7s. On gaining the Associateship, in due course fellowship follows without further examination. Holders of degrees such as B.Sc., Ph.D., etc., are excused certain parts of the examinations. A special course of study is recommended by the Institute to meet the requirements of the Local Government Board with respect to the subjects already mentioned. Particulars may be obtained from the Secretary, Institute of Chemistry, 30, Bloomsbury Square, London, W.C.

DIPLOMA IN VETERINARY SURGERY.

The student who desires to qualify as a veterinary surgeon, that is, to secure the diploma of M.R.C.V.S., is required to pass a Preliminary examination in general education recognised by the General Medical Council before entering for the first professional examination. He must then study at a recognised veterinary school for four years, and during that time pass four professional examinations, the subjects of which are:—

(1) Anatomy of domesticated animals: bones, ligaments, joints. Chemistry and elementary physics. Biology: elementary zoology and botany.

(2) Anatomy of domesticated animals. Histology and physiology. Stable management and manipulation of domesticated animals. Principles of shoeing.

(3) Morbid anatomy, pathology and bacteriology. Materia medica, pharmacy, therapeutics, and toxicology. Veterinary hygiene and dietetics.

(4) Principles and practice of veterinary medicine and surgery. Clinical medicine, surgery, and obstetrics (horse and other domesticated animals). Meat inspection.

The candidate must be twenty-one years of age before he can enter for No. 4. The examinations are held under the auspices of the Royal College of Veterinary Surgeons, 10, Red Lion Square, London, W.C., and are conducted by a Board of Examiners, which visits Edinburgh, Glasgow, and London about the end of the College terms. The fee for each of the four examinations is £5, and a fee of £1 is also paid for registration. Full particulars may be obtained from the Secretary of the College. Students are prepared for the veterinary examinations at the following institutions:—Royal Veterinary College, Great College Street, Camden Town, London, N.W.; Royal (Dick) Veterinary College, Clyde Street, Edinburgh; the New Veterinary College, Leith Walk, Edinburgh; and the Glasgow Veterinary College, Buccleuch Street, Garnet Hill, Glasgow.

OPTICAL EXAMINATIONS.

The Spectacle-Makers' Company, London, recently inaugurated an examination scheme whereby chemists and others interested in the optical business, who wish to have some tangible proof of their fitness to supply the public with proper spectacles, may be examined as to their knowledge of the subject, and if successful in passing are granted a diploma. The examinations are held about three times a year, the next being in November. Persons who have been engaged in the business seven years may take a Modified examination; after November, however, only those who have traded under their own name for seven years prior to January 1, 1900, will be eligible. The subjects of the Modified examination are:—

Light.—Elementary laws of light; simple laws of refraction; the index o refraction; refraction as applied to lenses and prisms; conjugate foci; formation of images; simple laws of reflexion as applied to curved and plane mirrors.

Optics Relating to Vision.—General anatomy of the human eye. The course of light passing through the media of the eye alone and modified by spherical and cylindrical lenses and prisms. Hypermetropia; myopia; astigmatism; presbyopia. Instruments commonly used for determining the refraction of the eye:—Trial lenses—test types—astigmatic chart—the optometer. The principle of the ophthalmascope. The principle of, and various forms of, spectacles.

Practical Work in Visual Optics.—Testing a plane surface; measurement of focal length of spherical, cylindrical, and compound lenses; use of the spherometer or lens meter; measurement of conjugate foci; determination of the axis of a cylinder, and the angle of deviation of a prism; analysis and neutralisation of spherical, cylindrical, and compound lenses, and lenses combined with prisms; transposing; centring and adjustment of spectacle lenses and frames; face-measurement for spectacles. Knowledge of the materials and of the workmanship employed in the manufacture of lenses and frames; use of pebble-tester. Reading of oculists' prescriptions; giving out orders for lenses and frames.

The full examination, which may be taken in two parts, comprises, in addition to the subjects already mentioned, elementary mathematics, heat, practical work with optical and mathematical instruments, and one of the following subjects:—The photographic camera, the microscope, nautical and surveying instruments, and projection instruments. The fees are from £3 5s. to £5 5s. Further particulars may be obtained from Colonel T. Davies Sewell, Guildhall, E.C. Examinations are also conducted by the British Optical Association, particulars of which can be had from the Secretary, Mr. J. H. Sutcliffe, Clifton Chambers, Blackpool.

Classes for instruction in the subjects included in the syllabus of the Spectacle Makers' Company are held at the Northampton Institute, Clerkenwell, E.C., principal, Dr. R. M. Walmsley. Mr. Lionel Laurance, 1, Vernon Place, Bloomsbury Square, W.C., the writer of the articles on visual optics which have appeared from time to time in the *Pharmaceutical Journal*, and official instructor to the Spectacle Makers' Company, also conducts correspondence and evening classes in London and the country. There is also a school of optics in connection with the Anglo-American Optical Company, 94, Hatton Garden, London, E.C.

APOTHECARIES' ASSISTANT'S CERTIFICATE.

The idea prevails amongst pharmaceutical students that the Apothecaries' Assistant's Certificate is worth possessing in addition to the Minor Certificate, but it should be recognised that the certificate is evidence of no qualification except to act as an assistant to an apothecary, and in view of the extreme rarity with which the penalty for acting as an assistant to an apothecary without qualification is enforced, it is a question for serious consideration whether the certificate is worth the expense and trouble involved in obtaining it. It should also be remembered that the certificate does not confer upon its holder any right to sell poisons or to assume any pharmaceutical title.

The examination, which is much less stringent than the Minor, is held at the Apothecaries' Hall, Blackfriars, London, E.C., in January, April, July, and October of each year, and is practical and oral only. The practical part comprises the compounding and dispensing of medicines, the oral part including chemistry, materia medica, pharmacy, and the translation of prescriptions. Candidates must be at least seventeen years old, and must give notice of their intention of presenting themselves and pay a fee of £3 3s. seven days before the examination. Candidates who fail may be re-examined on payment of £1. 1s. Fees must be paid by cheque or money order, posted to the Secretary to the Court of Examiners, Mr. F. Haydon, L.R.C.P., at the Apothecaries' Hall.

NEW REMEDIES.

Melon Root as a Substitute for Ipecacuanha.—Heberger has extracted from the root of the melon, and other Cucurbitaceæ, a bitter extractive possessing purgative and emetic properties. To this he has applied the name melon-emetine. According to Langeweiz, it produces emesis in doses of 50 to 70 centigrammes. Of the powdered cultivated root the dose of 25 Gm. cannot be exceeded without danger. Wild plants are more active; from 50 to 70 centigrammes of the powdered root acting as an unfailing emetic.—*Union Pharm.*, **40**, 304, after *Journ. de Med. de Paris.*

Tricresol in Alopecia Areata.—Tricresol applied undiluted to the scalp, or in a 50 per cent. alcoholic solution to the face, is stated by MacGowan to be a remedy of superior value in the treatment of alopecia. It causes a burning pain, which generally disappears in a few minutes, the skin becoming thoroughly blanched. It is applied by thorough infrication, with a swab of cotton; the application is repeated in from 4 to 10 days.—*Intern. Med. Mag.*, **8**, 533.

Antipyrine in Dysentery.—Ardin-Deltat has employed antipyrine, in the dose of 75 grains to 8 ounces of water, as a rectal injection in dysentery, given three times a day, and retained for 15 minutes. He claims that the relief from pain and tenesmus is immediate, that the number of stools is decreased, and that convalescence is speedily established.—*Therap. Gaz.*, **15**, 472.

Formalin for Insect Bites.—According to Gonin *(Apoth. Zeit.)* the irritation and inflammation following an insect bite are soon relieved by frequently moistening the spot with formalin.—*Therapist*, **9**, 213.

Methylene Blue in Malaria.—Boinet finds that methylene blue, although of certain value in the treatment of malarial fever, is, on the whole, markedly less efficacious than quinine. It may with advantage be employed either successively to, or together with, that alkaloid.—*Bull. gen. de Therap.*, **138**, 203.

Organotherapy in Gynecology.—*Thyroid gland* exercises, according to W. A. N. Dorland, a very marked inhibitory influence on the pelvic genital organs, especially on the uterus. It retards hæmorrhages from the uterine mucosa, and is, in this respect, antagonistic to the ovarian secretion. Its use is, therefore, indicated in hæmorrhagic affections of the uterus, and in all forms of pelvic congestion, notably in uterine fibromata, endometritis menopausal hæmorrhage, and chronic tubal disease. It also increases the metabolism of the mammary gland, and is therefore useful in the treatment of insufficient lactation. *Mammary gland*, according to Shober, gives good results in the treatment of fibroid uterine tumour. It has not given rise to any unpleasant or grave constitutional disturbances, but acts as a general tonic. Desiccated powdered mammary gland of the sheep was employed in doses of two grains, equivalent to 20 grains of the fresh gland. The same author has employed *parotid gland* in the treatment of ovarian diseases with gratifying results. The dose employed was two grains of the dried powdered gland.—*Therap. Gaz.*, **23**, 444.

SELECTED PRACTICAL FORMULÆ.

SOLUTION OF CALCIUM GLYCEROPHOSPHATE.

In consequence of the insolubility of the neutral calcium glycerophosphate employed in medicine, P. Carles proposes to make use of the readily soluble acid glycerophosphate, which he obtains by removing half an equivalent of calcium from the neutral salt by means of oxalic or tartaric acid. To avoid fungoid growth in the solution he adds 5 per cent. of official cherry laurel water, or 10 per cent. of cinnamon water. Neutral glycerophosphate of lime, 10 Gm., is suspended in 80 C.c. of water at 40 to 50° C. From 2·25 to 3 Gm. of oxalic acid is dissolved in 10 C.c. of boiling water, the liquids are mixed, and filtered after standing for two hours. To the filtrate 5 Gm. of cherry laurel water is added, and the precipitate on the filter is washed with sufficient water to bring the final volume to 100 Gm. Each teaspoonful of this solution contains 50 centigrammes of glycerophosphate. Tartaric acid may be substituted for oxalic acid in the proportion of 2·7 to 3 Gm. From this solution an excellent syrup of calcium glycerophosphate which keeps well may be made by dissolving 160 Gm. of sugar in 100 Gm. of the solution either in the cold or on the water bath. A wine of calcium phosphate is prepared from neutral calcium glycerophosphate, 10 Gm., tartaric acid, 2·7 to 3 Gm.; any wine to produce 1,000 Gms. The glycerophosphate is suspended in two-thirds of the wine, the acid dissolved in the rest, the liquids mixed, and after standing for some hours, filtered. If oxalic acid be used instead of tartaric acid the wine will be less likely to deposit acid tartrate of potassium on keeping.—*Bull. de Pharm. de Bord.*, **39**, 201.

PHARMACY OF SODIUM CACODYLATE.

Danlos prescribes sodium cacodylate in the following *mixture*:—Sodium cacodylate, 2 Gm.; rum, simple syrup, of each, 20 Gm.; distilled water, 60 Gm.; oil of peppermint, 2 drops. A teaspoonful contains 10 centigrammes of the salt. *Pills* may be made containing 10 centigrammes, massed with extract of gentian. *Rectal Injections* are employed by J. Renant in two strengths, the weaker containing 25 Gm. of the salt, the stronger 40 Gm., in 200 C.c. of water. 5 C.c. is used for a rectal injection twice daily for six days, three times a day for ten days, then allowing a lapse of thirty days before recommencing the treatment. *Hypodermic Injection* of sodium cacodylate is obtained by A. Gautier by neutralising cacodylic acid, 5 Gm., with sodium carbonate; then adding cocaine hydrochloride, 8 centigrammes; creosote, 6 drops, dissolved in alcohol, 8 Gm.; sterilised water to produce, 100 C.c. Each C.c. contains 5 centigrammes of cacodylic acid. Danlos employs the following formula:—Morphine hydrochloride, 25 milligrammes; cocaine hydrochloride, 10 centigrammes; sodium chloride, 20 centigrammes; sodium cacodylate, 5 Gm.; phenol solution (5 per cent.), 2 drops; distilled water, to 100 C.c. A medium dose of the salt by hypodermic injection is 2 to 5 centigrammes. The maximum of 10 centigrammes in 24 hours should not be exceeded.—*Bull. gen. de Therap.*, **128**, 220.

METALLIC BRONZES ON LEATHER.

Gold Bronze.—Gold chloride solution containing 15 Gm. of gold chloride, 21 Gm.; solution of soda (4 per cent.), 500 C.c.; glycerin, 15 Gm. *Silver Bronze.*—Water, 10 litres; silver nitrate, 100 Gm.; solution of ammonia, 65 Gm.; tartaric acid, 15 Gm.; or water, 10 litres; glucose, 100 Gm.; silver nitrate, 100 Gm. *Nickel Bronze.*—Nickel nitrate, 400 Gm.; solution of ammonia, 400 Gm.; water, 15 litres; sodium sulphate, 5,000 Gm. *Cobalt Bronze.*—Water, 1,000; cobalt ammonium sulphate, 1. These solutions are applied with a sponge to the leather, which should first be treated with a solution of lead acetate, or of cupric acetate, and then exposed to the action of sulphuretted hydrogen.—*Scient. Amer.*, **81**, 23, after *Schuh und Leder.*

INDELIBLE RED INK.

According to the *Hannoversche Gerwerbeblatt*, the following formula gives an excellent red marking ink. It is prepared in three solutions. (1) Sodium carbonate, 3; gum acacia, 3; water, 12. (2) Platinum chloride, 1; distilled water, 24. (3) Zinc chloride, 1; distilled water, 4. The article is first moistened with solution 1, and rubbed with a warm iron; the letters are then written with a pen dipped in solution 2. When the writing is dry it is moistened with solution 3. For linen, the following is also useful. White of egg is mixed with an equal volume of water, and stirred until it froths; it is then strained through a cloth, and made into a thick paste with cochineal red. The linen is marked with the paste on a quill or drawing-pen; the spot is then ironed on the reverse side with a flat iron, until the albumin has coagulated.—*Scient. Amer.*, **81**, 23.

DERMATOLOGICAL FORMULÆ OF THE HOSPITAL SAINT LOUIS, PARIS.

Zinc Oxide Paste.—Zinc oxide, French chalk, and vaseline equal parts. *Biniodide Ointment.*—Mercuric iodide, 10 centigrammes; potassium iodide, 10 centigrammes; vaseline, 20 Gm. *Compound Syrup.*—Mercuric iodide, 10 centigrammes; potassium iodide, 10 Gm.; simple syrup, 200 Gm. *Stimulant Lotion.*—Solution of ammonia, 8 Gm.; oil of turpentine, 25 Gm.; camphorated alcohol, 167 Gm. Employed for alopecia. *Sulphur Lotion.*—Precipitated sulphur, glycerin, of each, 10 Gm.; camphorated alcohol, 20 Gm.; distilled water, 160 Gm. *Parasiticide Lotion.*—Mercuric chloride, 25 centigrammes; oil of turpentine, 30 Gm.; glycerin, 40 Gm.; camphorated alcohol, 175 Gm. The camphorated alcohol in this and the previous formulæ is the weaker preparation "alcohol camphoratum debilior" of the Codex, composed of camphor, 1; alcohol (60 per cent.), 39. Any other aromatic spirit may be substituted for it at the option of the prescriber, *Dilute Cade Glycerole.*—Oil of cade, 10 Gm.; glycerole of starch, 90 Gm.; fluid extract of quillaia *q.s.* to emulsify (about 2 Gm.). *Stronger Cade Glycerole.*—Oil of cade glycerole of starch, of each 50 Gm.; fluid extract of quillaia *q.s.* to emulsify (about 5 Gm.). In the treatment of psoriasis an alkaline bath should be given and the crusts removed before applying the glycerole. *Tartaric Acid Glycerole.*—Tartaric acid, 1 Gm.; glycerole of starch, 20 Gm. Applied to allay itching in various non-parasitic skin diseases. *Vidal's Red Plaster.*—Red lead, 10 Gm.; cinnabar, 6 Gm.; diachylon plaster, 100 Gm. This is preferable to the old Vigo plaster, which was too strong in mercury. It is applied to various lesions, ulcerations, lupus, etc.—*Bull. gen. de Therap.*, **128**, 179.

REMEDIES FOR THE ITCH.

Vlemminek's Lotion.—Lime, 50, sulphur, 25, water, 250. Slake the lime, add it gradually to boiling water, 400, add the sulphur, boil until reduced to 250, strain, allow to settle, and decant. Keep in well-filled bottles. *Wilkinson's Ointment.*—Sulphur, cade oil, of each 18; soft soap, lard, of each 50; prepared chalk, 12. Mix. *Elmerich's Ointment.*—Sulphur 2, potassium carbonate, 1, lard, 8. As this is very irritant Hardy has modified the formula thus:—Sulphur, 2, potassium carbonate, 1,, lard or vaseline, 12. *Bouguignon's Ointment.*—Oil of lavender, oil of cinnamon, oil of clove, oil of peppermint, of each 2; powdered tragacanth, 1, potassium carbonate, 30, flowers of sulphur, 90, glycerin, 180. *Fournier's Paste*—Glycerin, 200, powdered tragacanth, 1, sulphur, 100, sodium carbonate, 50. *Naphthol Application.*—Naphthol, 5 or 10; alcohol *q.s.* water 100. *Non-Irritant Application.*—Storax ointment, (Codex), olive oil, equal parts.—*Bull. Gen. de Therap.*, **128**, 236, after *Med. Mod.*

APPLICATION FOR RHEUMATISM.

Mix salol, 6, menthol, 3, ether, 6, lanolin, 50.—*Rev. Pharm.*, **7**, 224.

MEMBERSHIP OF LEARNED SOCIETIES.

ROYAL SOCIETY.—Candidates for Fellowship of the Royal Society are elected on the recommendation of six Fellows of the Society, three of whom must certify their personal knowledge of the candidate. The certificate signed by the six Fellows must state the name, address, rank, profession, and qualification of the candidate, and must be sent in to the Secretary, at Burlington House, London, W., before the first Thursday in March. Annual subscription, £3; life subscription, £60.

ROYAL SOCIETY OF EDINBURGH.—Candidates for the ordinary Fellowship of the Royal Society of Edinburgh are required to apply in writing and to obtain a certificate of recommendation signed by four ordinary Fellows, two of whom must have personel knowledge of the candidate. Hon. Fellows are elected from amongst eminent scientists and literary men.

CHEMICAL SOCIETY.— Fellows of the Chemical Society are elected by a two-thirds majority, on the recommendation of five Fellows, three of whom must certify their personal knowledge of the candidate's qualifications. A certificate signed by the five Fellows must be addressed to the Secretary, at Burlington House, London, W., giving the candidate's name, address, profession, and qualifications, and the candidate must also submit evidence of a thorough chemical training. Entrance fee, £4; annual subscription, £2.

INSTITUTE OF CHEMISTRY.—Persons who desire to become Fellows of the Institute of Chemistry must, in the first place, become registered students of the Institute, the annual registration fee being 5s. Brief particulars, as to the examinations, etc., required for studentship and associateship of the Institute are given under the heading, "Public Analysts," at page 250. Fellowship entrance fee, £4 4s.; annual subscription, £1 1s. Address, 30, Bloomsbury Square, London, W.C.

SOCIETY OF PUBLIC ANALYSTS.—Election to Associateship and Membership of the Society of Public Analysts is by ballot. The Associates must be assistants to public analysts. Annual subscription, £1 1s. The Society meets in the rooms of the Chemical Society, Burlington House, London, W.

SOCIETY OF CHEMICAL INDUSTRY.—Members of the Society of Chemical Industry are elected on the proposition of a member to whom they are personally known. Entrance fee £1 1s. Annual subscription, £1 5s. Address, 9, Bridge Street, Westminster London, S.W.

LINNEAN SOCIETY OF LONDON.—Candidates for Fellowship of the Linnean Society are elected on nomination by three Fellows. Entrance fee, £6; annual subscription, £3. Address, Burlington House, London, W.

ROYAL BOTANIC SOCIETY.—The Members and Fellows of the Royal Botanic Society are elected on the proposition of one Fellow, and are entitled to free admission to the Society's gardens in Regent's Park, London, W.

ROYAL MICROSCOPICAL SOCIETY.—Nomination by three Fellows of the Society is required for candidates desiring to become Fellows. Entrance fee and annual subscription, £2 2s. Address, 20, Hanover Square, London, W.

ROYAL PHOTOGRAPHIC SOCIETY.—This Society has recently removed from its old address in Hanover Square to 66, Russell Square, London, W.C. Entrance fee and annual subscription, £1 1s.

THE STUDENTS' COLUMNS.

DISPENSING PROBLEMS AND THEIR SOLUTION.

In looking through the pharmaceutical periodicals one cannot but be struck with the numerous requests editors receive from their correspondents for the solution of dispensing difficulties real or imagined, and with the often recurring demands for the elucidation of certain reactions which seem to crop up at the dispensing counter of these correspondents with a regularity equal to that of the succession of the seasons. Now, whilst every editor likes to be referred to as omniscient, and is particularly pleased to answer questions which have so intimate a connection with the daily work of the majority of his readers, as have these dispensing queries, he feels that it is, to say the least, rather waste of his time and the space in his paper to have to answer the same question several times in the course of a year. There is rather too much reliance put in the pharmaceutical editor, and too little work done by his correspondents. A good dispenser is one who, in addition to his manual dexterity, possesses enough scientific knowledge to enable him to account for the various reactions undergone by the ingredients of the mixtures he compounds, and to devise means for hastening these reactions where desirable, or preventing them if it be evident that the prescriber overlooked their possibility when writing the prescription. It will be our endeavour to point out shortly directions in which dispensers may utilise their knowledge of chemistry and try and solve for themselves their own problems, an exercise they will find to their own advantage and edification, and one which they may convert to the good of their comrades if they will take the trouble to keep notes of their work and contribute them to the pharmaceutical press, or embody them in papers to be read before any of the numerous students' pharmaceutical associations, now happily to be found in most large communities.

A glance at any prescription will show a practised dispenser what to expect, and to a tyro, even with a knowledge of chemistry, any really incompatible ingredients will be certainly observed. These glaring incompatibilities really give but little trouble, it is the seemingly innocent mixtures where the changes liable to take place only do so very gradually, which are the most to be studied. These it may at once be said are usually only revealed to the dispenser after they have taken place some time, when they are brought to his notice by the patient or by the appearance of the bottle when a "repeat" is ordered.

If a precipitate of a crystalline nature be seen adhering to the sides of the bottle, the prescription will give a clue as to whether it is likely to be an alkaloid salt or a salt of an inorganic base. The reaction to litmus paper of the clear liquid will then be a useful thing to observe, as will also the bulk of the precipitate, for with a small amount of alkaloid there is not much chance of a large precipitate. A solution of the precipitate in dilute acid should then be tried with the ordinary alkaloid reagents, and if no indications are yielded, the inorganic side may be attempted. A potent factor in the formation of alkaloid precipitates is concentration of the solution by either excess of other salts or by the presence of a large amount of tinctures, or in some cases excess of dilute acids.

Most of the difficulties caused by alkaloids are due to double decomposition with inorganic salts, such as those of bismuth, mercury, lead, and iron, particularly where coloured precipitates are formed. Other organic bases or bodies give rise to characteristic reactions, such as phenazone with nitrites, as in sp. ætheris nit., and with salicylates under certain circumstances.

Glucosides also contribute to the dispenser's happiness, glycyrrhizin in the extract of liquorice being the greatest sinner and the one which is the easiest to deal with.

Colour reactions may be classed as legion, running from such simple ones as tincture of iron and solution of ammonium acetate to iodide of starch, produced in mixtures of soluble iodides with compound tragacanth powder and some agent capable of liberating iodine from the iodide.

Numerous bodies have this iodine liberating power, and one continually sees them figuring in dispensing problems. It is as well to remember that ether and chloroform if decomposed by sunlight, chlorinated bodies, nitrites, and iodates in the presence of an acid, and nearly all essential oils which contain terpenes, and which have become slightly acid or oxidised by exposure to the air, are nearly certain to give free iodine in iodide mixtures, unless there be enough alkali to absorb the iodine as liberated.

To explain a reaction make a series of solutions of the ingredients of the mixture in every possible combination and in both acid, neutral and alkaline conditions, expose to both high and normal temperatures, and to direct sunlight (an important point in many cases) and carefully observe what takes place. By this method a proper deduction may be drawn and light thrown on the knotty point. If the difficulty does not yield to this, then consult your editor, who will give you the benefit of the columns of his paper, from which a satisfactory explanation of the trouble will be soon forthcoming.

EXPLANATORY NOTES ON THE B.P. 1898.

Potassii Bromidum.—In the volumetric test a variation of 1·7 C.c. is allowed in the volume of decinormal silver nitrate solution precipitated by one gramme of the salt.

$$\underbrace{KBr}_{118{\cdot}18} + \underbrace{AgNO_3}_{168.69} = AgBr + KNO_3$$

Since, therefore, 11·818 grammes of pure potassium bromide will precipitate 1,000 C.c. of N/10 silver nitrate solution, each gramme of the salt will require 1,000 ÷ 11·818 = 84·6 C.c of N/10 $AgNO_3$. 84·6 is nearly the mean of the minimum and maximum figures—viz., 83·7 and 85·4. Any variation between these limits would probably be due to traces of iodides or chlorides, potassium iodide requiring less and potassium chloride more silver nitrate solution than an equal weight of potassium bromide.

Saccharum Purificatum.—Two other sugars, maltose and lactose, are very closely related to cane sugar. All three have the empirical formula $C_{12}H_{22}O_{11}$, and are hydrolysed by diluted acids to two molecules of sugar of the hexose class—

$$C_{12}H_{22}O_{11} + H_2O = 2C_6H_{12}O_6.$$

The nature of the hexoses yielded by the three saccharobioses is different in each case, but it is interesting to note that, whereas lactose and maltose reduce Fehling's solution and react with phenylhydrazine, cane sugar does not. These three sugars are usually regarded as ether anhydrides of the hexoses, *i.e.*, they contain two hexose molecules condensed, with the elimination of a molecule of water, in a manner somewhat similar to the derivation of ether from alcohol—

$$\left.\begin{matrix} C_2H_5OH \\ + \\ C_2H_5OH \end{matrix}\right\} = \begin{matrix} C_2H_5 \\ C_2H_5 \end{matrix} > O + H_2O$$

The difference in their behaviour towards Fehling's solution and phenylhydrazine is accounted for on the supposition that this condensation in the case of lactose and maltose only affects one of the —CO—groups, so that the resultant condensed product still manifests the properties due to the keto or aldehydic group. In the case of cane sugar some rearrangement of the groups must have occurred during condensation by which the aldehydic and ketonic groups of the dextrose and lævulose molecules have become altered, and no longer manifest the properties characteristic of those groupings.

FLORAL CALENDAR FOR SEPTEMBER.

Alismaceæ.—*Actinocarpus damasonium, Butomus umbellatus.*

Amaranthaceæ.—*Amaranthus caudatus.* Fl.

Asclepiadaceæ.—*Asclepias syriaca.* B.G. *A. tuberosa.* B.G. *A. incarnata.* B.G. *Vincetoxicum officinale.* B.G.

Begoniaceæ.—*Begonia* species. Fl.

Boraginaceæ.—*Anchusa officinalis.* B.G. *Borago officinalis.* Fl.

Campanulaceæ.—*Lobelia urens; L. inflata.* B.G. *L. syphilitica.* B.G.

Caryophyllaceæ.—*Saponaria officinalis.* (*P.J.* [3], **9,** 161.)

Chenopodiaceæ.—*Chenopodium olidum, C. ambrosioides.* B.G.

Compositæ or **Asteraceæ.**—*Chrysocoma linosyris; Calendula officinalis.* Fl. *Lactuca virosa, Cichorium intybus, Anthemis nobilis* (*P.J.* [3], **8,** 141). *Artemisia maritima, A. absinthium, A. vulgaris; Liatris spicata.* B.G. *Eupatorium purpureum,* B.G., and *E. cannabinum; Xanthium strumarium.* B.G. *Tanacetum vulgare; Erigeron canadense.* B.G.

Convolvulaceæ.—*Ipomœa purga.* B.G. *Convolvulus scammonia.* B.G.

Cucurbitaceæ.—*Ecballium officinarum.* B.G. (*P.J.* [3], **9,** p. 241.)

Cyperaceæ.—*Cyperus longus.*

Ericaceæ.—*Gaultheria procumbens.* B.G. *Pyrola arenaria.*

Euphorbiaceæ.—*Ricinus communis.* B.G.

Gentianaceæ.—*Gentiana pneumonanthe.*

Geraniaceæ.—*Geranium wallichianum.* B.G.

Hypericaceæ.—*Hypericum moserianum.* Fl.

Iridaceæ.—*Crocus sativus.* (*P.J.* [3], **8,** p. 241.) *Montbretia crocosmiæflora.* Fl.

Labiatæ or **Lamiaceæ.**—*Mentha piperita, M. pulegium, M. arvensis,* and *M. viridis, Melissa officinalis, Teucrium chamædrys, Origanum dictamnus.*

Leguminosæ or **Fabaceæ.**—*Apios tuberosa.*

Liliaceæ.—*Colchicum autumnale.* (*P.J.* [3], **8,** p. 241.) *Scilla autumnalis. Tritoma* species. Fl. *Agapanthus umbellatus.* Fl.

Malvaceæ.—*Althæa officinalis.*

Myrtaceæ.—*Myrtus communis.* Fl.

Nyctaginaceæ.—*Mirabilis jalapa.* Fl.

Orchidaceæ.—*Spiranthes autumnalis.*

Papaveraceæ.—*Glaucium luteum.*

Pedaliaceæ.—*Martynia lutea, Sesamum indicum.*

Phytolaccaceæ.—*Phytolacca decandra.*

Plantaginaceæ.—*Plantago ovata. P. psyllium.*

Plumbaginaceæ.—*Plumbago larpentæ.* B.G. *Statice limonium.*

Polygonaceæ.—*Rumex hydrolapathum.*

Ranunculaceæ.—*Anemone japonica.*

Rosaceæ.—*Spiræa tomentosa.* B.G.

Rubiaceæ.—*Psychotria ipecacuanha.* B.G.

Rutaceæ.—*Ruta graveolens.* (*P.J.* [3], **8,** 442.)

Santalaceæ.—*Thesium humifusum.*

Sapindaceæ.—*Koelreuteria paniculata.* Fl.

Scrophulariaceæ.—*Verbascum thapsus, Linaria cymbalaria.*

Solanaceæ.—*Solanum nigrum* (*P.J.* [3], **8,** 241), *Nicotiana tabacum.* Fl. *N. rustica.* B.G. *Petunia* species. Fl. *Physalis alkekengi.* Fl. *Solanum jasminoides.* B.G.

Tamaricaceæ.—*Tamarix gallica.*

Umbelliferæ or **Apiaceæ.**—*Peucedanum officinale, Fœniculum vulgare, Eryngium campestre; Cuminum cyminum.* B.G.

Urticaceæ.—*Parietaria officinalis, Humulus lupulus, Cannabis sativa* (*P.J.* [3], **8,** 141), *Dorstenia contrayerva.* B.G.

Verbenaceæ.—*Verbena officinalis* (*P.J.* [3], **9,** 161). *Aloysia citriodora.* Fl.

Violaceæ.—*Viola pedata.* B.G.

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ADVICE TO STUDENTS.

The beginning of the new session coincides with the coming in force of the new schedule for the Minor and Major examinations of the Pharmaceutical Society. The full text of that schedule is reprinted in this week's issue of the Journal (see p. 260 *et seq.*), and it is only necessary here to repeat that, with one important exception, the changes in the Minor syllabus tend more in the direction of rearrangement and simplification than of expansion. In botany, however, the candidate is now expected to know much more than formerly about the classification of plants. The new schedule, regarded as a whole, is much more definite than its immediate predecessor, and though the standard of the Minor examination is appreciably raised by the former, approximating more closely to that of the Major in years gone by, the alterations appear likely to effect a considerable lightening of the labours of candidates. The schedule should be closely and carefully studied by all intending candidates for registration as chemists and druggists and pharmaceutical chemists, not for the purpose of cutting down the work of preparation to the barest limits, but in order that there may be a clear comprehension of what it is necessary to know. Systems of cram—pure and simple—are based upon the schedule, and follow it so closely that the crammed student is rarely able to answer a single question outside the syllabus; frequently he cannot answer questions which may be regarded as coming within the borderland of what ought to be and what need not be known, and he sometimes even fails ignominiously in attempting to marshal his crammed facts at the examiner's word of command. But that, of course, is quite another story, and only serves to lend point to the fact that some seventy per cent. of the candidates who presented themselves for the qualifying examination last July failed to satisfy the long-suffering examiners.

More satisfactory schemes of work are also based largely on the examination schedule, a notable example being found in the syllabus of the Pharmaceutical Society's School of Pharmacy. But students who go through a complete course at that school are not merely taught enough to enable them to pass the examinations; the object aimed at by the Society's Executive is to turn out thoroughly accomplished pharmacists, and though the whole ground of the examinations is covered, the hard-working student—at the end of his course—is in a position to regard an examination as a mere incident and not the finishing touch to his education. And it is in that light examinations ought to be regarded by all candidates—not as obstacles in their life race, but merely as calling places on the way. Pharmaceutical students should select text-books which will well cover the requirements of the examination schedule, and study their contents as a whole, beginning at the outset of their professional career—during the early days of apprenticeship. At the end of their term of pupilage they should undergo a special course of instruction prior to presenting themselves for examination, actuated by the desire to learn all that an accomplished pharmacist ought to know. Then, as the day of examination approaches, comes the period of what may be termed legitimate cram, *i.e.*, the time during which the work of revision should be thoroughly performed. At this stage, by frequent reference to the examination schedule, the candidate will be able to economise his energy and devote himself more particularly to the task before him. To put the matter briefly, so long as examinations exist, exactly so long must candidates have available, in a readily producible form, the whole of the knowledge which they are required by the examiners to possess, and, to that end, careful revision or legitimate cram must be resorted to in its proper place. But that place is at the end of the special course of instruction, and, above all things, it is essential that dependence should not be placed upon cram alone, without a previous substantial basis of knowledge, which has been acquired with a view to fitting one for a professional career rather than to pass examinations.

MEDICAL MEN AND SECRET COMMISSIONS.

The subject of secret commissions, in so far as it affects the medical profession, is reopened by Sir Edward Fry, in a long letter addressed to the *Times* of Saturday last. He commences by referring to the report of the committee of the London Chamber of Commerce, in which the opinion was expressed that secret commissions are prevalent to a great extent in almost all professions. In the same report the statement was attributed to a pharmaceutical chemist, that "secret commissions are given by chemists to medical men on their prescriptions supplied to patients, in some cases amounting from twenty-five to fifty per cent. on the price charged by the dispensing chemist"; and an optician was quoted as having alleged that "it is an open secret that hospital doctors receive commissions from makers of surgical instruments." The Council of the British Medical Association took notice of those allegations, and passed a resolution calling upon the Chamber of Commerce to substantiate the accusation made. Since, however, the communications of the pharmaceutical chemist and the optician had been received under a promise that they would be treated as "strictly private and confidential," nothing came of the appeal to the Chamber of Commerce, and, after some correspondence, the Council of the British Medical Association reported to the annual meeting recently held, that such charges should not have been made public unless the body publishing them was in a position to substantiate them. At the same meeting Dr. Saundby, the president of the Council, referred to the subject, and

stated that inquiries had been made, which elicited the fact that presents had occasionally been offered to medical men for various services, after the event, but "there was no case in which a commission was offered to a person if he would do a certain thing. Cheques had been given to medical men to recompense them for what was supposed to be a good turn, but those cheques had always been returned."

Naturally, Sir EDWARD FRY thinks it would be satisfactory to know much more about the inquiries referred to than was disclosed by Dr. SAUNDBY. He asks by whom they were conducted, and how; were inquiries made of pharmaceutical chemists, and of how many; have the opticians and instrument makers been approached in such a way as to induce a full disclosure; were inquiries made of medical men, and how many? In fact, he remarks, to give any value to the negative conclusion on which Dr. SAUNDBY relied, the inquiry must have been very wide, general, and thorough. That it has been so he doubts, and it is pointed out as a significant fact that though the charge has been publicly made, it has not been denied by "any one acquainted with the profession of medicine or the trade of a chemist." Much is made in the letter of Dr. SAUNDBY's suggestion that the acceptance of a commission on work done is either innocent or less immoral than the acceptance of a like favour for work to be done, and the distinction is certainly a very fine one. For, if it is improper to receive a commission on prescriptions to be written, it cannot be otherwise to receive it on prescriptions after they are dispensed, whether paid in the form of a Christmas gift or otherwise. If the payment of commissions is not to be defended, the line between what is and is not permissible can hardly be drawn where Dr. SAUNDBY would apparently place it.

But the question yet remains to be authoritatively answered whether any secret commissions are received by medical men. As evidence in support of the allegation that they are, Sir EDWARD FRY quotes from the report of the legal proceedings in connection with the liquidation of a company which was formed to acquire and carry on the business of medicated wine manufacturers. The company had entered upon "negotiations with various medical men to induce them to prescribe and recommend to their patients and tradesmen the goods dealt with by the company, promising to each doctor who undertook thus to recommend the company's wares a fully-paid founder's share." Certain shares appear to have been allotted upon those terms, and when the recipients subsequently applied to be relieved from liability in connection therewith, the judge observed that it was "a sad thing that members of a learned profession should have consented to take shares on those terms." The *Times* then appealed to the General Medical Council and other representative medical bodies to take steps to discover the identity of the delinquents, but, so far as Sir EDWARD FRY is aware, no such steps have been taken. That, he thinks, is strange and even lamentable, as the case should have touched the feelings, "as it certainly touched the honour," of the profession; and yet no notice appears to have been taken of it by the British Medical Association or any other medical body, though "it is a case in which no cheque is returned, but, on the contrary, some thirty or forty medical men have the hardihood to insist on the bargain of which they ought to have been ashamed."

CHEMISTS AND MEDICAL DISPENSING.

REFERENCE is made by Sir EDWARD FRY in the letter already commented on to the result of some local inquiries made by a Glasgow paper, which reported that "a prominent member of the drug trade" had said it was a very common thing for doctors "to insist on a commission on all prescriptions sent to the druggist"; whilst a "dispensing chemist," writing to the same paper, gave the terms of a contract under which the charges for medicine supplied were to be in excess of ordinary dispensing charges and the prescriber was to receive thirty or forty per cent. on the net profits. In addition to these public statements, Sir EDWARD FRY states that he has received communications from more than one person confirmatory of the existence of the practice described. There is, of course, no doubt that a practice of the kind really prevails, but it is far from clear that it ought to be classed with the blackmailing system of demanding commissions, directly or indirectly, which alone seems to possess the evil character that the report of the London Chamber of Commerce has tended to fasten on transactions of the most varied nature. What usually happens is that a medical man who finds his practice extending enters into a perfectly legitimate arrangement with a chemist to relieve him of the necessity of dispensing for all his patients. The average patient likes to receive medicine from his medical adviser, and perhaps the easiest way to wean him from that liking is for a chemist to arrange to supply all the medicines, though the doctor continues to receive an inclusive fee. In the course of time it should not be too much to expect that the patient will have so far profited by his training as to prefer to receive prescriptions from his medical man and get them dispensed where he pleased, paying for the medicine when received, and saving money if he did but know it, whatever the chemist may charge.

The intermediate stage prevails to a limited extent in England, and more widely in Scotland, to the mutual satisfaction of prescribers and dispensers, and as suggested by a country practitioner, who writes to the *Times*, it is possible that the charges against the medical profession may be partly founded on instances of such a practice. In his own case, he explains, some years ago he went into a medical partnership in a country town, where he found an arrangement existed between the firm and one of the local chemists. At fixed hours during the day the chemist's boy called for orders. He took prescriptions to the shop, where mixtures, etc., were made up and thence sent to the patients. The chemist retained the prescriptions, and, if more medicines of the same kind were wanted, the bottles were sent back to him to be refilled. He charged a fixed price for each bottle, and the prescribers in turn charged the patient, not only for visits, but also for medicines supplied. The sum which they charged was more than double that which they paid, and the question is asked whether resort to such a plan could be regarded as equivalent to making secret commissions? But it would be absurd to return any other than a negative answer to that question; the matter is clearly nothing but a very ordinary commercial transaction, and so long as medical men choose to sink their professional status for the sake of pocketing a comparatively small profit on the medicines dispensed for their patients, it is difficult to see what there is to make so much fuss about.

ANNOTATIONS.

Pharmaceutical Students—young and old—are well provided with information, specially compiled for them, in the present issue of the Journal, and it is safe to say that no more useful "Students' Number" has ever been published. The special articles comprise a brief account of the Pharmaceutical Society's Museum, with useful hints on its use, by the veteran Curator, Mr. E. M. Holmes; a practical article on the examination of mounted sections of drugs, by Mr. William Kirkby, one of our chief authorities on the histology of drugs; an equally practical communication on the study of practical chemistry, contributed by a leading analyst, and some suggestions concerning self-preparation for the Bell Scholarship examination, by a writer whose recent success makes his advice all the more valuable. In the "Students' Columns" will be found the first instalment of a practical series of articles on dispensing problems and their solution, and Professor Kraemer's very exhaustive notes on the qualitative determination of powdered vegetable drugs are concluded this week. In addition, very complete information is provided concerning the regulations for registration in pharmacy, medicine and dentistry; university degrees in science; the membership of learned societies; veterinary and optical diplomas; prizes, scholarships, etc., open to pharmaceutical students, and much else that it is well for pharmacists and their pupils to be conversant with.

As the Selection of Suitable Text-Books is a matter requiring serious consideration, for some years past the attempt has been made to advise students to the best advantage in that respect. And though the task grows more difficult every year, it is believed that the selection given in the article on "The Students' Library," at page 240, will be found as comprehensive and useful as any previous one. No book is recommended which has not been thoroughly tested, and if students are careful not to purchase more text-books than they are likely to require during the next twelve months, they need have no fear of having a number of hopelessly out-of-date works left on their hands after new editions or more suitable books have been published. In any case, it is a safe rule to read more than one text-book on the same subject, though the most generally useful one on that subject ought to be reserved for special study and carefully annotated when fresh facts bearing on a given topic are brought to the student's cognisance in the course of extended reading. The man of one book is well-nigh as badly off as the man of one idea, but to skim many books and study none is equally unsatisfactory in its way. The pharmacist, in particular, should be a man of many parts, and consider facts from many sides, but he must have a sound substratum of knowledge if he is to benefit properly from new impressions.

The Sale of Food and Drugs Act has been put in force against several chemists by the Fulham Vestry, but, judging from the report published at page 272, the prosecutions can scarcely be said to be justified. The samples of medicines obtained and examined were dispensed from a prescription ordering four drachms of potassium iodide in a six ounce mixture, and, in the one case that was fully gone into, the analyst asserted that an excess of eighteen grains of iodide was present in the mixture. But, of course, he had only examined a third part of the mixture, and Dr. John Attfield, who was called for the defence, gave evidence to the effect that his analysis of another third part showed that the excess of potassium iodide in the six ounces could not have been more than two grains. This conflict of evidence decided the magistrates to dismiss the summons on the facts—refusing to accede to a request by the prosecuting solicitor to be permitted to submit the remaining third part of the mixture to the Somerset House analysts. He also gave expression to the opinion that the case should not have been brought; the Act, he thought, was intended to deal with frauds, and was not intended to deal with a trifling excess of an ingredient in a bottle of medicine. It is doubtful if such an interpretation of the Act could be maintained, but in any case much sympathy will be extended to Mr. Andrew, who, we understand, has been mulcted in at least ten pounds, expended in defending his reputation for accuracy as a dispenser, and for that he can secure no redress, because the prosecution—unjustified though it appears to have been—was instigated by a public body. Whilst referring to this case, it may not be amiss to suggest that chemists should not place too much reliance on the reputed capacities of bottles for dispensing purposes. It is a safe rule always to make mixtures up to the quantity specified, in a graduated measure, and not to trust to the bottle containing exactly four, six, or eight fluid ounces, as the case may be.

The Deaths by Poisoning in Scotland During 1897 were, according to the Registrar-General's report, 119 in all—males, 74; females, 45. In the case of 51 males and 38 females the poisoning was accidental, while 23 males and 7 females had recourse to poison as the means of ending their own lives. The poisons which caused death accidentally were:—Opium, in the case of 17 males and 11 females; morphine, in the case of 3 males; "Nepenthe," of 1 female; "sedative medicine," of 1 male; chloroform, of 11 males and 11 females; ether, of 1 male; chloral hydrate, of 1 male and 1 female; "Bromidia," of 1 female; carbolic acid, of 1 male; strychnine, of 1 male; phosphorus, of 1 female; potassium bichromate, of 1 male; sulphonal, of 1 male; hydrochloric acid, of 1 male; carbonic oxide gas, of 4 males; carbonic acid gas, of 1 male and 2 females; coal gas, of 1 male and 2 females; lead, of 2 males; laburnum seeds, of 1 female; alcohol, of 2 males; tobacco, of 1 male; ptomaine, of 3 females; "after eating fish," 1 female; "irritant poison," of 2 females; kind not stated, of 1 male and 1 female. The poisons by which suicide was effected were:—Opium, in the case of 11 males and 2 females; "Nepenthe," of 1 female; chloroform, of 1 male; carbolic acid, of 3 males and 2 females; carbon bisulphide, of 1 male; oxalic acid, of 1 male; salt of sorrel, of 1 male; strychnine, of 1 male; saltpetre, of 1 female; "irritant poison," of 1 female; kind not stated, of 3 males. Scheduled poisons appear to have been responsible fer 76 out of the 119 deaths, viz., 59 accidental cases—males 36, females, 23; and 17 suicides—males, 14; females, 3.

The Security and Redemption of Business Capital are the objects of a new scheme to which Messrs. Judd and Manners, the well-known transfer agents, direct attention in the advertisement columns of this week's Journal. The idea underlying the scheme is to enable private individuals to create sinking funds to replace capital, cover depreciation, or repay advances. Thus, in cases where a holding is controlled by a lease or other security of decreasing value, bonds will be issued which will secure (1) the return in full of the leasehold values, which would otherwise be lost; (2) the return on maturity of the full capital invested in terminable securities, including partnerships. The bonds will be issued on very reasonable and advantageous terms by a wealthy English corporation whose financial position is of the highest standing, and the security is ample. The holder of a bond will be relieved of all the trouble and risk of creating a sinking fund, and the intended object will be secured in a shorter time than could be accomplished by a private investor. To take as an example the case of a lease approaching its period of determination, so will its value decrease, having a corresponding effect upon the goodwill, but under this system the value will increase, and continue to do so

until the lease terminates, when the amount guaranteed becomes payable in full, notwithstanding that arrangements may have been made for a renewal of the lease. Again, take the case of the purchase of a business with borrowed capital. The borrower cannot expect his creditor to accept repayment of an advance in small yearly or half-yearly sums; nor can he himself safely, conveniently, or profitably accumulate them at compound interest; but he can pay those small sums and secure a bond for the amount of the advance payable in full on maturity. A very important feature of the bonds is that the surrender values allowed are specially large, a return of all premiums, excluding the first, with two per cent. compound interest thereon, being the guaranteed minimum. If, therefore, from any unforeseen cause, it may become unnecessary to continue the annual payments, there would be practically no loss.

THE REAL OR SUPPOSED SCARCITY OF WATER in the London district has been the subject of innumerable articles and letters in the daily Press, but it has been reserved for "One Who Knows" to explain exactly why the alleged scarcity prevails. Of late it has been customary to attribute it to the watering of gardens by people who have not paid for the water so consumed, but this genius suggests that, in times of drought, it would be as well for water companies to look after the amateur photographers. They abound, he says, in every street and square, and, while intent on developing and toning, think nothing of leaving water taps running for hours; "not only this, but often they leave their plates during their absence from home for many hours at a time under the running water for anyone to attend to as convenient. Naturally, they are frequently forgotten by those who, intent on other duties, leave them to their fate." The suggestion is offered that any of these amateur productions might be left till winter before being developed, and that no one would be much the loser, except the owner, who, bringing home hundreds of snapshots from his annual outing, feels impelled to see the result of his labours during the time of scarcity, viz., August and September, but it is more than doubtful if the amateur photographer will take this suggestion kindly. A much more practical suggestion is that all kinds of waste water from baths and bedrooms might be stored in a tank and used as required for garden purposes. Doubtless, it is said, there would be trouble in the process of saving such water instead of simply running it away down a sink. But so is it a trouble to suffer from drought, and to be put on a limited allowance daily.

AN APPRECIATION OF BUNSEN, by Sir Henry Roscoe, which was published in a recent number of *Nature*, is of especial interest as showing how, like our great countryman Faraday, Bunsen consistently refused to be drawn away from the paths of purely scientific investigation, and, though too clear-sighted a mind to belittle the importance of the application of scientific discovery to everyday life, he rightly judged that to him belonged the undoubtedly higher and nobler work of enlarging the boundaries of knowledge. Bunsen's work is noteworthy for its originality and accuracy. It matters not whether we look into his purely chemical investigations, at his chemico-geological researches, or at those—perhaps the most remarkable amongst the many questions he answered—which lie on the borderland of physics and chemistry, in every case we rise from the study not merely feeling that we have to do with a master's mind and hand, but that each investigation is stamped by an original mode of treatment and by an accuracy of thought and of manipulative power which, it is not too much to say, has rarely, f ever, been equalled. In no instance, it is pointed out, was this rare combination of mental and manual dexterity more strikingly shown than in Bunsen's investigation of the compounds of cæsium, the rarest of the two alkali metals which he discovered by means of spectrum analysis. In order to prepare the pure salts of this metal, many tons of Dürkheim mineral water had to be evaporated, and from the residue it was only possible to obtain some five or six grammes of pure cæsium chloride. Nevertheless, from this comparatively minute quantity Bunsen succeeded not only in preparing and analysing all the important salts of cæsium, but in ascertaining by goniometric methods their exact crystalline form, so that he was able to supply all the information required to a complete understanding of the position of this new element and its compounds to those of its well-known relations potassium and sodium. Bunsen was also the first to attempt anything like exactitude in the measurement of gases. And when he had perfected his methods, no improvement as regards accuracy were forthcoming. Other quicker and, perhaps, more handy processes have since come into vogue; but it was Bunsen who taught men how to handle and to separate and measure gaseous substances. In his chemical analytical methods, whether the delicate and complicated silicate analyses, blow-pipe work and flame reactions, volumetric methods, separations of closely allied metals, such as antimony and arsenic, or those of the cerite earths, the same master's touch is seen, whilst his physico-chemical researches, his ice-calorimeter, his photochemical investigations, his methods of ascertaining the specific gravity of gases by their rates of diffusion, and many other distinct lines of research, all well known and recognised as classic, exhibit the same wonderful power.

THE COMPANY DRUG STORE appears now to be beginning in earnest to attack the business of the grocer, and the leading organ of the grocery trade complains that the drug companies do not seem to know where to stop. According to information derived from a source that may be regarded as official, the manager of a large drug store has received an intimation from his superior authorities that he may, in due season, wisely display such goods as crackers, preserved fruits, etc., in his window, so as to keep pace with the strides of modern enterprise,and annex, if possible, some of the grocer's trade. From the price list of one such concern, referred to by the *Grocer*, it is clear that the "grocery, Italian warehouse, and dry goods department" is a prominent feature, all goods of course being quoted at "our reduced prices." Biscuits are quoted in this list at "wholesale prices"; and the names of two well-known firms are mentioned as providing the necessary supplies. How such firms can care to see their excellent products thus quoted "at wholesale prices" in the retail list of a "drug company (limited)" is a point that, in the opinion of our contemporary, lends itself to an ingenuity of conjecture. "They might reply, of course, that so long as their accounts are paid and the goods are sold over the counter in a *bonâ-fide*, legitimate manner, they do not profess to exercise a control over retail prices. Yet the thought arises that, if some firms had made that profession some years ago, and had acted upon it in the conduct of their business, 'cutting' would not be the serious evil it has become." Reference is also made to the fact that forms of shopping are now taking curious turns. A member of the grocery trade, for example, has mentioned that one of his customers buys only bacon from him, getting other things from the chemist's or drug store; "and here we have the remarkable fact," says this informant, "that of all the groceries bought by the lady referred to she gets none from the grocer." That is, obviously, quite an exceptional case, yet it is held to show what strange developments are taking place in regard to the work of shopping, and how unjustly certain traders may suffer from a modern craze. "People are led to believe what they are told if it is dinned into their ears often enough. The persistent and widespread distribution of these 'reduced price' lists has an influence in an unfortunate direction. Customers do not reflect that in the long run they are bound to pay the price for a good article, and that, wherever they go, excessive cheapness means the same thing—namely, inferior quality."

PHARMACEUTICAL QUALIFICATION IN GREAT BRITAIN.

PARTICULARS OF EXAMINATIONS, SCHOLARSHIPS, AND PRIZES.

A candidate for registration as a chemist and druggist in Great Britain must have attained the full age of twenty-one years, as attested by a Registrar's certificate of birth, and be registered as having passed a preliminary examination in Latin, Arithmetic, and English. That examination should have been passed before apprenticeship, and may be the First Examination of the Pharmaceutical Society, or one of those included in the list at page 260. Candidates are advised, in their own best interests, to pass the Matriculation or the Senior Local Examination of one of the universities, and preferably the Matriculation Examination of the University of London, the more especially as, after August, 1900, the Society's First Examination will be discontinued, and candidate will be required to produce certificates of having passed approved examinations in Latin, Arithmetic, English, Euclid, Algebra, and French, German, or some other foreign language.

A certified declaration that for three years he has been registered and employed as an apprentice or student, or has otherwise for three years been practically engaged in the translation and dispensing of prescriptions, must also be produced by the candidate when giving notice of his intention to present himself for the Minor or qualifying examination, and he is expected to specify whether he desires to be examined in London or Edinburgh. That notice must be given, and the fee of five guineas paid, to the Registrar of the Pharmaceutical Society, 17, Bloomsbury Square, London, W.C., on or before the fifteenth day of March, June, September, or December, and it may be stated, by the way, that the candidate must have attained the full age of twenty-one years on or before that day. The necessary notice having been given, and the fee—which covers the cost of registration as well as examination—paid, the candidate in due course will receive an intimation of the date on which he will be required to present himself for examination.

On the morning of the specified day he must attend at 17, Bloomsbury Square, London, or 36, York Place, Edinburgh, and, at ten o'clock, he will be set to work at practical chemistry, or practical pharmacy and dispensing, as the case may be. At two o'clock in the afternoon of the same day he will be examined in the practical subject not taken in the morning, and by five o'clock the practical portion of the examination will be concluded. If the candidate has satisfied the examiners in the practical subjects, he will shortly receive another notice, instructing him on what day to present himself for the oral portion of the examination. That usually occupies less than half a day ; the subjects are botany, chemistry and physics, materia medica, pharmacy, and prescription reading. A complete syllabus of the examination is given at page 260 *et seq.*, and suggestions regarding suitable text-books are printed at page 240.

It should be noted that the Council of the Pharmaceutical Society recommends all who propose to present themselves for the qualifying examination to undergo previously a systematic course of instruction occupying a period of not less than six months. That course of instruction, it is suggested, should include at least sixty lectures in chemistry, eighteen hours' work in each week in practical chemistry, forty-five lectures and demonstrations in botany, and twenty-five lectures and demonstrations in materia medica. The course recommended is an extremely modest one, and, added to a three to five years' apprenticeship, should be considered the fixed minimum of what is requisite. During apprenticeship—which, as already urged, should not be entered upon until a recognised preliminary examination has been passed—the student should devote as much time as possible to practical work in chemistry, botany, materia medica, and pharmacy. Theories of any kind should not be allowed to trouble his mind, as he will do better to approach them without prejudice after entering upon his college course. Everything should be regarded in connection with the British Pharmacopœia, the drugs, chemicals, and galenicals in the pharmacy being composed with the official descriptions, and those descriptions in turn carefully studied until they are thoroughly understood. The doses of all official medicaments should be committed to memory, the reading and interpretation of prescriptions should receive no inconsiderable share of attention, the chemical tests described in the Pharmacopœia should be applied practically, and field work in botany ought to be supplemented by dissecting and studying the specimens collected. Work with the microscope will be found to present a useful variety, as will also the work of preparing galenicals and compounding prescriptions, which is usually entered upon during the latter part of the apprenticeship.

With such a practical substratum of knowledge as has been briefly outlined, the student will commence his college course in a state of active receptivity, and six months' systematic work should then enable him, without difficulty, to secure qualification as a chemist and druggist. He will then be eligible for election as a member of the Pharmaceutical Society, and should not neglect the opportunity thus afforded him of becoming associated with the body which has been chiefly instrumental in organising pharmacy as a craft in Great Britain, and through the medium of which alone that craft is likely to reap any tangible benefit in the future. He will also be entitled to present himself for the Major examination, on passing which he will be registered as a pharmaceutical chemist, and become exempt from service on all juries and inquests in England and Wales.

This higher examination attracts but a small number of candidates compared with the qualifying examination, but the question of entering for it is well worth the attention of everyone who passes the Minor. It is a more purely scientific examination than the latter, and the subjects are only four—botany, chemistry, physics, and materia medica. As in the previous examination, the practical work is taken first, a whole day being devoted to practical chemistry. Half a day is occupied with the practical work in botany and materia medica, and the remainder of the examination is usually in writing, four papers being set—in botany, chemistry, materia medica, and physics respectively. The detailed syllabus of this examination will be found at page 262 *et seq.*, and past examination papers are printed in the *Pharmaceutical Journal* for July 8 last, at page 39.

After passing the Major examination, an attempt should be made to secure the Pereira Medal or one of the Pharmaceutical Society's medals. All pharmaceutical chemists who were members of the Society at the time of passing the Major examination are entitled to enter for those prizes, at the competition next following the date on which they passed. The subjects of examination are botany, chemistry, and materia medica, and candidates may sit for the examination—a written one—at London or Edinburgh. Other post-graduate work can be carried out in the Research Laboratory of the Pharmaceutical Society, which is open, without payment of any fee, to properly qualified persons who wish to carry out scientific investigations. Pharmaceutical chemists, who are members of the Society, will find no difficulty in securing permission to work in the Research Laboratory, provided space is available. Full particulars concerning the regulations, etc., will be found in the Society's Calendar, a copy of which every registered chemist will find it advisable to possess.

REGULATIONS OF THE BOARDS OF EXAMINERS.

FIRST EXAMINATION.

N.B.—This Examination will be discontinued after August, 1900.

(For Registration as Apprentices or Students.)

Fee Two Guineas.

This Examination will be held, at the following centres, at Eleven o'clock, on the second Tuesdays in January, April, July, and October:—

Aberdeen	Carnarvon	Lancaster	Nottingham
Birmingham	Cheltenham	Leeds	Oxford
Brighton	Darlington	Lincoln	Penzance
Bristol	Dundee	Liverpool	Peterborough
Cambridge	Edinburgh	London	Plymouth
Canterbury	Exeter	Manchester	Sheffield
Cardiff	Glasgow	Newcastle	Shrewsbury
Carlisle	Hull	Northampton	Southampton
Carmarthen	Inverness	Norwich	York

Also at the following centres in July only:—

Jersey; Guernsey; Isle of Man (Douglas); Orkney (Kirkwall).

Candidates must give notice to the Registrar in London, on a printed form of application, which can only be obtained from him, and pay the fee not less than *fourteen* days prior to that on which the examination is to be held. Each candidate must at the time of entry state at which of the centres he desires to present himself.

The Examination is wholly in writing, and comprises the following

SUBJECTS.

Latin. Grammar; Translation of simple sentences from English into Latin. Translation into English from Cæsar, "*De Bello Gallico*," Book I., or Virgil, "*Æneid*," Book I.

In each examination paper passages from both of these authors will be given, but a candidate is required to translate from one author only.

Arithmetic. Numeration; the first four rules—Simple and Compound; Reduction; Vulgar and Decimal Fractions: Simple and Compound Proportion; a thorough knowledge of the British and Metrical Systems of Weights and Measures; Percentages and Stocks.

In each examination paper a question will be given involving a knowledge of the Metric System, which every candidate will be required to attempt.

English. Grammar and Composition.

In awarding marks, Spelling and the quality of the Handwriting are taken into account.

TIME ALLOWED.

Latin, 11 a.m. to 12.30 p.m.; Arithmetic, 12.30 p.m. to 2 p.m.; English, 3 p.m. to 4.30 p.m.

Certificates Accepted in Lieu.

The Boards of Examiners are empowered to accept in lieu of the First Examination of the Society a certificate of having passed at one examination, all the compulsory subjects of any one of the following examinations, provided Latin, Arithmetic, and English were included in the subjects of the examination for which the certificate was granted. Each certificate must be forwarded to the Registrar with the fee of two guineas for the approval of the Board of Examiners, and must have been so approved by the Board of Examiners before the candidate will be eligible to enter his name for the Minor Examination.

University of Oxford.
Junior or Senior Local Examinations.
Responsions.
Moderations.
Examination for a Degree in Arts.

University of Cambridge.
Junior or Senior Local Examinations.
Higher Local Examinations.
Previous Examination.
Examination for a Degree in Arts.

University of Durham.
Junior or Senior Local Examinations.
Registration Examination for Medical Students.
Examination for Students at the end of their first year.
Examination for a Degree in Arts or Science.

University of London.
Matriculation Examination.
Preliminary Scientific (M.B.) Examination.
Examination for a Degree in Arts or Science.

Victoria University.
Entrance Examination in Arts of the Faculty of Medicine.
Preliminary Examination.

University of Edinburgh.
Junior or Senior Local Examinations.
Preliminary Examination for Graduation in Science or Medicine and Surgery.
Examination for a Degree in Arts or Science.

University of Aberdeen.
Junior or Senior Local Examinations.
Preliminary Examinations for Graduation in Medicine or Surgery.
Examination for a Degree in Arts.

University of Glasgow.
Junior or Senior Local Examinations.
Preliminary Examination for Graduation in Medicine or Surgery.
Examination for a Degree in Arts.

University of St. Andrew's.
Junior or Senior Local Examinations.
Preliminary Examination for Graduation in Medicine or Surgery.
Examination for a Degree in Arts.

University of Dublin.
Public Entrance Examinations.
Examination for a Degree in Arts.

Royal University of Ireland.
Matriculation.
First University Examination.
Second University Examination.
Examination for a Degree in Arts.

Queen's University in Ireland.
Local Examinations for men and women.
Entrance or Matriculation Examination.
Previous Examination for B.A. degree.
Examination for a Degree in Arts.

Oxford and Cambridge Schools' Examination Board.
Certificate.

Royal College of Surgeons of England.
Preliminary Examination for the Membership or for the Fellowship.

Royal Colleges of Physicians and Surgeons of Edinburgh.
Preliminary Examination in General Education, conducted by a Board appointed by these two Colleges combined.

Faculty of Physicians and Surgeons of Glasgow.
Prelim. Exam. in General Education.

Royal Colleges of Physicians and Surgeons in Ireland.
Preliminary Examination.

Apothecaries' Hall of Ireland.
Prelim. Exam. in General Education.

Intermediate Education Board for Ireland.
Senior, Middle, and Junior Certificates.

Owens College.
Junior Students' General Examination.

College of Preceptors.
Examination for a First or Second Class Certificate.

Incorporated Law Society.
Preliminary Examination in General Knowledge.

University of Wales.
Matriculation Certificate.

University of the Cape of Good Hope.
Matriculation Examination.

Scotch Education Department.
The Honours and First Grade Leaving Certificates are accepted, provided the Certificates in English, Latin, and Arithmetic are all obtained at any one Annual Examination.

MAJOR AND MINOR EXAMINATIONS.

The Boards of Examiners in London and in Edinburgh will meet during the year 1899, in January, April, and July, also at the end of September or the beginning of October. The dates of the commencement of the examinations are duly announced in the *Pharmaceutical Journal*. The written and practical portions of the Examinations precede the oral portions.

Instructions to Candidates.

Each Candidate must give notice and pay the fee to the Registrar, Mr. Richard Bremridge, 17, Bloomsbury Square, London, W.C., on or before the fifteenth day of March, June, September, or December, and he will receive due notice of the date on which he will be required to present himself for examination.

When giving notice (for the first time), a Candidate for the Minor Examination must have attained the full age of twenty-one years, and must have been registered as having passed the First Examination. He will at the same time be required to produce a Registrar's Certificate of Birth, and a certified declaration that for three years he has been registered and employed as an Apprentice or Student, or has otherwise for three years been practically engaged in the translation and dispensing of prescriptions. The printed form on which this declaration is to be made can only be obtained from the Registrar in London. Each candidate must state, at the time of giving notice, whether he desires to be examined in London or in Edinburgh.

Modified Examination.

Persons entitled to enter for the Modified Examination and desirous of so doing, should apply to the Registrar for particulars. No person is eligible for this Examination who did not register for the same on or before December 31, 1869.

MINOR EXAMINATION.

For Registration under the Pharmacy Act, 1868, as Chemists and Druggists, and entrance to the Pharmaceutical Society as Members.

The following are the Subjects of Examination:—

Botany.

The candidate is required to possess a practical knowledge of:—

(*a*) CLASSIFICATION. The main divisions of the vegetable kingdom and their most important characteristics:—Thallophyta, Bryophyta, Pteridophyta, Phanerogamia. The following Sub-

classes and Natural Orders of the Angiosperms:—Thalamifloræ, Calycifloræ, Corollifloræ, Monochlamydeæ, Petaloideæ, Spadicifloræ, and Glumifloræ; Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Umbelliferæ, Compositæ, Solanaceæ, Liliaceæ. The description of flowering plants in technical language.

The candidate is also required to recognise any of the plants in the following list:—

List of Plants for Recognition.

Aconitum napellus.	Datura stramonium	Papaver somniferum.
Althæa officinalis.	Digitalis purpurea.	Pinus sylvestris.
Anthemis nobilis.	Fœniculum capillaceum.	Prunus lauro-cerasus.
Aspidium Filix-mas.	Hordeum distichon.	Quercus robur.
Atropa belladonna.	Hyoscyamus niger.	Rosa canina.
Avena sativa.	Juniperus communis.	Rosmarinus officinalis.
Brassica alba.	,, sabina.	Ruta graveolens.
,, nigra.	Lavandula vera.	Salix alba.
Bryonia dioica.	Matricaria chamomilla.	Sambucus nigra.
Cochlearia armoracia.	Mentha piperita.	Solanum dulcamara.
Colchicum autumnale.	,, viridis.	Taraxacum officinale.
Conium maculatum.	,, pulegium.	Taxus baccata.
Cytisus scoparius.	Menyanthes trifoliata.	Triticum vulgare.
Daphne laureola.	Œnanthe crocata.	Ulmus campestris.
,, mezereum.	Papaver rhœas.	Valeriana officinalis.

(*b*) Morphology, including Anatomy. The external form of plants:—thallus, stem, root, leaves, inflorescence, flower, fruit. The distinguishing features and common modifications of these structures. Principles of branching and different kinds of branch systems. Phyllotaxis, including vernation. The different kinds of buds and their arrangement on the stem.

A general acquaintance with the elements of plant anatomy; the vegetable cell, tissues, *e.g.*, merismatic, epidermal, fundamental and vascular. The characteristic anatomical features of roots, stems, and leaves of flowering plants and ferns.

The candidate is expected to recognise by means of the microscope, and describe sections illustrating the above plant structures.

The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues. The characters of the flowers. The methods of pollination; self and cross-fertilisation. The formation of the seed and germination.

(*c*) Physiology. The *elementary facts* in connection with the physiology of plants, including the nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli, *e.g.*, light, gravity, etc. Sexual and asexual reproduction.

Chemistry and Physics.

The candidate is expected to possess an *elementary* knowledge of the following subjects:—

(*a*) The law of the conservation of energy; the law of gravitation; the balance; specific gravity; atmospheric pressure; pressure of aqueous vapour; the barometer, air-pump, and siphon; the law of Boyle; temperature; thermometers; the law of Charles; the law of gaseous diffusion; V. Meyer's method for determining vapour densities.

(*b*) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulæ and nomenclature; valency; the distinction between metals and non-metals.

(*c*) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds:—hydrogen, oxygen, ozone, water, hydrogen peroxide; chlorine, bromine and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid; nitrogen, ammonia, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides and acids, thiosulphuric acid; phosphorus, phosphine, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus; silicon, silica, fluoride of silicon, silicofluoric acid; boron, boric acid. The usual impurities in such of the above-named substances as are included in the British Pharmacopœia.

(*d*) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual methods of extracting, and the chief properties of, the undermentioned metals, also the modes of preparation, properties, adulterations and contaminations of their principal compounds—potassium, sodium, ammonium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenium, antimony, tin, copper, bismuth, lead, silver, mercury, gold, and platinum.

(*e*) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanides, ferrocyanides and ferricyanides, oxalic acid. The chief methods of preparing methane, ethane, ethylene, acetylene, methyl and ethyl alcohols, formic and acetic aldehydes and acids, ethyl acetate, acetamide, olein, glycerol, benzene, phenol, nitro-benzene, aniline, benzoic acid, salicylic acid, hydrate of chloral, chloroform, iodoform, ether; the principal properties, reactions, and mutual relations of these compounds. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen and nitrogen in organic compounds, and of obtaining molecular formulæ.

Note.—The candidate is expected to solve simple problems relating to the weight and volume, under different conditions of temperature and pressure, of elements and compounds concerned in chemical reaction.

Chemistry.—Practical Examination.

The candidate is required to determine the specific gravity of liquids and solids, and to be familiar with the general construction and use of the thermometer and barometer.

To recognise by chemical tests the more important non-metallic elements and compounds, as well as the metals and salts indicated in the foregoing list; to detect the chief impurities in those that are included in the British Pharmacopœia; to recognise by their physical properties those which possess well-defined characteristics. To analyse a mixture containing not more than two metals and two acid radicles.

To identify by chemical tests the following organic compounds: hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalates, acetates, tartrates, citrates, salicylates, starch, cane sugar, grape sugar, salicin, quinine, morphine, strychnine, and their salts; and to detect the impurities in such as are included in the British Pharmacopœia.

To perform those volumetric determinations which are described in the British Pharmacopœia. To understand the principles of volumetric analysis, and to prepare, standardise, and use volumetric solutions.

To be familiar with the construction and use of the balance, and to have a practical knowledge of the Imperial and Metric Systems of Weights and Measures.

To quantitatively determine the total alkaloids in cinchona bark, and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture; and the resin in tincture of jalap.

To have a practical acquaintance with the methods of preparing the more important inorganic substances including the non-metals and their compounds, and such metallic compounds as are included in the British Pharmacopœia, and also the following organic compounds:—ether, chloroform, amyl nitrate, ethyl acetate, and hydrocyanic acid, so that he may be able to explain to the examiner the operations involved in their preparation, and if called upon, to perform the operations or certain stages of them himself.

Materia Medica.

The candidate is required to recognise specimens of any crude drugs mentioned in the British Pharmacopœia or in the annexed list, as well as their principal commercial varieties; to be acquainted with their botanical (or zoological), geographical, and commercial sources, the natural orders to which they belong, as well as the modes of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised; to correctly describe them,

and to point out diagnostic characters either chemical or physical, the latter as far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products.

Animal Substances.
Castoreum
Mylabris cichorii
Mylabris phalerata

Barks.
Berberis vulgaris
Canella alba
Cinchona calisaya
Cinchona lancifolia
Cinnamomum cassia
Coto
Erythrophlœum guineense
Nectandra rodiæi
Pinus larix
Quercus robur
Rhamnus frangula
Ulmus campestris
Ulmus fulva

Cryptogamic Substances.
Cetraria islandica
Chondrus crispus
Fucus vesiculosus
Lycopodium

Flowers.
Arnica montana
Calendula officinalis
Pyrethrum cinerariæfolium, etc.
Rosa centifolia

Fruits.
Ægle marmelos
Cuminum cyminum
Laurus nobilis
Piper longum
Punica granatum
Vanilla planifolia

Gum-Resins.
Euphorbium
Olibanum

Hairs or Glands.
Mallotus philippinensis
Mucuna pruriens

Herbs, etc.
Convallaria majalis
Euphorbia pilulifera
Grindelia squarrosa et robusta
Juniperus sabina
Lactuca virosa
Marrubium vulgare
Ruta graveolens
Solanum dulcamara

Juices, etc.
Black catechu
Cape aloes
Gutta percha
Lactucarium
Manna
Natal aloes

Leaves.
Aconitum napellus
Nicotiana tabacum
Piper angustifolium

Resins.
Dragon's Blood
Elemi
Mastiche
Sandarac
Shellac

Rhizomes, etc.
Acorus calamus
Agropyron (Triticum) repens
Helleborus niger
Iris florentina
Sanguinaria canadensis
Veratrum album
Veratrum viride

Roots.
Alkanna tinctoria
Althæa officinalis
Bryonia dioica
Inula helenium

Seeds.
Amomum melegueta
Areca catechu
Dipteryx odorata
Hordeum distichon
Hyoscyamus niger
Paullinia sorbilis (Guarana)
Pyrus cydonia
Strychnos amara
Theobroma Cacao
Trigonella fœnum-græcum

Pharmacy.

The candidate is required to possess a general knowledge of the following branches:—

(*a*) Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts and inspissated juices; special characters and modes of preparing the various classes of extracts; influence of surface, temperature and pressure upon the rate of evaporation; water, steam and sand baths; distillation, ordinary, fractional and destructive, distinctive characters and objects of each; official preparations illustrating the various kinds of distillation, apparatus employed, the retort and receiver, still and worm, Liebig's condenser, principles on which they are constructed and used. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used.

(*b*) Disintegration of solid substances: cutting, bruising, and pulverisation; apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Solution: its nature, solvent power of various menstrua, influences of (*a*) temperature; (*b*) state of division of the substance to be dissolved; (*c*) time; (*d*) position of the substance in the menstruum; lixiviation, infusion, digestion and decoction; maceration, percolation and displacement, principles on which the successful performance of these processes depend; form and materials for percolators and other vessels employed. Filtration, objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from tincture marcs, etc., screw, hydraulic and other presses. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids.

The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which the official preparations belonging to the following classes are made: collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters and wines. A knowledge of the proportion of active ingredient or crude material in official preparations containing aconite, antimony, arsenic, belladonna, Calabar bean, cantharides, chloral hydrate, chloroform, caustic potash and soda, colchicum, digitalis, elaterinum, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nux vomica, opium, phosphorus, scammony, stramonium, squill, alkaloids and alkaloidal salts.

The candidate is required—

(*a*) To enumerate the poisons contained in Schedule A of the Pharmacy Act, 1868, and those since added thereto, in pursuance of the provision contained in Section II. of that Act, viz.:—

Poisons within Part I. of the Schedule.
Poisons within Part II. of the Schedule.

(*b*) To describe minutely the conditions required upon the sale *by Retail* of poisons, both in Part I. and Part II. of Schedule A; and to write the proper entry required, according to Schedule F of the Act, for the sale of a poison coming within Part I. of Schedule A.

(*c*) To state the conditions imposed on the sale of scheduled poisons *by Wholesale and for Export*, and upon the sale of a scheduled poison when forming an ingredient in a medicine dispensed.

The candidate is also expected to possess a knowledge of the conditions imposed on the sale of Arsenic by the Arsenic Act.

Practical Pharmacy and Dispensing.

The candidate is required—To conduct such operations of the British Pharmacopœia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters and wines.

To weigh, measure, and compound medicines; to write the directions in concise language in a *neat and distinct* hand; to finish and properly direct each package. [*In awarding marks in this subject the time taken by the candidate in doing the work is taken into account.*]

Prescriptions.

The candidate is required to read without abbreviation autograph prescriptions, translate them into English, understand the grammatical construction of the Latin, and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of posology. To calculate percentages and other quantities occurring in prescriptions; also to render in good Latin ordinary prescriptions written in English.

Candidates must not take into the Examination Rooms or Laboratories any books or any notes or memoranda, whether written or in print.

MAJOR EXAMINATION.

For Registration as Pharmaceutical Chemists under the Pharmacy Act, 1852. *Pharmaceutical Chemists are exempt in England and Wales from service on all Juries and Inquests under Juries Act*, 1862.

Fee Three Guineas.

The examination in the respective subjects may be oral, practical or in writing.

Botany.

In addition to what is required for the Minor Examination, the candidate is expected to show a competent practical knowledge of the following subjects:—

CLASSIFICATION.—The general principles of classification the Natural system.

The characteristic features of the following groups :—

- CRYPTOGAMIA.
  - THALLOPHYTA.
    - ALGÆ.
    - FUNGI (INCLUDING LICHENS).
  - BRYOPHYTA.
    - HEPATICÆ.
    - MUSCI.
  - PTERIDOPHYTA.
    - FILICINÆ.
      - Filices.
    - EQUISETINÆ.
    - LYCOPODINÆ.
- PHANEROGAMIA.
  - GYMNOSPERMÆ.
    - Coniferæ.
  - ANGIOSPERMÆ.
    - Dicotyledones.
      - *Thalamifloræ.*
        - Papaveraceæ.
        - Caryophyllaceæ.
        - Violaceæ.
        - Malvaceæ.
      - *Discifloræ.*
        - Geraniaceæ.
        - Rutaceæ.
      - *Calycifloræ.*
        - Saxifragaceæ.
      - *Corollifloræ.*
        - Dipsaceæ.
        - Valerianaceæ.
        - Gentianaceæ.
        - Scrophulariaceæ.
        - Boraginaceæ.
        - Labiatæ.
        - Primulaceæ
      - *Monochlamydeæ.*
        - Polygonaceæ.
        - Euphorbiaceæ.
        - Ulmaceæ.
        - Urticaceæ.
        - Cupuliferæ.
        - Salicaceæ.
        - Betulaceæ.
        - Myricaceæ.
    - Monocotyledones.
      - *Petaloideæ.*
        - Orchidaceæ.
        - Amaryllidaceæ.
        - Iridaceæ.
      - *Glumifloræ.*
        - Cyperaceæ.
        - Graminaceæ.

MORPHOLOGY.—Alternation of generations as illustrated by the life-histories in the several classes of plants; relative magnitude and degree of development of the sporophyte and the gametophyte. The general anatomy of plants, treated more fully than in the Minor Examination.

PHYSIOLOGY.—The general physiology of nutrition and growth. The relationships and adaptations of plants to their surroundings.

PRACTICAL WORK:—The candidate is expected to make and mount microscopic preparations illustrating vegetable structure, and to be able to apply microchemical tests for cellulose and its modifications as they exist in the cell wall, and for the chief products which are formed in plant cells.

Chemistry and Physics.

In addition to the subjects indicated by the Schedule for the Minor Examination the candidate is expected to possess a knowledge of the most important facts connected with—

(*a*) The physical constitution of the three states of matter; liquefaction of gases, critical point; the diffusion of gases and liquids, dialysis; methods for determining vapour densities; solution.

(*b*) The dynamical theory of heat; heat and temperature; sources, development and propagation of heat; radiation, diathermancy and athermancy, separation of heat from light; latent heat; boiling point, distillation; freezing mixtures; specific heat; calorimeters; relation of specific heat to atomic weight; methods of determining exceedingly high and low temperatures.

(*c*) The undulatory theory of light; reflection; refraction; interference of light; propagation of light, the photometer; mirrors and lenses, the microscope; decomposition of white light by a prism; the spectroscope, spectrum analysis; double refraction; polarisation, the polariscope; influence of light in promoting chemical change, the principles of the ordinary photographic processes.

(*d*) The methods of producing magnetism; magnetic induction. Sources of electricity, frictional electricity; the electroscope; electric induction; electric machines; the Leyden jar; voltaic electricity; the principal forms of voltaic batteries; the galvanometer; chemical effects of current; electrolysis; measurement of current, Ohm's law; voltameter; secondary currents; secondary batteries; thermo-electricity, the thermopile; production of heat and light from electricity; electromotors; dynamo-machines.

(*e*) The history of the atomic theory; the hypothesis of Avogadro; the methods by which the standard atomic weights have been determined; dissociation; specific volume; the periodic law.

(*f*) Classification of carbon compounds; rational formulæ; isomerism. The characteristics and constitution of the chief typical organic compounds. The constitution, sources, methods of preparation, properties, reactions and mutual relations of the following organic compounds: *Cyanogen derivatives.*—Urea, cyanuric acid, uric acid. *Hydrocarbons.*—The principal members of the paraffin, olefine, acetylene and benzene series; their chief haloid and nitro-derivatives. Theory of isomerism in paraffin and benzene series. *Paraffin derivatives.*—Distinction of primary, secondary, and tertiary alcohols; the chief primary monohydric alcohols: glycol; glycerin (glycerol); mannite; acetaldehyde; chloral; choral hydrate; acetone; ether; the principal acids of the acetic series: oleic acid; glycollic and lactic acids; oxalic, succinic, malic, tartaric, racemic and citric acids; ethylamine; acetamide; glycocine; cane sugar; grape sugar; milk sugar; maltose; starch and cellulose. *Benzene derivatives.*—Phenol sulphonic acid; phenol; resorcin (resorcinol); aniline; benzaldehyde; salicylaldehyde; benzoic acid; salicylic acid. The principal properties of the terpenes and camphors, essential oils, resins. The characteristics of naphthalene and its derivatives. The processes of alcoholic, acetic, lactic, and ammonic fermentation. The properties and decomposition products of the principal glucosides, alkaloids, and other substances of definite chemical composition in the British Pharmacopœia.

Chemistry.—PRACTICAL EXAMINATION.

The candidate is expected to be able—

To analyse mixtures containing three metallic salts; to estimate the nitrogen in organic compounds by the soda-lime and Kjeldahl processes; to determine melting and boiling points. To perform processes of gas analysis which can be carried out in a nitrometer. To perform the operations (or certain stages of them) necessary for the preparation of cyanogen, artificial urea, ethyl chloride, iodoform, ethylene, ethylene dibromide, acetaldehyde, formic acid, oxalic acid, nitro-benzene, aniline, benzoic acid, the nitrophenols. To recognise by their chemical reactions, and to determine, where necessary, by the Pharmacopœial gravimetric or volumetric methods, the strength and purity of the most important of the inorganic and organic compounds (including crude drugs and galenical preparations) described in the British Pharmacopœia. To detect and separate the most important alkaloids, alkaloidal salts and glucosides, and to separate in the pure state morphine from opium and strychnine from nux vomica. To detect methyl alcohol in tinctures, liniments, and other preparations.

In the practical portion of the Major Examination standard works of reference are provided for the use of candidates, at the discretion of the examiner. No other books or memoranda are allowed.

Materia Medica.

In addition to what is required for the Minor, the candidate is expected to show a practical knowledge of the methods of estimating the value of important drugs, of distinguishing commercial varieties of the same, and of separating such of their active principles as are official in the British Pharmacopœia.

The candidate is also expected to have a general acquaintance with the active constituents of all important drugs, and to possess a general knowledge of the chemical properties of the official alkaloids, glucosides, resins, and essential and fixed oils.

The candidate is expected to make and describe microscopical preparations of any organised vegetable drug official in the British Pharmacopœia, and to point out distinctive histological features in the same. The candidate is also expected to discover obvious adulterations present in powdered drugs, from comparison with authentic material.

EXAMINATION FEES.

	£	s.	d.
First Examination	2	2	0
Minor Examination	5	5	0
Major Examination	3	3	0

All fees must be paid at the time of giving notice to attend an Examination; and no portion of a fee will, under any circumstances, be returned.

Reduced Fees.

Persons who have failed to pass an examination, or who have failed to attend an examination at the time appointed, may on payment of reduced fees, re-enter for Examination.

THE REDUCED FEES PAYABLE ARE AS FOLLOW:—

(*a*) In the case of a person who has attended an examination and failed to pass.

	£	s.	d.
First Examination	1	1	0
Minor Examination.....	3	3	0
Major Examination	2	2	0

(*b*) In the case of a person who has failed duly to attend an examination at the time appointed } ONE GUINEA.

or

(*c*) In the case of a person who shall have proved to the satisfaction of the Council or the Boards of Examiners (by production of Medical Certificate or otherwise) that failure to attend was occasioned by unavoidable or proper causes ..... } ONE SHILLING.

SUBSCRIPTIONS TO THE PHARMACEUTICAL SOCIETY.

	ANNUAL SUBSCRIPTION. £ s. d.
Persons who have passed the First Examination, or whose certificates have been accepted in lieu thereof, are eligible to be elected "*Student-Associates*" *of the Society*	0 10 6
Persons who are registered as Pharmaceutical Chemists, or as Chemists and Druggists, are eligible to be elected *Members of the Society* .	1 1 0

Life Composition fee for Members . . . . Ten Guineas.

All subscriptions are due on election, and on January 1st in each succeeding year.

PRIVILEGES OF SUBSCRIBERS TO THE SOCIETY.

Members and Student-Associates of the Society are supplied with the Journal of the Society regularly as published, free of charge. They have also the use of the Library and Museum. Members have a voice in the administration of the Benevolent Fund of the Society, and, in case of need, may receive assistance therefrom. Student-Associates of the Society are eligible, under certain conditions (*see* below), to compete for the Jacob Bell Scholarships, the Manchester Pharmaceutical Association Scholarship, and the Herbarium Prize.

PRIZES AND SCHOLARSHIPS.

Council Examination Prizes.

Pharmaceutical chemists who were Members of the Society at the time of passing the Major Examination will be entitled to enter for the following prizes at the competition next following the date on which they passed the Major Examination:—

First Prize.—Pereira Medal in silver, and a present of books value £5, or thereabouts, given by the late Thomas Hyde Hills in memory of Jacob Bell.

Second Prize.—The Pharmaceutical Society's Medal in silver.

Third Prize.—The Pharmaceutical Society's Medal in bronze.

Subjects of Examination.—Materia Medica; Botany; and Chemistry.

The competition for these prizes takes place in April of every year, after the ordinary meetings in that month of the Boards of Examiners.

The Registrar communicates with each person entitled to compete, requiring not less than three days' notice of his intention to present himself for examination, and no person will be admitted to compete unless he shall have given the required notice.

The examination is a written one, and competitors may be examined in London or in Edinburgh.

The Council selects and appoints special Examiners, who set the questions, examine the answers, and report the result direct to the Council.

The Jacob Bell Memorial Scholarships.*

TWO BELL SCHOLARSHIPS are offered annually, and come into operation at the commencement of the Session in October, and the scholars shall for that Session be pupils in the Pharmaceutical Society's School.

ANNUAL VALUE OF SCHOLARSHIPS.—Each Scholarship is of the annual value of thirty pounds, and is tenable for one year only; each Scholar may, however, at the termination of his year of tenure, apply for free admission to the next ensuing Advanced Course in the Society's School. The payment will be made in two moieties; the first to be paid when the scholar enters upon his studies in the school, and the second at the expiration of five months. In addition to the endowment, the Council provides for the Bell scholars free laboratory instruction and admission to the lectures, and books of the value of £5—given by the late Thomas Hyde Hills—are divided equally between them.

Subjects of Examination.

Latin:—Virgil: the first three books of the Æneid; Latin prescriptions; translations of Latin into English and English into Latin; translations from any Latin pharmacopœia, and parsing. *French or German. English*:—Composition and parsing. *Arithmetic*:—The first four simple and compound rules, fractions, and decimals; the British and metrical systems of weights and measures. An elementary knowledge of *Chemistry*, *Pharmacy*, *and Botany*.

Conditions of the Competition.—Each competitor must give notice to the Secretary on or before June 1.

The notice must be accompanied by

(*a*) A Registrar's certificate of birth.

(*b*) Testimonials from present or previous employers, or masters, as to capability, industry, and general conduct.

(*c*) A declaration that the competitor has passed not less, or has been engaged not less than three years in the pharmacy of a Registered Pharmaceutical Chemist, or Chemist and Druggist. (The form on which this declaration is to be made can only be obtained from the Secretary.)

At the time of giving notice the competitor must be a Student-Associate of the Society.

On the day on which the examination is held the competitor must be not less than 20 or more than 22 years of age.

No person to whom a Manchester Pharmaceutical Scholarship has been awarded is permitted to compete for a Bell Scholarship.

The examination for these scholarships takes place on the second Tuesday in July, at the same centres as for the First Examination. It will be wholly in writing, and will be conducted under the same conditions as the "First" Examination, and such safeguards as the Council may from time to time deem expedient. The written papers must be distinguished by a motto, and not by the name of the candidate.

The examination will be conducted by two or more persons appointed by the Council, and the award made (subject to the approval of the Council) by a Committee consisting of the President, the Vice-Presidents, and the said examiners.

MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIP.

One Scholarship is offered annually, and will be presented at the commencement of the Session of the Pharmaceutical Society's School in October. The Scholar shall for that session be a pupil in the Society's School, or in case he may elect, he shall be a pupil in any Provincial School of Pharmacy approved by the Council of the Society.

The Scholarship is of the value of about £26 (the income arising from a sum of £750), which is to be expended for instruction in the Society's School, or in the Provincial School selected by the Scholar and approved by the Council of the Society.

* A scholar is supposed to be commencing his studies, or at least to have made only that progress which may be reasonably looked for during an apprenticeship. The object of the examination is to ascertain that the candidate has such an amount of ability, and affords evidence of having made such use of it in the acquirement of elementary knowledge, as will justify the expectation of his proving a successful student, who may do credit to the appointment, and become a useful and accomplished member of the pharmaceutical body.

Subjects of Examination:

Latin:—Virgil: *Æneid*, first three books, or Cæsar, *De Bello Gallico*, first three books of Commentaries;* Latin prescriptions; translation of Latin into English and English into Latin; translations from any Latin pharmacopœia, and parsing. *French or German. English:*—Composition and Parsing. *Arithmetic:*—The first four simple and compound rules, fractions and decimals; the British and metrical systems of weights and measures. An elementary knowledge of *Chemistry, Pharmacy, and Botany.*

Conditions of the Competition.—Each competitor must give notice to the Secretary on or before June 1.

The notice must be accompanied by

(*a*) A Registrar's Certificate of Birth.

(*b*) Testimonials from present or previous employers or masters as to capability, industry, and general conduct.

(*c*) A declaration that the competitor has passed not less, or has been engaged not less than three years in the pharmacy of a Registered Pharmaceutical Chemist, or Chemist and Druggist, in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. (The form on which this declaration is to be made can only be obtained from the Secretary.)

At the time of giving notice the competitor must be a Student-Associate of the Society.

On the day on which the examination is held the competitor must be not less than 19 or more than 21 years of age. The Examinations are held at the same time and centres as for the Jacob Bell Scholarships, and the award made in the same manner and by the same persons as in the case of those Scholarships.

No person to whom a Bell Scholarship has been awarded is permitted to compete for the Manchester Pharmaceutical Association Scholarship.

HERBARIUM PRIZE.

A Silver Council Medal is annually offered for the best Herbarium, collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man, between the first day of January in one year and the first day of July in the year following, and should there be more than one collection possessing such an amount of merit as to entitle the collector to reward, a second prize consisting of a Bronze Medal, and also Certificates of Honour, will be given at the discretion of the Council. In the event of none of the collections possessing sufficient merit to justify the Council in awarding Medals or Certificates, none will be given.

Competitors must be Student-Associates of the Society, and under twenty-one years of age.

The collections must consist of Phanerogamous Plants and Ferns, arranged according to the Natural System adopted in some work on British Botany (such as that of Babington or Hooker), and be accompanied by lists, arranged according to the same method.

No collection may contain more than 150 specimens, which must be carefully selected and mounted so as to display the characteristic features of the more prominent and *typical* genera of the chief British Natural Orders. The name of each plant, its habitat, and the date of collection, must be stated on the paper on which it is mounted.

Each collection must be accompanied by a note, containing a declaration signed by the collector, and certified by his employer, or a Pharmaceutical Chemist to whom the collector is known, to the following effect:—The specimens which accompany this note were collected by myself, between the 1st day of January, 19—, and the 1st day of July, 19—, and were named and arranged without any other assistance than that derived from books.

The merits of the collections will be estimated not so much by the number of plants as by the correctness with which they are named, and by their being typical specimens. The manner in which they are preserved and mounted will also be taken into account.

The collections must be forwarded to the Secretary of the Society, 17, Bloomsbury Square, so that they may be received by him not later than the first day of July, indorsed "Herbarium for Competition for the Prize." After the Prize Distribution in October, they will be retained one month, under the care of the Curator of the Museums, and then returned to the collectors, if required.

* Passages from both authors are given, but a candidate is only required to translate from one author.

SCHOOLS OF PHARMACY.

LONDON SCHOOLS.

School of Pharmacy, 17, Bloomsbury Square, London, W.C.—STAFF: *Botany.*—Professor J. Reynolds Green, Sc.D., F.R.S., F.L.S. *Chemistry.*—Professor J. Norman Collie, Ph.D., F.R.S., F.I.C. *Materia Medica and Pharmacy.*—Professor Henry G. Greenish, F.I.C., F.L.S. Each professor is assisted by demonstrators. Applications for admission should be addressed to the Secretary of the Pharmaceutical Society at the above address.

BOTANY.—The Elementary Course will extend from October 5, 1899, to the end of June, 1900, the lectures being delivered on Thursdays and Fridays at 12 o'clock. The laboratory work will be held on Friday mornings, commencing at half-past 9, and will be conducted by the demonstrator under the supervision of the professor. The Advanced Course will extend from October, 1899, to the end of March, 1900. From October to December lectures will be delivered on Thursdays and Fridays at 2 o'clock, and from January to March on Thursdays only, at the same hour. The laboratory work will be held on Thursday mornings from half-past 9 till 1, and will be conducted by the demonstrator under the direction of the professor. The gardens of the Royal Botanic Society, Regent's Park, will be open for purposes of study to all students of the School. FEES: Elementary course, £5 5s.; advanced course, £3 3s.

CHEMISTRY AND PHYSICS.—The lectures on elementary chemistry will be delivered by the professor on Wednesday and Saturday, commencing on October 4, and those on physics by the assistant lecturer on Thursday mornings at half-past 9 o'clock. The lectures on advanced chemistry will be on Monday and Tuesday at 12 o'clock, commencing on October 9, and those on physics by the assistant lecturer on Wednesday at 2.30 and Friday at 9.30. The Elementary Course terminates at the end of June. The Advanced Course, which is more particularly intended for advance students, terminates at the end of March, but students who have passed the Major examination at the end of this course are entitled to apply for admission to the Research Laboratory without payment of any further fee. Other students who have completed the Advance Course and are desirous of taking a supplementary course in practical chemistry may be admitted for the remainder of that session on payment of a special fee of three guineas. FEES: Elementary course, £5 5s.; advance course, £3 3s.

PRACTICAL CHEMISTRY.—The chemical laboratories are open from 7 a.m. until 5 p.m. daily. On Saturdays they are closed at 2 o'clock. These laboratories are fitted up with every convenience for the study of the principles of chemistry by personal experiment. They are specially designed for the students of pharmacy, but are equally well adapted for the acquirement of a knowledge of chemistry in its applications to medicine, manufacturers, or analysis. A complete elementary course of instruction occupies about nine months, students working not less than three hours daily; a complete advanced course, including the higher branches of quantitative analysis, occupies about six months. FEES: Elementary course (three hours daily), £12 12s.; advanced course (three hours daily), £9 9s.

THE RESEARCH LABORATORY.—Students who have passed the Major examination, and others desirous of obtaining information concerning the application of chemistry to the higher branches of pharmacy, or of undertaking scientific inquiries, are eligible for admission. In this laboratory advanced instruction is given, without fee, in chemistry in its relations to pharmacy and in the methods of chemical investigation, under the direction of the professor and his assistants. Applications for admission should be made, in the first instance, to Professor Collie, who will submit the names to the Research Committee for approval.

MATERIA MEDICA.—The Elementary Course of lectures in this subject will be delivered on Tuesdays at half-past 9 o'clock, commencing on October 3, 1899, and extending to the end of June, 1900. Each lecture will be followed by practical work in the histological laboratory, which will be conducted by the demonstrator under the supervision of the professor. The Advanced Course of lectures will be delivered on Wednesdays at 12 o'clock, commencing on October 4, 1899, and terminating at the end of March, 1900. The lectures will be preceded by practical laboratory work. FEES, £3 3s. for each course.

PHARMACY.—The lectures on this subject will be delivered on Mondays and Tuesdays at half-past 2 p.m., commencing on October 3, 1899, and extending to the end of June, 1900. Each lecture will be followed by practical work in the laboratories. The subject matter will be divided into pharmacy and dispensing. During the course of instruction in pharmacy and dispensing, modern appliances for the pharmaceutical laboratory and the dispensing counter will be described, and, if possible, practically used, special attention being directed to such apparatus as the retail pharmacist may advantageously employ in the daily routine of his calling.—FEE: £6 6s.

PRIZES.—At the end of June, bronze medals and certificates of honour are offered for competition by students who have attended the elementary course, and at the end of March silver medals and certificates of honour are open for competition by students who have attended the advanced course. The silver medallists are presented by Mr. Thomas Hanbury with a copy of 'Pharmacographia,' and of 'Science Papers,' in memory of his brother, the late Daniel Hanbury, F.R.S. For particulars of scholarships see p. 264.

Brixton School of Chemistry and Pharmacy, 12, Knowle Road, Brixton, London.—PRINCIPAL, Dr. A. B. Griffiths, F.R.S. (Edin.), F.C.S. At this school Day and Evening Classes are held for the Minor and Major examinations. Tuition is afforded in chemistry, botany, materia medica, pharmacy, physics, prescription reading, and biology for medical students. A medal is awarded at the end of each full course, to the best Minor and Major student respectively. Students may join at any time, and full information as to fees, etc., may be obtained by writing to Dr. Griffiths, at the above address.

City School of Chemistry and Pharmacy, 27, Chancery Lane, London, E.C.—STAFF: Mr. F. A. Hocking, B.Sc., Ph C.; Mr. Dallas, M.A. (Honours); Mr. Lee, B.A., B.Sc. (Lond. with honours); Mr. M. J. Cole, etc. Day Classes are held in all subjects for the Minor Examination beginning in January, April, June and October respectively. FEE for the six months' course, £12 12s. Evening Classes for the Minor are also held. Six months' FEE, £7 7s. The next term commences September 4, but students can join during September and October. Full details will be supplied by the Principal or Secretary.

Imperial College of Chemistry, 49 and 51, Imperial Buildings, Ludgate Circus, E.C.—PRINCIPAL, Mr. Frederick Davis. Classes (day, 10 to 5; evening, 5.30 to 8) are held in chemistry, biology, botany, materia medica, microscopy, pharmacy, physiology, prescriptions, sanitary science, and hygiene. FEES, Minor £10 10s. Especial private tuition may be arranged for any desired subject. Major course, £6 6s. The analysis of food and drugs is now taught at this College, and an especial course of instruction has been organised for Fellows and Associates of the Institute of Chemistry to meet the requirements of the Local Government Board in Therapeutics, Pharmacology and Microscopy, as recommended by the Council of the Institute.

The London College of Chemistry, Pharmacy, and Botany, 323, Clapham Road, S.W. Staff, Mr. Henry Wootton, B.Sc. Lond. (Principal); Mr. William Arthur Knight, Ph.C.; Mr. C. E. Franklin Vallet, Ph.C.; Mr. J. Griffith Edwards, M.P.S. This college has been established for the purpose of providing thorough and practical instruction in all branches of science, especially for students preparing for pharmaceutical, medical, and university examinations. The next complete course of lectures, classes, and practical work for Minor and Major students begins on October 11. Lectures will be delivered daily, at 10 a.m. and 3 p.m., on chemistry, physics, botany, materia medica, and pharmacy. Practical work in the chemical, pharmaceutical, and physical laboratories daily, 11 a.m. to 2 p.m. (except Saturday). Tutorial Classes daily at 4 p.m. (except Saturday). The Special Tutorial Classes in the various subjects are held daily (in addition to the regular lectures and practical work). Evening Classes are also held for Minor and Major students. Particulars as too fees, etc., on application to the Secretary.

London College of Pharmacy and Chemistry for Ladies, 5 & 7, Westbourne Park Road, Porchester Square, W.—Courses of instruction are given at this school for the Minor and Major examinations, the fees being £10 10s. for the Minor, and £8 8s. for the Major. Dispensing or separate subjects £2 2s. Students who cannot attend may correspond through the post. A special feature is an employment agency for lady dispensers. Particulars may be obtained from the Secretary.

Metropolitan College of Pharmacy, 162, Kennington Park Road, London, S.E.—PRINCIPAL, Mr. Watson Will. Demonstrators: Messrs. G. T. Branch, H. Lucas, and F. Filmer De Morgan. Secretary, Mr. W. S. Carver. There are three sessions, winter, from September 1 to December 31; spring, from January 1 to April 10; summer, April 12 to July 24. FEES: Minor course, £10 10s.; Major course, £8 8s.; Major evening course, from September 1 to following July, £12 12s. Minor evening course, £3 3s. Extra evenings may be taken for practical work.

School for Lady Pharmaceutical Students, 33, Store Street, Bedford Square, W.C.—This school has been established by Miss L. de Lassasie, M.P.S., for the coaching of lady pharmaceutical students. There is a fully equipped laboratory and a dispensary fitted with every appliance necessary for a complete course of studies. The new term commenced on September 4, but arrangements can be made by which single students may commence their studies at any time. For full particulars application should be made to Miss de Lassasie, at the address given above.

South London School of Pharmacy, Limited, 325 and 409, Kennington Road, London, S.E.—STAFF: Dr. Muter, F.R.S. (Edin.), F.I.C., etc.; Mr. D. Kingan, M.P.S., ; Mr. W. F. Mawer, F.C.S., M.P.S.; Mr. F. Armstrong; Mr. J. Thomas, B.Sc. (Lond.), First Class Honours in Chem. and Physics; and Mr. A. H. M. Muter, A.I.C., F.C.S. The school premises include a chemical laboratory; a very complete museum of drugs, chemicals, and plants, and a laboratory for the manufacture of pharmaceutical preparations. There is also a fully-furnished dispensary, and rooms specially furnished with microscopes and all appliances for practical biology; and also with full sets of electrical, optical, and thermal instruments. The lecture room is in a separate building from the laboratories, so as to be free from fumes. The session lasts from the beginning of October in each year until the middle of July in the following year. A fresh course of lectures (commencing at the foundation of each subject) is begun in October, January, and April. FEES:—Minor course, £5 5s. Major course, £3 3s. No ordinary student can attend the theoretical classes without also taking the practical work, the fees in the practical department for both Minor and Major divisions being £3 3s. per month. Compounding fees for every necessary subject either for Minor or Major (theoretical and practical): £12 12s. for the first term (about 3½ months), £8 8s. for a second, and £7 7s. for a third term. Students having once paid three terms' fees become perpetual students and can remain in the schools as long as they please on payment of a nominal fee of £2 2s. per month to cover expenses of practical work.

The Students' Laboratory, 40, Lamb's Conduit Street, W.C.—TEACHERS: Mr. T. A. Ellwood, F.I.C., F.C.S.; Mr. C. E. Sage, F.C.S., M.P.S. In connection with this laboratory classes are held to prepare students for the examinations of the Pharmaceutical Society, the system employed being devised to ensure individual teaching and personal attention to each student in both practical and theoretical work. The laboratory is open every evening except Saturdays, from 6.30 to 9.30. FEES for three months: One night weekly, £1 11s. 6d.; two nights weekly, £2 17s. 6d.; three nights weekly, £4 4s.; four nights weekly, £5 5s.; five nights weekly, £6 6s. During the winter months a class is held for teaching more advanced practical work, the analysis of foods, drugs, water, and commercial products.

Westminster College of Chemistry and Pharmacy, Trinity Square, Borough, London, S.E.—PRINCIPAL, Mr. G. S. V. Wills, F.L.S., Ph.C.; Secretary, Mr. E. Walden. Day Classes are are held in chemistry and physics, materia medica, botany, pharmacy, and dispensing. The college is open from 9 to 5 daily, and the time not devoted to lectures and tutorial classes is occupied in practical work in the various subjects. FEES: Minor complete course, £10 10s.; two courses, £15 15s.; until qualified, £15 15s. if the ticket be purchased before December 31, 1899; Major course, three months, £6 6s.; until qualified, £10 10s.; Evening Classes, for the Minor and Major examinations, and practical work are held every Tuesday, Wednesday, and Thursday from 7 till 9. FEE, three months, £1 1s.

PROVINCIAL SCHOOLS.

BARROW-IN-FURNESS.

Barrow-in-Furness Higher Grade School. — At the Barrow Higher Grade School technical classes are held on Monday, Tuesday, Thursday, and Friday evenings, commencing September 11, in theoretical and practical chemistry, physiology, and hygiene. Further particulars may be obtained from the Secretary, Mr. C. F. Preston, town clerk.

BIRMINGHAM.

Birmingham Municipal Technical School, Suffolk Street, Birmingham.—Day Classes are held in theoretical and practical chemistry for pharmaceutical students. Teachers, Mr. C. J. Woodward, B.Sc., and Mr. A. W. T. Hyde. Fee, 5s. per session. Evening Classes are held in botany. Teacher, Mr. J. W. Oliver. Fee, 3s. 6d. per session; and also in physics. Teachers, Dr. Sumpner, and Mr. P. C. Coultas, A.R.C.Sc., etc. Fee, 5s. per session.

Central School of Pharmacy, 90, New Street, Birmingham.—Mr. F. Stokes Dewson holds classes for the pharmaceutical examinations—Major, Minor, and Preliminary. The classes are held day and evening. Practical pharmacy and dispensing receive special attention.

Mason University College, Birmingham.—Teachers: Professors Percy F. Frankland and Hillhouse, and Mr. Dencer Whittles. Day classes are held in chemistry, botany, materia medica, pharmacy, etc. Fees: Chemistry (from October to March and a weekly tutorial class) £5 5s.; organic chemistry suitable for Major students (April to June), £1 11s. 6d.; botany (spring and summer terms), £2 2s.; systematic botany (summer term), £1 1s.; materia medica and pharmacy, £1 1s.; incidental fee for practical pharmacy, £1 1s.

Temple Chambers Tutorial Classes.—Mr. F. H. Alcock holds classes at Temple Chambers, Broad Street Corner, Birmingham. Special facilities are offered to students who desire to improve themselves in practical work. The classes are tutorial and personally conducted. A time table will be forwarded to intending students on application. The fees are dependent upon time and subjects, a full time student in all subjects paying seven guineas per quarter.

BRADFORD.

Bradford Technical College.—Head of Chemistry Department and Lecturer in Chemistry, Mr. Walter M. Gardner; Assistant Lecturer and Demonstrator, Mr. W. F. Sutherst, Ph.D.; Lecturer in Botany, Biology, and Materia Medica, Mr. W. West. Day and Evening Classes are held in chemistry, etc., and a special pharmaceutical course has been arranged, extending over two (evening) sessions, adapted for students who are preparing for the Minor examination, and an inclusive fee, at a reduced rate, is charged to students who enter for the full course.

BRIGHTON.

Brighton Municipal Technical Schools.—Classes are held in connection with this school for pharmaceutical students, particulars of which may be obtained from the Secretary.

BRISTOL.

University College.—Professors: Sydney Young, D.Sc. (Lond.), F.R.S.; A. P. Chattock, M.I.E.E.; C. Lloyd Morgan, F.R.S.; S. H. Reynolds, M.A. Lecturers: Messrs. F. E. Francis, B.Sc., Ph.D.; E. Jackson, M.A., B.Sc., Ph.D.; L. N. Tyack; G. Brebner; A. B. Prowse, M.A.; and F. W. Stoddart, F.I.C. Day and Evening Classes are held at the University College in chemistry (organic and inorganic), experimental physics, and botany. There are also chemical and physical laboratories.

CAMBRIDGE.

Cambridge Pharmaceutical Association.—Classes in botany and chemistry are held at the Technical Institute, from October to May, in conjunction with the Science and Art Department of Kensington. Further information may be obtained from Mr. E. Saville Peck, 30, Trumpington Street, Cambridge.

EXETER.

Exeter School of Pharmacy.—Full instruction is given at the Exeter Technical and University Extension College in all subjects required for the Minor examination. The session begins about the first week of October, and terminates at the end of June. Evening Classes are also held. For prospectus and particulars apply to the Secretary of the College.

LANCASTER.

Lancaster Municipal Technical School. The Storey Institute.—Instruction in physics, inorganic and organic chemistry by means of lectures, fully illustrated by experiments, classes, and of practical work in the laborotory, is given in connection with this school.—Lecturer, Dr. A. Schloesser, assisted by Mr. Ayrton. Lectures on botany, fully illustrated, are also given by Mr. W. Wyatt, Ph.C. Further particulars may be obtained from the principal, Dr. Schloesser.

LEEDS.

Leeds College of Pharmacy, 19, Spring Field Place, Leeds.—Principal: Mr. F. Pilkington Sargeant, Ph.C. Full time, evening and weekly classes for Minor and Major students are conducted at this college, the two latter classes being specially adapted for assistants who wish to prepare for the Minor examination whilst retaining their situations, or apprentices desirous of obtaining a good foundation for future work. The Major classes also include an evening class working on Tuesday, Wednesday, and Thursday from 8 a.m. to 10 p.m. Fees: Three months' course, £8 8s.; six months' course, £14; August to January course, £10 10s. Evening and weekly classes, six months' course, £4 4s. Separate courses on individual subjects may be taken by arrangement.

Leeds Technical School (in connection with the Leeds Institute of Science, Art, and Literature), Cookridge Street.—Evening classes are held for students in pharmacy, in theoretical and practical chemistry, physics, and botany. Practical work in chemistry, physics, and botany is offered in addition to the lecture courses. The lecture fees are from 2s. 6d. per session, and the laboratory fees from 7s. 6d. Prospectuses of the classes with other information may be obtained from Mr. Arthur Tait, Secretary.

LIVERPOOL.

Liverpool School of Pharmacy, 6, Sandon Terrace, Upper Duke Street, Liverpool.—Principal, Mr. R. C. Cowley, Ph. C., assisted by demonstrators. Day classes are held in all the subjects of the Minor and Major examinations. Fees: Minor course, £10 10s.; September to April or January to July, £16 16s.; Major course, £9 9s. Once a week classes are held, one evening for juniors and one for advanced students. The fee for this class for a course is £3, or for the whole session £7 10s. The course of study in this school is controlled by the Council of the Liverpool Chemists' Association.

University College, Liverpool. School of Pharmacy—A complete course of instruction for the examinations of the Pharmaceutical Society may now be taken in University College. The Professors of chemistry, physics, botany, and materia medica afford instruction in their particular subjects, and a lecturer in pharmacy has been appointed. There are very complete museums of chemistry and botany, and a materia medica museum. The Session comprises a first course suited to the requirements of students preparing for the Minor examination, commencing on October 2, 1899, and a second course, embracing the higher branches of study required for candidates for the Major qualification, beginning in May, 1900. A scholarship of the annual value of about £26 is tenable in this school. Applications for admission and all inquiries must be addressed to the Registrar, University College, Liverpool.

MANCHESTER.

Manchester College of Chemistry and Pharmacy, 225a and 227a, Oxford Street, Manchester. Principal: Mr. Charles Turner, Ph.C., F.C.S. The year's work for the Minor and Major examinations is divided into the following Courses:—January to July, fee £14 14s.; second Monday in August to January, fee £11 11s.; October to April, fee £14 14s. In addition to these Main Courses there are Short Courses for Advanced Students for all examinations, also a Special Evening Class for Lady Students. All Students have the privilege of free admittance to the Royal Botanical Gardens at Old Trafford.

Northern College of Pharmacy, 100, Burlington Street, Manchester. TEACHERS: Messrs. George Clayton and Frederick Lawson. The fees for the Full Time and Afternoon Classes are: Minor course, (day), January to April, £9 9s.; April to July, £9 9s.; September to January, £10 10s.; (afternoon), January to July, £4 4s.; September to December, £2 10s. Major course, January to April, £5 5s.; April to July, £5 5s.; September to January, £6 6s. The fees for the Evening Classes are: Minor course, January to July, £4 4s.; September to December, £2 10s. Major course, January to July, £3 12s. 6d.; September to January, £2 5s.

Owen's College, Manchester.—PRINCIPAL, A. Hopkinson, LL.D. Pharmaceutical department. TEACHERS, Professor A. Schuster, H. B. Dixon, W. H. Perkin, D. J. Leech, and F. E. Weiss, Mr. W. Kirkby, and Mr. J. Grier. Day Classes are held for Minor and Major students. The first year (October, 1899, to July, 1900) is devoted to the subjects for the Minor examination, and the second year (October, 1899, to March, 1900) to courses suitable for Major students. FEES: A composition fee of £17 17s. admits to the College courses for the first year, and of £15 15s. for the second year. Students may pay for the classes separately. An entrance exhibition of £10 is awarded on the results of a competitive examination in elementary botany and chemistry. It is opened to students entering for the full pharmaceutical course. Intending candidates must give notice to the Registrar on or before September 20. A prize of £5 will be offered at the end of the first year, for competition among students proceeding to the course for the Major examination. The Manchester Pharmaceutical Scholarship, value about £26, is also tenable at this College.

MIDDLESBROUGH.

Middlesbrough High School.—Evening Classes are held at this school for students preparing for the Minor and the first Professional examination of the Royal College of Surgeons. Classes in materia medica and pharmacy are conducted by Mr. E. C. Bennison, Ph.C., M.P.S. FEES for the session beginning September 11: Materia medica, £1; pharmacy, theoretical and practical, £1 10s. Classes for students of chemistry and botany are conducted by Mr. J. A. Jones, B.Sc., F.C.S., and Miss C. M. Young. Application to join the Classes must be made to Mr. C. Hood, at the School, from 7 to 9 p.m., September 11 to 15.

NEWCASTLE-ON-TYNE.

North of England School of Chemistry and Pharmacy, 55, Northumberland Street, Newcastle-on-Tyne.—PRINCIPAL, Mr. Frank R. Dudderidge, M.P.S. Day and Evening Classes are held in all subjects of the Minor and Major examinations. FEES: Full time classes, £8 8s.; evening classes, £3 3s.; Wednesday afternoon class, £3 3s. The fees are in each case per term of three months. A special weekly class for junior assistants and apprentices is held by Mr. Dudderidge. The fees for this class are £1 1s. for each subject, or £3 3s. for all. Classes for Medical and Veterinary Students: Chemistry, botany, materia medica, pharmacy, etc., are also held. PRIZES (competitive examination at the end of each winter course), offered, of books, to apprentice students.

NOTTINGHAM.

University College, Nottingham.—By arrangement with the Nottingham and Notts Chemists' Association, a course of twenty experimentally illustrated lectures on pharmaceutical chemistry, extending over two terms and embracing the requirements of the Minor examination, will be delivered on Monday evenings at eight o'clock, by Dr. F. S. Kipping, F.R.S., assisted by Mr. R. M. Cavan, B.Sc., F.S.C. Each student will be entitled to three hours per week laboratory practice (or more by arrangement). FEE, 15s. per term. A class in botany will be held on Tuesday at 8 p.m., in the first and second term, by Professor Carr, M.A., assisted by Mr. E. A. Smith, B.Sc. FEE for the course 15s. Practical dispensing to be arranged for the second term. A course of lectures on organic chemistry will be arranged for the third term. Further particulars can be obtained from Mr. A. Eberlin, Hon. Sec., 2, Chapel Bar, Nottingham. A prize fund to the value of £5 per annum, the gift of Messrs. Newball and Mason, Nottingham, is available, and will be distributed by the Council on the result of the session's work. All students joining these classes must be associates of the N.N.C.A.

PLYMOUTH.

Plymouth, Devonport, Stonehouse, and District Chemists' Association, 7, Whimple Street, Plymouth. Summer Classes in botany are conducted by Mr. Hooper from May to September, inclusive, with fortnightly field excursions. During the winter months materia medica classes are held weekly by the same teacher. Lectures and demonstrations are given every week during the winter by Mr. Morgan on pharmacy and pharmaceutical chemistry. Prizes are distributed annually to the students in both sections. There is a well-fitted class-room, fairly supplied with apparatus, including microscope and lanterns, and a good collection of specimens of drugs, chemicals, and microscopical mountings, also a small but useful library of text books and works of reference. The attendance of the pupils is good, and the results very satisfactory. At last year's Herbarium Competition one of the students obtained the Silver Medal, and another one the Certicate of Honour from the Pharmaceutical Society. Occasional lectures and papers are given by members and friends of the Association.

READING.

Reading College.—PRINCIPAL, Mr. H. J. Mackinder, M.A.; *Chemistry*, Mr. C. M. Luxmoore, D.Sc., F.I.C., Mr. A. M. Ryley; *Physics*, Mr. G. J. Burch, M.A.; *Botany*, Mr. Percy Groom, M.A., F.L.S., Mr. B. J. Austin, F.L.S.; *Latin*, Mr. W. G. de Burgh, M.A. Day and Evening Classes are held in mathematics, physics, chemistry, botany, zoology, Latin, French, etc. The chemical laboratory, which has accommodation for forty-five students, is open daily and on the first four evenings of the week, and special attention is paid to the needs of pharmaceutical students. Dr. Luxmoore will give a special course of lectures on pharmaceutical chemistry during the session 1899-1900, at an hour to be arranged. For full particulars, see calendar of Reading College, to be obtained from the Registrar.

SHEFFIELD.

Sheffield College of Pharmacy, 118, Princess Buildings, The Moor, Sheffield.—PRINCIPAL, Mr. J. W. J. Turner, Day Classes are held for Minor and Major students. FEES, Minor (full course), £8 8s.; (short course), £4 10s,; Major (full course). £7; (short course), £4. Evening Classes are held in botany, chemistry, and practical chemistry. The fee per term is £1 10s. inclusive. Winter session commences September 15, for evening students, and for ordinary day classes October 3.

Sheffield School of Pharmacy.—TEACHERS: *Chemistry.*—Professor, W. Carleton Williams, B.Sc., F.I.C.; Demonstrator, George Young, Ph.D., F.R.S.E. *Botany.*—Professor, A. Denny, F.L.S.; Demonstrator, B. H. Bentley, M.A., F.L.S. *Materia medica.*—Mr. J. Austen. HON. SCHOOL SECRETARY, Samuel T. Rhoden, 33, Church Street, Sheffield. Under the auspices of the Sheffield Pharmaceutical and Chemical Association a three years course of instruction for Minor students will be given at the University College, Sheffield, on Wednesday, Thursday, and Friday evenings during the winter session. The course beginning on October 11 and ending about the last week in March. The first year the students attend a course of 20 lectures on elementary physics and inorganic chemistry (illustrated by experiments), and also work in the chemical laboratory, at practical chemistry, on Wednesday evenings, 6 to 9. FEE, £1 10s. The second year's course consists of 20 lectures on inorganic and organic chemistry. Practical chemistry as above. FEE, £1 10s. Botany (first course), 20 lectures, each followed by a practical class, on Thursday evenings; lecture at 6.30, laboratory, 7.30 to 9.30. FEE £1 10s. The third year's course consists of practical chemistry on Wednesday evenings, 6 to 9. FEE, £1 10s. Botany (second course), 20 lectures, each followed by a practical class. Time and fee as in the second year. A class will also be held for students in materia medica, who have already passed the first and second years, provided a sufficient number present themselves. FEE, 10s. 6d.

NOTE.—The first and second years' lectures on chemistry are given in alternate years. The second course will be given in the session 1899-1900.

SOUTHAMPTON.

The Hartley College.—LECTURERS: *Physics*,, Dr. Wallace Stewart (Principal); *Chemistry*, Dr. D. R. Boyd, B.Sc.; *Botany*, Mr. E. T. Mellor, B.Sc. (Lond.) The courses for pharmaceutical students at this college in physics, chemistry and botany are adapted for both the Minor and Major examinations. The FEE for the course in each subject is £3 3s. per session, which commences on September 28 and closes on July 14. Prospectuses may be obtained on application to Mr. D. Kiddle, Clerk.

SOUTHSEA.

The Queensborough College of Pharmacy, 179, Albert Road, Southsea.—PRINCIPAL, Mr. F. B. Elwell, Ph.C., M.P.S. Day Classes (full time), for Minor and Major examinations. FEES (inclusive of books, apparatus, and all petty extras): Three months' course, £3 8s.; every subsequent three months, £4 4s. Afternoon and Evening Classes are held for students by special arrangement. Prospectus of lectures, etc., on application.

WOLVERHAMPTON.

Free Library Science and Technical School.—Courses suitable for medical and pharmaceutical students in inorganic and organic chemistry (practical and theory), physics, and botany are held during the winter months, commencing September 11. For particulars and programme apply, Mr. J. Elliot, Secretary.

SCOTTISH SCHOOLS.

ABERDEEN.

Robert Gordon's College.—Day and Evening Classes for the Minor Course are held in connection with the local pharmaceutical association, lectures on botany, materia medica, pharmacy, chemistry, prescription-reading and the poison laws being delivered daily during the term. Special subjects can be selected by students, for which proportional charges are made.

DUNDEE.

Technical Institute.—Classes are held in chemistry (theoretical and practical) and in materia medica. TEACHERS: *Chemistry.* Dr. Lumsden, Mr. J. K. Wood, B.Sc., Mr. J. Foggie, F.C.S. Special arrangements are made for pharmaceutical students.

EDINBURGH.

Central School of Chemistry and Pharmacy, 26, Clyde Street, Edinburgh. PRINCIPAL: Mr. W. B. Cowie, Ph.C., assisted by Mr. William McEwan, and Mr. A. C. Cameron. Pharmaceutical students are prepared for the Minor and Major examinations, the courses for the day classes commencing in October, January, and April, and in September for the evening classes. FEE PER QUARTER: Minor or Major course, £8 8s. (day); £3 3s. (evening); and £1 1s. for "First" course.

Edinburgh Royal Dispensary and School of Pharmacy, West Richmond Street.—TEACHERS: Messrs. Duncan, W. G. Mackenzie, C. M. German, and G. Simpson, pharmaceutical chemists. The full-time session lasts from October to July, being divided into three terms, commencing October, January, and April. FEES: £8 8s. a term. Evening classes are also held on Mondays, Tuesdays, and Thursdays. FEES: £3 3s. a term.

GLASGOW.

Glasgow School of Pharmacy, 180, West Regent Street Glasgow.—PRINCIPAL, Mr. John Lothian, Ph.C., assisted by Messrs. Bertram Cockburn, Ph.C., Martin Meldrum, M.P.S., Henry Rodwell, M.P.S., Walter Blythe, M.A., and A. Campbell Low. For the Minor and Major examinations full courses of instruction by Day Classes commence October 2, and continue to the end of March. Short advanced classes are held from April to July and from the middle of August to the end of September in preparation for the July and October examinations. Evening Classes for the Minor examination are conducted in three stages—junior, intermediate, and senior, so that students can enter at any time, the whole of the work in each of these sections being systematically covered. Evening classes for the First examination are held twice weekly, on Tuesday and Thursday evenings. FEES: Minor or Major day classes, £8 8s. per quarter; evening classes (4 evenings per week), £3 3s. per quarter; preliminary class, 10s. 6d. The Kinninmont Gold Medal has been awarded three years in succession to students of this school.

West of Scotland College of Pharmacy, 157, St. Vincent Street, Glasgow.—PRINCIPALS, Messrs. T. S. Barrie, Ph.C., and T. Maben, Ph.C., F.C.S., assisted by demonstrators. Day Classes are held in theoretical and practical chemistry, physics, botany, theoretical and practical pharmacy and dispensing. FEES: Major and Minor, £8 8s. per term; two terms, £15 15s. Evening classes are held in which are taught all the subjects taken in the day course. FEES: Three nights a week, £3 3s.; two nights a week, £2 2s. per term. Preliminary classes are also conducted. FEE, 10s. 6d. per term. "Post-Graduate Courses" are conducted during the session on "Urine Analysis," and "The Chemistry of Photography." Students attending the college are admitted to these courses without extra fee; for others the fee is £1 1s. per course, or £1 11s. 6d. when both courses are taken. The winter session begins on October 3.

PHARMACEUTICAL QUALIFICATION IN IRELAND.

So far as the regulation of the practice of pharmacy is concerned, Ireland enjoys home rule, since Great Britain and Ireland have distinct Pharmacy Acts, and the regulations imposed by them differ to some extent. Moreover, there is no reciprocity, pharmaceutical certificates granted in either of the British Isles not being recognised in the other.

Preliminary Examination.

The Preliminary examination of the Pharmaceutical Society of Ireland is held on the first Tuesday of January, April, July, and October. The following are the compulsory subjects:—

LATIN.—To translate into English and parse sentences from a Latin author:—Cæsar's 'Commentaries,' First Book; or Virgil's 'Æneid,' First Book. To translate an easy English sentence into Latin.

ENGLISH.—English grammar, including orthography and parsing. To write on a subject selected by the Examiner, and to write from dictation.

ARITHMETIC.—The first four rules, simple proportion, vulgar fractions, and decimals. To describe the British weights and measures, and the metric system.

ALGEBRA.—As far as simple equations, inclusive.

GEOMETRY.—Including the first book of Euclid.

ELEMENTARY THEORETICAL CHEMISTRY.—Chemical Action: Illustrations and examples; simple and compound substances; atoms and molecules; chemical symbols and nomenclature; formulæ and equations; general nature of acids, bases, and salts. Combustion: Structure and properties of flame. Water: Proofs of composition; methods of purification. The Air; Its constitution; reasons for considering it a mixture and not a compound. The chief physical and chemical characters, with methods of preparation of the following elements and compounds: Hydrogen, oxygen (and ozone), nitrogen, carbon, chlorine, sulphur, nitrous oxide, nitric oxide, nitric acid, ammonia, carbon dioxide, carbon monoxide, marsh gas, olefiant gas, hydrochloric acid, sulphur dioxide, sulphurous acid, sulphuric acid, sulphuretted hydrogen.

In addition, candidates must pass in one of the following optional subjects:—

ELEMENTARY PHYSICS AND MECHANICS.—Sound, light and heat, as given in Ganot's 'Elementary Course of Natural Philosophy'; mechanics of solids and fluids, comprising the elements of statics, dynamics, and hydrostatics.

THE RUDIMENTS OF BOTANY.—Oliver's 'Lessons in Elementary Botany.' Part I.

FRENCH, GERMAN, or any other modern language.

As in the case of the British Preliminary, certificates of certain other examining bodies are accepted in lieu of this examination.

The fee for this examination is £2 2s., which should be lodged in the Bank of Ireland to the credit of the Pharmaceutical Society of Ireland, and the receipt sent with the candidate's application to the Registrar, at the Society's office, 67, Lower Mount Street, Dublin, not later than the Tuesday fortnight preceding the day of examination. The optional subject selected should be stated, and the application be accompanied by a certificate of birth. A candidate who has failed to pass is at liberty to present himself for re-examination six months later on payment of 10s. 6d.

Assistants' Certificates.

These certificates are granted on passing the Preliminary or its equivalent and a special examination in the following subjects:—

PRESCRIPTIONS.—Candidates will be required to read autograph prescriptions, translate them into English, render a correct translation of the directions for use, and detect unusual doses.

PRACTICAL DISPENSING.—To weigh, measure, and compound medicines, write the directions in suitable language, finish, and properly direct each package.

MATERIA MEDICA AND QUALITY OF SPECIMENS.—To recognise the Pharmacopœia chemicals in frequent demand, and specimens

of roots, barks, leaves, fruits, resins, and gums in ordinary use; also to estimate the quality of each specimen submitted, and its freedom from adulteration.

PHARMACY.—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, such as extracts, tinctures, and powders, and give the proportions of the more active ingredients. The candidates will also be examined in the Sale of Poisons (Ireland) Act.

Rejected candidates may present themselves again after a lapse of six months, on payment of 10s. 6d. A necessary condition in the case of all candidates is that they must have been engaged for four years in an open pharmacy kept (*a*) by a pharmaceutical chemist or an apothecary in Ireland, or (*b*) by a pharmaceutical chemist or chemist and druggist in Great Britain, or (*c*) he may have served two years in a registered druggist's or chemist and druggist's shop in Ireland, and two years subsequently in an open pharmacy.

Registered Druggists.

Registered druggists may sell poisons, but are not entitled to compound medical prescriptions. The qualification of "registered druggist" is acquired by passing an examination testing the candidate's knowledge of English orthography and composition, arithmetic, the weights and measures of the British Pharmacopœia, the appearance and properties of the various drugs and chemicals in general use, and the Irish Poisons Act. The candidate must previously have served a four years' apprenticeship with a pharmaceutical chemist, licentiate apothecary, registered chemist and druggist, or registered druggist; and be twenty-one years of age. The examination fee is £2 2s., and there is a registration fee of the same amount.

The Pharmaceutical License.

The candidate for the pharmaceutical licenses must have attained the age of twenty-one years, passed the Preliminary not less than twelve months previously, served four years, as for the assistants' certificate, and attended a course in practical chemistry of not less than three months' duration, including 100 hours' practical work at the bench, and a course in botany and materia medica, he will have fulfilled all the conditions imposed on those who seek to pass the final examination and acquire the right to term themselves "pharmaceutical chemists." This qualification is superior to the British "chemist and druggist," as it gives the holder the extra advantage of enjoying a monopoly in compounding medical prescriptions.

The following are the examination subjects:—

BOTANY.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

MATERIA MEDICA.—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the official preparations into which they enter; and to detect adulterations.

GENERAL AND PHARMACEUTICAL CHEMISTRY.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia; to describe the processes by which they are obtained; qualitative analysis (including the tests of the Pharmacopœia) and volumetric analysis; and to submit to a practical examination in those subjects.

PRACTICAL PHARMACY.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly; to explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them; and to have an intimate knowledge of the Sale of Poisons (Ireland) Act, 33 and 34 Vict., chap. 26, 1870.

A clear fortnight's notice must be given to the Registrar, the fee of £5 5s. being also paid, and proofs submitted that the candidate has fulfilled the different requirements of the Society. He will then be summoned in due course to attend the examinations, which are held at Dublin on the second Wednesday and following days of January, April, July, and October. If unsuccessful, the candidate can try again after the lapse of six months on payment of £1 11s. 6d.

Further particulars respecting the Irish examinations, etc., are published in the Society's Calendar (1s. 8½d., post free), which can be obtained from the Registrar, 67, Lower Mount Street, Dublin.

IRISH SCHOOLS.

BELFAST.

Belfast School of Applied Chemistry, Dublin Road, Belfast.—STAFF: *Chemistry*, Mr. S. Templeton, Assoc. R.C.Sc., F.I.C., Principal; *Botany*, Mr. W. A. Rice, B.A.; *materia medica* and *Pharmacy*, Mr. T. Harper, L.P.S.I., M.P.S. (Great Britain); preliminary subjects, Mr. J. D. Wylie, B.A. Full course of instruction for the Minor and Irish License examinations begin in the last week of September and the first week of January. Day and Evening Classes. FEES: Chemistry (lectures and tutorial work), £2 2s.; practical chemistry (100 hours), £4 4s.; botany and materia medica, £2 2s.; pharmacy, £2 2s.; compounded fee for all subjects, £8 8s. Evening students, £2 2s. per quarter for two evenings weekly. Classes are also held for the Preliminary and Druggists' License.

DUBLIN.

School of Botany and Materia medica, 67, Lower Mount Street, Dublin.—DIRECTOR, Professor Ninian Falkiner, M.B., assisted by Mr. J. N. Laird and Mr. Henry O'Connor, M.P.S.I. The lectures are given twice a week in the evenings, but besides there are demonstrations in Trinity College Botanic Gardens. These classes are so highly prized that, although only four years in operation, over one hundred and seventy students have taken advantage of them. FEE: £2 2s.

School of Chemistry and Practical Pharmacy, 67, Lower Mount Street, Dublin.—DIRECTOR, Professor Tichborne, LL.D., F.I.C., assisted by Mr. P. Kelly, M.P.S.I. The Irish Pharmaceutical Council established this school about ten years ago in order to obviate the serious inconvenience caused to pharmaceutical students through the discontinuance of evening lectures by the medical schools. FEE: £6 6s.

MEDICAL QUALIFICATION.

An intending candidate for the medical profession has the choice of a variety of universities and colleges in England, Ireland, and Scotland, but in every case he will find that he has to conform to the regulations of the General Medical Council. The curriculum of the hospital or school where he is taught must agree with the Council's regulations, and when at length he has obtained his qualification, be it degree or diploma, he must have it duly registered by the General Medical Council before he can practise his profession.

Five years is the minimum period of study for a medical student, after registration. This applies equally to all schools in Great Britain, whether the student seeks a university degree or a college diploma. The universities and colleges only vary from each other in the severity of the examination tests which they impose.

For those who aspire to an authoritative position in the profession, or intend seeking the higher official positions, a University degree is necessary, but for the general practitioner, the less ornamental but equally useful double diploma of the Conjoint Boards of England, Scotland, or Ireland will be found to answer every purpose. The diploma of the Apothecaries' Society of London or of the Apothecaries' Hall, Dublin, also qualifies for practice.

The cost of a University degree is a serious matter to many, as well as the extra year which is so often required to complete the studies. The possible cost of living, fees, etc., at the English universities may be roughly put down at about £1,000, while that of the colleges in London, with attendance at the best hospitals is not likely to exceed £650, and in provincial towns it is considerably less. In Scotland and Ireland the fees and expenses of living are much lower both for universities and colleges; in fact, the M.D. degree of Ireland or of Scotland need not cost more than the diploma of the Conjoint Board of England. There is always the possibility in any case of rejections at the intermediate examinations, and that may prolong the time of study, or coaching may be necessary, and so add to the expense. Every school offers scholarships to brilliant students; obtaining those greatly lessens the expenses.

When an intending student has decided upon the degree or diploma that he intends to study for he should write to the

warden or dean of the school most suitable for his purpose, and he will furnish him with every information as to fees, scholarships, etc., etc.

Before a student can commence his professional studies either in medicine or dental surgery, he must pass one of the recognised preliminary examinations of Arts or that specified by the General Medical Council, particulars of which will be found further on, or they may be obtained from the Registrar, 299, Oxford Street, W.; or from the Registrars of the Branch Council in Scotland, 48, George Street, Edinburgh; or, Ireland, 35, Dawsou Street, Dubliu. In the case of a student seeking a University degree, he must pass the particular preliminary examination laid down by that University for the necessary examinations of Oxford or Cambridge will not admit the student to the examinations for the degrec of the University of London, for which the only recognised preliminary is the Matriculation Examination of that University. Full particulars of which are given elsewhere. No time spent in study or attending lectures will be allowed to count previous to registration by the General Medical Council as part of the five years required by the regulations of the Council to be spent in medical study, but students may prepare for the different intermediate examinations at different periods if they attend the necessary lectures, etc.

The following are the regulations of the Medical Council relating to the Preliminary Examination:—

Preliminary Examination.—Subject to such exceptions as the Council may from time to time allow, every medical and dental student shall, at the commencement of his studentship, be registered in the manuer and under the conditions prescribed by the standing Resolutions of the Council.

No person shall be allowed to be registered as a medical or dental student unless he shall have previously passed (at one or more examinations) a preliminary examination in the following subjects of general education:—

(*a*) English language, including Grammar and Composition.

*** Marks not exceeding 5 per cent. of the total marks obtainable in this section of the examination may be assigned to candidates who show a competent knowledge of Shorthand.

(*b*) Latin, including Grammar, Translation from Specified Authors, aud translatious of easy passages not taken from such authors.

(*c*) Mathematics, comprising (*a*) Arithmetic; (*b*) Algebra, as far as Simple Equations, inclusive; (*c*) Geometry, the subject matter of Euelid, Books I., II., and III., with easy deductions.

(*d*) One of the following optional subjects:—(*a*) Greek; (*β*) French; (*γ*) German; (*δ*) Italian; (*ε*) any other modern language.

*** The Council will not in future (except in final examinations for a degrec in arts or science of the Universities of the United Kingdom) accept any certificate of having passed a preliminary examination in General Education unless the whole subjects included in the preliminary examination required by the Council for registration of students of medicine or dentistry have been passed in at the same time.

The following educational bodies' (other than Universities) certificates are recognised by the Medical Council.

College of Preceptors.—Examination for a first class certificate or a second class certificate of First or Second Division (to include all the required subjects at one time). Preliminary examination for medical students (certificate to include all the required subjects at at one time).

Scotch Education Department.—Examination for Lower Grade Leaving Certificate (to include all the required subjects at one time). Examination for Higher Grade or Honours Leaving Certificate to include the required subjects.

Educational Institute of Scotland.—Preliminary Medical Examination (certificate to include all the required subjects at one time).

Intermediate Education Board of Ireland.—Junior or Middle Grade Examination (certificate to include all the required subjects at one time).

Senior Grade Examination (certificate to include the required subjects).

A list of the pass certificates of the various Indian, colonial, and foreign Universities and colleges that are accepted by the General Medical Council can be obtained on application to the Registrar, but no certificate from these bodies will be accepted unless it shows that the examination has been conducted by or under the authority of the body granting it, and includes all the subjects required by the General Medical Council, and states that all subjects of examination have been passed in at one time. Copies of the form of the required certificate arc supplied by the Registrar of the Council for the purpose.

In the case of natives of India or other Oriental countries whose vernacular is other than English, an examination in a classic Oriental language may be accepted instead of an examination in Latin.

It is anticipated that the standard of the Preliminary Examinatiou will be raised in 1900, so iutending students, either for medicine or dental surgery, will do well to pass the Preliminary Examination before the change is made.

The period of professional study, from the date of registration to the final examination for any qualification which entitles the holder to be registered under the Medical Acts, must be for a period of *bonâ-fide* study of not less than five years, and the course of professional study and examination must include the following subjects:—

(i.) Physics, including the elementary mechanics of solids and fluids, and the rudiments of heat, light, and electricity; (ii.) Chemistry, including the principles of the science, and the details which bear on the study of medicine; (iii.) Elementary Biology; (iv.) Anatomy; (v.) Physiology; (vi.) Materia Medica and Pharmacy; (vii.) Pathology; (viii.) Therapeutics; (ix.) Medicine, including medical anatomy and clinical medicine; (x.) Surgery, including surgical anatomy and clinical surgery; (xi.) Midwifery, including diseases peculiar to women and to newborn children; (xii.) Theory and Practice of Vaccination; (xiii.) Forensic Medicine; (xiv.) Hygiene; (xv.) Mental Disease.

The first four of the five years must be passed at a school or schools of medicine recognised by any of the licensing bodies, but (*a*) the first year may be passed at a University or teaching institution recognised by any of the licensing bodies where the subjects of Physics, Chemistry, and, Biology are taught; and (*b*) a graduate in Arts or Science of any University recognised by the General Medical Council who has spent a year in the study of physics, chemistry, and biology, and has passed an examination in three subjects for the degrees in question is held to have completed the first of the five years of medical study, provided that he has registered as a medical student with the General Medical Council. Any student who, previous to registration, has attended a course or courses of study in one or all of the subjects of physics, chemistry, or biology in any University, school of medicine, or teaching institution recognised by any of the licensing bodies, may, without further attendance, be admitted to examination in these subjects, provided always that such course or courses shall not be held to constitute any part of the five years' course of professional study.

The General Medical Council recommends the licensing bodies to require that the fifth year should be devoted to clinical work at one or more public hospital or dispensaries, British or foreign, recognised by any of the medical authorities mentioned in Schedule A of the Medical Act (1858), provided that of this year six months may be passed as a pupil to a registered practitioner possessing such opportunities of imparting medical knowledge as shall be satisfactory to the medical authorities.

DENTAL QUALIFICATION.

To practise as a dental surgeon in the United Kingdom it is necessary to be registered by the General Medical Council. Registration can only be secured (1) By those who were engaged in practice before July 22, 1878, or (2) By obtaining the Diploma of a Licentiate of Dental Surgery (L.D.S.) from one of the four examining bodies in Great Britain, viz., (1) The Royal College of Surgeons, England; (2) The Royal College of Surgeons, Edinburgh; (3) The Faculty of Physicians and Surgeons, Glasgow; (4) The Royal College of Surgeons, Ireland.

Candidates, before they can present themselves for examination, must produce (1) a certificate of registration as a student by the General Medical Council; (2) Of having received a professional education from recognised medical and dental schools; (3) Of being twenty-one years of age.

Dental students who commenced their professional education by apprenticeship to dentists eutitled to be registered, or by attendance upon professional lectures before July 22, 1878 (when dental education became compulsory), are required to produce evidence of having passed a preliminary examination.

The registration of dental students is carried on at the General Medical Council's Office, 299, Oxford Street, London, W., in the same manner as the existing registration of medical students—as previously stated, and subject to the same regulations as regards preliminary examinations—but in the case of dental students professional study may commence by pupilage with a registered dental practitioner.

Candidates for a diploma in dental surgery shall produce certificates of having been engaged during four years in professional studies, and of having received three years' instruction in mechanical dentistry from a registered practitioner.

One year's *bonâ-fide* apprenticeship with a registered dental practitioner, after being registered as a dental student, may be counted as one of the four years of professional study.

The three years of instruction in mechanical dentistry, or any part of them, may be taken by a dental student either before or after his registration as a student; but no year of such mechanical instruction shall be counted as one of the four years of professional study unless taken after registration.

The curriculum includes instruction in general surgery and medicine, dental surgery, and mechanics, and should be commenced by an apprenticeship to a registered dentist. The mechanical training must extend over three years. A student should register his name at the offices of the General Medical Council as soon as he commences his medical training, form for which can be had on application. After three years' apprenticeship the hospital career should be taken up, both at the general and dental hospitals, and students will do well at this stage to register as a medical student as well, so that if at a future time he wishes to continue his studies for a surgical and medical qualification he will be able to go on with his studies; the work done at the general hospital being much the same as for the general qualification, will count as part of the medical curriculum. The dental hospitals offer every facility for students to acquire a thorough training in the various branches of dental surgery, and the two years spent in them should be made full use of.

The fees for the two years' course in the general and dental hospitals of London may be roughly stated to average about £135, including the necessary outfit of dental instruments, etc., but in this, as in the medical profession, fees vary in different parts; those charged in London may be regarded as the maximum. Several of the schools both in England, Ireland, and Scotland charge much less. A list is given of the various recognised dental schools, and all information as to their fees, etc., can be obtained on application.

The Royal College of Surgeons of England demands three examinations, while those of Edinburgh, Glasgow, and Ireland demand two. In all other matters as to subjects of examination, etc., they differ only in minor details. All particulars as to subjects, examination fees, etc., can be obtained from the secretaries of the four examining bodies mentioned.

Many of the dental schools now give instructions in mechanical dentistry.

The following are the dental schools recognised by the examining bodies in *Great Britain*:—Dental Hospital of London and London School of Dental Surgery, Leicester Square (Morton Smale, Dean); National Dental Hospital and College, Great Portland Street, London, W. (Sydney Spokes, Dean); Guy's Hospital Dental School, S.E. (Dr. Lauriston Shaw, Dean); The Victoria Dental Hospital of Manchester, Devonshire Street, All Saints (George G. Campion, Dean); The Owens College, Manchester (Sydney Chaffers, Registrar); Liverpool Dental Hospital, Mount Pleasant (Dr. A. M. Paterson, Dean); Mason College, Birmingham, Dental Department (apply to Registrar); Birmingham Dental Hospital, 71, Newhall Street (Fred W. Richards, Dean); Devon and Exeter Dental Hospital, Exeter (Henry Yeo, Hon. Secretary); Plymouth Dental Hospital, Bank Street Chambers, Bank Street, Plymouth (E. A. Bennett, Hon. Sec.). *Scotland*: Edinburgh Dental Hospital and Schools (apply to the Dean, 31, Chambers Street, Edinburgh); Glasgow Dental Hospital and School, 5, St. Vincent Street (apply to D. M. Alexander, Solicitor, 97, West Regent Street, Glasgow). *Ireland*: Dental Hospital of Ireland, Lincoln Place, Dublin (Wm. A. Shea, Registrar).

DANGERS OF HYDROGEN PEROXIDE AS A SURGICAL ANTISEPTIC.—G. U. Spencer sounds a note of warning against the use of hydrogen peroxide as a disinfectant for wounds in certain localities. He cites numerous cases, both in his own experience, and in that of others, in which the employment of the solution appears to cause the spread of pus-producing bacteria to other parts. This is due to the passage of bubbles of the gas evolved from the agent, which possess the power of travelling through relaxed tissue, along nerves, in the tendon sheath, and in the planes of the muscles, and thus carry infection with them. For this reason it is unsafe to use it for abscess cavities, or in the washing out of infectious wounds, also in the tissues surrounding the larynx and trachea, especially in young children.—*Therap. Gaz.*, **15**, 438.

THE SALE OF FOOD AND DRUGS ACT.

PROCEEDINGS AGAINST CHEMISTS.

On Friday, September 1, Mr. Blanco White, solicitor to the Fulham Vestry, attended at the West London Court, Vernon Street, West Kensington, to support summonses against the following chemists: Charles William Andrew, 781, Fulham Road; William Fletcher Barrett, 123, Wandsworth Bridge Road; Keith Longstaff, 811, Fulham Road; and William Arthur Shepherd, 4, Greyhound Road, Fulham, for selling a compounded drug not composed of ingredients in accordance with the demand of the purchaser.

Mr. Blanco White explained that the proceedings have been taken under the seventh section of the Food and Drugs Act. In order, he said, to test the accuracy of preparations made up by chemists, Dr. Jackson, the medical officer of health for Fulham, wrote out prescriptions and had them made up by the defendants. He pointed out the necessity that doctors' prescriptions should be accurately dispensed, for the reason that the lives of patients might be imperilled if the doctors' requirements were not perfectly performed.

The summons against Mr. Andrew was taken first, and Mr. H. T. Waddy appeared on his behalf. The sample of medicine prepared by him contained, according to the analysis of the vestry's analyst, Mr. Cecil H. Cribb, 258 grains of potassium iodide in six ounces of mixture, whereas the prescription required 240 grains, showing an excess of eighteen grains. The prescription was as follows:—"G. Clarke, Esq.—℞, Potassii Iodid., ʒiv.; Syr. Aurant., ʒi.; Aq. ad ʒvi. M. ft. Mist. Sig. Two teaspoonfuls in a wineglassful of water to be taken three times a day.—(Signed) C. J."

Dr. Jackson, the medical officer, was questioned concerning the nature of his prescription. He said the mixture contained twenty-four doses, and in each there would be an excess of three-quarters of a grain of potassium iodide. Twenty grains would be an exceptional dose, but he would not anticipate serious consequences from it.

Mr. Cribb, questioned by Mr. Waddy, said that the gravimetric as well as the volumetric silver process furnished his figures.

Dr. John Attfield, F.R.S., was called in the interests of the defendant, and gave the result of his analysis of a portion of the same mixture which was submitted to him. It was duly sealed, and was labelled "187 M." By the silver process, under which any small and officially allowable quantity of potassium chloride would be reckoned as more than double that quantity of potassium iodide, he could only find an excess of two grains above the 240 ordered by the prescription. Even this insignificant excess was to be credited to the analytical process, not to the dispenser. In his opinion the prescribed medicine had been compounded with perfect accuracy. Witness was unable to give any decided opinion as to what rule of procedure guided Mr. Cribb in arriving at his decision. Pressed by the magistrate, Dr. Attfield said that if the public analyst had so multiplied the small quantity of potassium iodide in the small volume of the medicine used in the experiments as to show the quantity present in an old 480-grain ounce, instead of in the official 437½-grain ounce, the high figures would be explained; but he did not suggest that Mr. Cribb would make such a mistake. In answer to a further question to the witness, as editor of the Pharmacopœia, he stated that the dose of potassium iodide mentioned in the Pharmacopœia, namely, five to twenty grains, represented the average range of dose in ordinary cases for adults.

Mr. Andrew, the defendant, was allowed to enter the witness-box to state that he knew the prescription was that of Dr. Jackson, and he used, as he always did, the greatest care and accuracy in its preparation; but, impressed at the time by the probable motive of the purchaser, he was absolutely certain that he had put neither more nor less than 240 grains of potassium iodide into the compounded medicine.

Mr. Rose, in dismissing the summons on the facts, observed that he had the greatest doubt whether the Food and Drugs Act was meant to be applied to a case of this nature. The Act, he thought, was intended to deal with frauds, and had no relation to a trifling excess of an ingredient in a bottle of medicine. The seventh section should be read in the light of the preceding and succeeding lines of the Act. Moreover, it would not be supposed that the Act intended to enforce absolute exactness of a prescription.

Mr. Blanco White argued that the Act contemplated such a contingency, and asked for an analysis by the Somerset House authorities, but his worship refused, remarking that if the analysis did take place, it would not debar him from considering the opinion of Dr. Attfield.

Replying to the other contention, Mr. Rose pointed out that it could not have been the intention of the Legislature to deal with a

man's own loss in putting in a little more than he need to of an ingredient.

The summons against Mr. Shepherd was withdrawn, Mr. Rose allowing him £3 3s. costs.

Mr. Oswald Hanson defended Mr. Longstaff, and subjected Dr. Jackson to severe cross-examination as to his opinion of what constituted an excessive dose of potassium iodide. He was asked whether he agreed or disagreed with the Pharmacopœia that the maximum dose was twenty grains, and he replied that as a dose to an individual it depended very much on circumstances.

Mr. Hanson: Is it an excessive dose?

Dr. Jackson: I say it is to start with.

Mr. Hanson: I don't want any quibbling or qualification. Is it an excessive dose?

Dr. Jackson: It is a full one.

Mr. Hanson: Is not potassium iodide a somewhat expensive article?

Dr. Jackson: Yes.

Ultimately this summons and the one against Mr. Barrett were adjourned.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

At a meetiug of the committee of this Association, held at Blackburn on Tuesday night, the secretary was requested to communicate with various members of the Pharmaceutical Council to arrange for the discussion at its October meeting of the following resolution:—

That the Council be petitioned to prepare (1) An amendment to Clause 2 of the Companies Fill, embodying its views in reference to company pharmacy; (2) A Pharmacy Bill; and that steps be taken to secure consideration of such amendment and Bill before the Companies Bill is again laid before Parliament.

It was arranged to hold a general meeting of the members on September 19, to receive the reports of the delegates to the Federation Conference at Plymouth.

ANALYTICAL NOTES.

Detection and Rapid Determination of SO_2 in Beverages.—Sulphurous acid may be quickly detected in wines, beer, or cider, according to G. Guerin, as follows:—A few C.c. of the liquid are placed in a test tube fitted with a cork pierced with a short pointed tube. The liquid is warmed, and a piece of filter paper, moistened with a solution of potassium iodate, 0·1 Gm. in two or three C.c. of starch solution, acidulated with 10 drops of sulphuric acid, is applied to the point of the tube. If 0·1 Gm. SO_2 per litre or less, be present, the test paper will turn blue. To rapidly and approximately determine the amount of SO_2 present 14 C.c. of hydrogen peroxide (standardised to 12 volumes) is diluted with water acidulated with H_2SO_4 to 1 litre. In each of a series of test glasses 10 C.c. of the suspected liquid is placed. To the first, 1 C.c. of the standard peroxide is added; to the second, 2 C.c., and so on. Each glass is tested with the starch test paper, as described above. The one in the series where the reaction disappears indicates roughly the limit of the SO_2. Thus if no reaction is obtained at No. 3 the liquid must contain less than 0·1 Gm. × 3 SO_2 per litre. The operation is then repeated with greater delicacy, adding the standard peroxide to the series of glasses in increasing quantities of 0·1 C.c. Then if the starch reaction ceases between the glasses containing 2·1 and 2·2 C.c. of the solution, the liquid will contain from 0·1 Gm. SO_2 × 2·1 or × 2·2 per litre.—*Union Pharm*, **40**, 291.

Separation of Citral, Citronellal and Methyl-Heptenone.—The following method is recommended by Tiemann for the separation of these bodies. The mixture obtaining them is shaken out, first with a ten per cent. solution of sodium sulphite, containing sodium bicarbonate. This only removes the citral as the unstable citraldihydrosulphonate, from which it is easily regenerated by soda. Citronellal is then removed from the residual liquid by adding to it a much stronger solution of sodium sulphite and bicarbonate, containing 350 Gm. of the former and 62·5 Gm. of the latter in each litre. Normal citronellal bisulphite then separates. The methylheptenone is then extracted with ether, the ethereal mixture cooled with ice, and shaken with solution of commercial sodium bisulphite, which removes the ketone from its accompanying impurities.—*Berichte*, **32**, 812.

LETTERS TO THE EDITOR.

Of Pharmacy as a Profession.

Sir,—The task of the educational reformer is ever hampered and often totally nullified by the operation of a greedy commercialism of such a protean character as to deceive if possible the very best disposed, and to cause them to work obscurely against the very objects they have most at heart. This sort of evil has been actively at work against the student of pharmacy ever since the passing of the "wretched Poisons Act," 1868. A brood of bird-catchers then at once sprang into existence because it was found that by merely getting through the "Minor," trade in everything also might be carried on coterminous with legalised and protected poison-vending. The School of Pharmacy was doomed to extinction by men who had just managed to get through their own examinations, and, ignorant of the fact that a wide margin always exists between what one himself knows and what he can successfully teach to others, undertook the task of training youth and coaching men by short cuts for the qualifying examinations. Need we add that many were thus disabled, dishonoured, and ruined. Of the so-called schools of chemistry and pharmacy that sprang up then in competition with one another all over the country, many being of a mere bogus character, did quickly their little bit of mischief and subsided in disgrace; others still survive, having got their households into some sort of order which has been forced upon them by the outward march of events; whilst a few of them have been a help and a credit to us from the first in consequence of the high character and wide attainments of the men engaged on their teaching staffs. But, notwithstanding that the word "pharmacy" has at length become a popular one, and the title "pharmacist" one of general acceptance and respect, we have the like evil to fight with still. The spirit that would entrap the unsuspecting youth of both sexes who are casting about in search of a genteel and largely lucrative occupation for their future lives at the smallest possible cost is active in all directions, caring not for the miseries that in the long run are entailed upon others by loss of time—that priceless treasure—or upon ourselves by the inclusion within our ranks of the discontented, the muddle-headed and the half-hearted. Otherwise, what means the following from the *Chemist and Druggist* of the 2nd instant? "Pharmacy, the handmaid of medicine, is an appropriate introduction to any scientific pursuit other than mechanical." Not very lively composition, but the drift becomes clear upon reading further on; which is, that the chemist is simply the doctor's scullion, but that his pharmacy knowledge may be made a good stepping-stone to various nobler pursuits. Again: "Although pharmacy is professional in character, its practice is mostly that of a trade, and many who enter it in the hope that they are being introduced to a profession become dissatisfied with the work they have to do," etc., etc. Surely, sir, an enemy hath done this, and members of the Pharmaceutical Society should take note. Finally, there comes a beauty of a specimen of journalistic tergiversation; for after all the complaints we have up to now been nauseated with about the trade being all neglected by the wicked and slothful Council of the Society, and the consequent ruin of the craft, there follows this strange statement: "Notwithstanding certain disadvantages pertaining to the practice of pharmacy, it still stands (splendid alliteration) one of the most prosperous shop-trades in this country." That is, I suppose, that "pharmacy, one of the most prosperous shop-trades in this country," offers exceptional advantages to parents and guardians who would devote their darlings to the pursuit of a good money-making trade, and when those darlings, having grown to man's estate, think it not good enough for them, it will but have been an appropriate step to some professional trade to which the rising man may take a better fancy. Then there follow "seven portraits of M.D.'s who have risen from the ranks of pharmacy." I may be wrong, but I cannot help myself, in the light of a long and varied experience, and a vivid recollection of pharmaceutical developments from very nearly the first establishment of the Society—I cannot help viewing all this I have quoted in the light of a double insult; an insult to the members of the Pharmaceutical Society, a society whose great aim has been all along to get the whole of the chemists and druggists of Great Britain incorporated into "one ostensible, recognised, and independent body," and an insult to the seven distinguished members of the medical body whose portraits are appended, who it is quietly assumed became discontented with the vileness of pharmacy, and determined to change for something higher. If it were any business of mine to touch upon such a

topic, I should, I think, more safely assume that the gentlemen named chose beforehand the goal before them, and finding that the School of Pharmacy at Bloomsbury Square was the one most suited for obtaining that knowledge of chemistry, botany, and materia medica necessary for a successful medical examination, entered as students in due form and passed the examinations as a matter of duty; but this seems no more my business than it is the business of an editor of a trade journal. It is of the greatest importance that the young candidate for a pharmacy career should be warned of the onerous nature of the work in which he is likely to be engaged after his studies and examinations are over; and of the risks that usually attend any change of front after having once chosen for himself. Pretty certain it is that the pharmacist of the future will be loaded with duties of a most honourable kind, which he will not with safety be able to entrust to the performance of a deputy, that he will cease to be a mere agent for the distribution of packages, and that pharmacy being no shop-trade at all, but rather a unique and happy blend of several arts and sciences, "*quae prosunt omnibus*," he will have to make for himself special siftings of what is staple and what mere flimsy accessory, and form for himself his own environment in a calling which is essentially as noble a one as any on the face of the earth; which rigidly demands of its votaries a diligent preparation for its proper exercise and a life's devotion.

Marylebone, N.W., September 5, 1899. J. C. HYSLOP.

Food and Drugs Act Prosecutions.

Sir,—With reference to the proceedings against me, as reported in all the leading dailies on Monday, there is a point which affects ch m'sts generally, Although the case was dismissed, I was obliged to incur heavy expenses in defending my reputation (to say nothing about the worry and loss of time), and I have no redress, as I cannot recover because the prosecutor was a public body. If this be law, it seems to me that however careful a chemist may be he is constantly liable to vexatious interference at the hands of public officials, who might be more profitably engaged in matters affecting the general welfare, and at the mercy of analysts' blunders, without being able to recover for damages.

CHARLES W. ANDREW.

Fulham Road, S.W., September 5, 1899.

The Bell Scholarship Examination.

Sir,—Since, after August, 1900, we enter on a new *régime* as regards the Preliminary examination, it seems to me that as a necessary and natural corollary the Jacob Bell Scholarship Examination must be altered in some way. A mere superficial examination of the new conditions will at once show that it will be somewhat absurd that candidates should be examined by a paper in Arts subjects, when by the certificate of preliminary knowledge, which must be submitted, they will show themselves to have almost reached in their work at school that amount of knowledge required in the present Arts Paper. I would suggest that in future the Arts Paper should be abolished, and at least a two-days' examination substituted for the present one. Part of the time should, of course, be spent in practical work. I would suggest the papers following:—(1) Inorganic Chemistry (six questions); (2) Botany (four questions) and Materia Medica (two questions); (3) Pharmacy (four questions) and Elementary Physics (two questions); (4) Practical Chemistry (two simple salts); (5) Practical Botany and Materia Medica; (6) Practical Pharmacy; and (7) French and German.

September 5, 1899. PAST SCHOLAR (200/35).

"Income-Tax Overcharges."

Sir,—The publicity afforded by the Press to the grievances suffered by Income-Taxpayers has resulted in an enormous increase in the amount of repayments of overcharges; but complaints are daily more frequent and bitter of the action of local Commissioners of Income-Tax in ignoring the returns of their profits made by traders and others on the too familiar buff form, which comes with such unfailing regularity. The blue notices of charge are now being delivered, and we would ask you to allow us to inform your readers who have made returns which have been ignored, or who have been assessed for the current year at a sum greater than the average of their profits for the three years ending April 5, 1899, that they must at once give notice of appeal in accordance with the instructions on the notice of charge. Their best course is to appeal to the "Special Commissioners," as these gentlemen are Government officials, and, not being rival tradesmen, nor influenced by personal, political, or other local feeling, may be relied upon to act with the greatest fairness. Moreover, if they find that the profits of the three years named show an average profit less than the amount upon which they paid tax for 1898-99, they should give notice of appeal in respect of that year also, and claim repayment of the amount overpaid. There is no time to lose in business appeals, while a claim to set-off a loss in farming or business against income from other sources must be lodged before October 6 next. Many people are now entitled to make a claim for three years to April 5 last, where the income arises from investments, even when dividends are paid "free of Income-Tax," and the tax recoverable might amount to £38. We shall be pleased to advise our readers gratuitously whether they are entitled to any repayment, on their sending us full particulars of their incomes from all sources and a stamped directed envelope for reply.

THE INCOME-TAX ADJUSTMENT AGENCY.

12 *and* 13, *Poultry, London, E.C., September* 6, 1899.

ANSWERS TO QUERIES.

Ammonium Sulphocyanide (H. C. S.—33/27).—It is not a scheduled poison.

Preliminary (J. C.—33/28).—Full particulars are given in this week's issue, at page 260.

Botanical (T. H. B.—33/26).—The names of your specimens are *Inula dysenterica* and *Viola sylvatica*.

Grasses (T. J.—33/22).—(1) *Festuca gigantea*; (2) *Aira uliginosa*; (3) *Molinia cærulea*; (4) In bad condition, but apparently *Festuca myurus*.

Dispensing (W. B. W.—33/23).— (1) Presumably, Allen and Hanburys' preparation is meant; (2) As the prescription is written, the B.P. preparation would appear to be intended.

Essence of Barley for Whiskey (W. R. C.—33/18).—We do not know of any preparation that can be added to new whiskey to give it the aroma of malted barley. Possibly by distilling well torrified malt you would obtain volatile empyreumatic bodies which might answer your purpose. The chief flavouring bodies of whiskey are probably traces of ethylic and amylic esters. Hydrogen peroxide is said to have the property of rapidly "maturing" new whiskey.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Attfield, Bevay, Beach, Bostock, Clark, Clarke, Crombie, Deed, Dewhirst, Downes, Ferrall, Holmes, Hulme, Jones, Kirkby, Lloyd, Maben, Moore, Poole, Reynolds. Robb, Ruoff, Skerry, Smith, Taylor Timson, Tinker, Turner, Wamsley, Wills.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ALBUMIN OF LOCUST BEAN. E. Bourquelot and H. Hérissey confirm the statement of A. von Ekenstein that mannose results from the hydrolysis of the albumin (the earoubin of Effront) of the seeds of locust bean. They state that earoubin gives upon hydrolysis a mixture of mannose and galactose.—*Journ. de Pharm.*, [6] **10**, 153.

GALENA IN SCAMMONY. A specimen of scammony has recently been reported on by F. Baucher, which was found to be adulterated with galena and starch. It contained but 51·3 per cent. of ether-soluble resin. The appearance of the specimen was abnormal, since it showed small cavities which were sprinkled with well-formed bluish-grey crystals.—*Journ. de Pharm.* [6], **10**, 172, after *Ann. de Chim. Analyt.*

CUPRIC PHOSPHIDES. E. Rubénovitch finds that the cuprie phosphide Cu_5P_2 is formed by the action of PH_3. on cupric oxide on cupric hydrate, and on basic cuprie carbonate. In each case the action is very energetic, much heat being generated, and with the two last-named, even incandescence taking place, unless the copper compound be suspended in water; phosphoric acid is formed at the same time. The cupric phosphide obtained, when washed and dried without contact with the air, is a greyish-black amorphous body very soluble in nitric acid and in bromine water; hot concentrated sulphuric acid attacks it with the liberation of sulphur and SO_2. The cuprous phosphide Cu_3P_2 is obtained by passing a current of PH_3 and CO_2 over Cu_2O.—*Comp., rend.*, **129**, 336.

PHYSIOLOGY OF ROOTS. Herr A. Rimpach proposes the following classification of roots according to their physiological properties:—(1) Nutrient Roots, whose sole function is the conveyance of food material to the rest of the plant. The central vascular bundle, which consists chiefly or exclusively of conducting elements, is surrounded by a comparatively insignificant cortical parenchyme, which may entirely disappear. (2) Attachment Roots: These do not store up food materials, are not contractile, and the conveyance by them of food material is so unimportant that their sole or chief function may be regarded as the fixing of the plant in the soil or other substratum. They are characterised by the large development of stereome, and are especially characteristic of the epiphytic Bromeliaceæ, Araceæ, and Cyclantheæ, and of the terrestrial Bromeliaceæ, Gramineæ, and Palmæ. (3) Contractile Roots: These contain no or but little stereome, while the thin-walled parenchyme is relatively well developed, and is permanent. Contractile roots may or may not be also storing organs. (4) Storage Roots: The structure of this class of root agrees with that of other organs used for the same purpose. They consist chiefly of a permanent parenchyme filled with food material, and are often swollen into the form of a tuber.—*Ber. Deutsch. Bot. Gesell.*, 1899, 18.

ALDEHYDE IN GREEN LEAVES. J. Reinke and E. Braunmüller have carried out a series of observations on different plants, in order to determine the effect of light on the amount of formic aldehyde contained in green leaves. The results were not uniform; but the general conclusion was that in most cases, deprivation of light caused a distinct diminution in the amount of aldehyde. The test employed was precipitation by metanitrobenzhydrazid. The authors conclude that the aldehyde is probably not the first product of assimilation; but that, whatever this may be, it is, in the majority of cases, first condensed into sugar, in other cases into "leaf-aldehyde."—*Ber. Deutsch. Bot. Gesell.*, 1899, 7.

SOLID HYDROGEN. According to the *Comptes rendus* (**129**, 434), H. Moissan has read before the Académie des Sciences a short note on solidified hydrogen, by Professor Dewar, giving further particulars of his remarkable experiment. The appearance of the solidified element is likened to white foam (*écume*), or to a mass of transparent glass. It melts at about 1.6° on the absolute scale, which is equivalent to −257° Centigrade. Pure helium undergoes a change of state when it is cooled by means of solid hydrogen and subjected to a pressure of eight atmospheres. Seeds, after they are frozen in liquid hydrogen, retain the power of germinating. This communication is of great scientific interest, inasmuch as hydrogen is now known to be non-metallic in the solid state, contrary to the conjectures which have been largely entertained hitherto. Further, the approach to the zero of absolute temperature, slow though it is, is steadily going on. Two months ago Dewar arrived within twenty-one degrees of it, and now only sixteen degrees separate him from his goal. Will he attain it?

FORMATION AND DECOMPOSITION OF ALBUMIN IN PLANTS. M. N. Prianischnikow derives the following conclusions from a series of experiments on *Pisum sativum*, *Vicia faba*, and *Lupinus luteus*. The process of decomposition of albumin has a "great period," and is characterised by a "great curve" of its own. The process of accumulation of asparagin has also a great curve, and the maxima of the two curves nearly or entirely coincide. These two curves attain their maxima some days earlier than those which represent the elimination of carbon dioxide. At the close of the period of germination, the energy of the accumulation of asparagin, or rather that of the accumulation of the asparagin-nitrogen, exceeds the rapidity of the passage of albumin-nitrogen into the form of other combinations.—*Ber. Deutsch. Bot. Gasell.*, 1899, 151.

DETERMINATION OF MANNOSE. E. Bourquelot and H. Hérissey find that mannose may be determined quantitatively by means of its crystalline compound with phenylhydrazine, in the presence of other sugars, in consequence of the fact that the mannose compound crystallises readily and entirely from solutions at a low temperature (10° C.). The phenylhydrazine reagent employed consisted of phenylhydrazine, 2·4 C.c.; glacial acetic acid, 2·4 C.c.; distilled water to produce 12 C.c. The mixture was allowed to stand to from eight to twelve hours, at 10° C., the crystalline mass drained on the filter pump, washed successively with iced water, alcohol, and ether, was dried first *in vacuo* over sulphuric acid, then at 100° C., and weighed. When solutions containing less than 3 per cent. of mannose are operated on, a correction of 0·04 Gm. for every 100 C.c. of solution should be made. Experiments show that mannose may be separated quantitatively by this method from mixtures containing galactose, arabinose, maltose, and dextrin.—*Comp. rend.*, **129**, 339.

FUNGI WHICH DESTROY TIMBER. Herr F. Czapek confirms the observations of Miyoshi and Marshall Ward, that the hyphæ of certain fungi have the power, not only of perforating wood, but also of consuming the stores of starch and other food-materials in the tissues of the host-plant. In the cases of *Pleurotus pulmonarius* and *Merulius lachrymans*, he succeeded in extracting the enzyme by means of which the lignified walls of the cells are destroyed, and proposes for it the term *hadromase*, in contradistinction to the cytase which consumes the cellulose.—*Ber. Deutsch. Bot. Gesell.*, 1899, 166.

COD-LIVER OIL EMULSIONS.*

BY PROF. H. V. ARNY.

At the meeting of this Association last June, I had the pleasure of reporting an investigation of a powder from which an emulsion could be prepared by the easy method of adding thirty grains of the powder to one fluid ounce of cod-liver oil contained in a four-ounce bottle, agitating, adding one fluid ounce of water, and finally shaking for one minute; wherewith a beautiful, creamy emulsion was produced. The powder on analysis showed the presence of saccharin, saponin (or else extract of quillaja), and a gum that was either tragacanth or Irish moss gelatin. From this analysis I devised a modified formula, which possesses the advantage of requiring only fifteen grains of powder to emulsify an ounce of oil, instead of the thirty grains which is required of the commercial article.

The formula of the modified powder is:—

Saccharin	15 milligrammes.
Saponin	65 milligrammes.
Powdered tragacanth	1 gramme.

This formula was given without recommendation, since the cautious pharmacist will look askance at any emulsifier containing the two questionable ingredients, saccharin and saponin.

Experimenting to Produce a "Flask" Emulsifier.

In the paper of last year the promise was given of further investigation on these lines, the aim being to prepare a flask emulsifier of absolutely harmless character. Before the writer had gotten well under way, a southern friend called his attention to an original flask emulsifier, consisting of ten grains each of powdered acacia, tragacanth, and sugar. Like the commercial emulsifier first mentioned, thirty grains of this powder would prepare two fluid ounces of a 50 per cent. emulsion. The product, however, is not perfectly satisfactory. Ten grains of sugar is not sufficient to sweeten two fluid ounces of emulsion, but this can be easily remedied by increasing the quantity of sugar to twenty or even to thirty grains, using a proportionally larger amount of the powder. The chief objection is that tragacanth makes an emulsion which is inclined to a buff tint, and that the acacia is not sufficient to counteract this colour defect.

The writer then tried gelatin, and was surprised to find what a dazzling white product resulted. Gelatin preparations of cod-liver oil were suggested long since (see *Proc. A. Ph. A.*, vii., 62; xi., 70; xii., 85; xxv., 92; xxx., 98), but each of the formulæ given produces a jelly, while the writer's aim was a preparation perfectly liquid, yet not so susceptible to separation. In the earlier efforts of the writer, thirty grains of shredded gelatin (Coxe's) was mixed with one fluid ounce of oil, and an ounce of water added. On agitation this finally resulted in an emulsion of dazzling whiteness. The process was not practical, however, as that proportion of gelatin dissolved in the liquid only after actual agitation for twenty-five to thirty minutes, covering a period of one hour, and so efforts were made to secure powdered gelatin. Finally two samples were obtained—one a No. 60 powder, the other a No. 80 powder. The sixty powder proved unsatisfactory, while the eighty powder served admirably.

Thereupon extensive experiments were made with quantities of gelatin, varying from ten to thirty grains to the ounce of oil and ounce of water, and it was found that gelatin in an eighty powder yielded on agitation an emulsion as readily as did any of the emulsifiers mentioned above. The finished products were submitted to variations of temperature, ranging from 3° to 40° C.—a range far beyond the ordinary variation in a house or store. The conclusions deduced from this test were that gelatin alone did not yield an ideal emulsion; for a preparation which would not solidify at the ordinary temperatures (one made, say, by adding fifteen grains of gelatin to an ounce of oil and one of water) invariably separated at higher temperatures—say 30° C. Likewise, combinations of gelatin and acacia failed to yield a satisfactory product, but happy results were obtained from mixtures of gelatin and tragacanth; the gelatin counteracted the yellowish tint of the tragacanth emulsion, and yielded a produet which was fluid at low temperatures, and yet which scarcely separated at high temperatures.

*Read before the Ohio Pharmaceutical Association, and reprinted from the *Bulletin of Pharmacy*.

Results.

Then various combinations were tried, such as:—

Gelatin, 20 grains; tragacanth, 5 grains; sugar, 20 grains.	To one ounce each of oil and water.
Gelatin, 10 grains; tragacanth, 5 grains; sugar, 20 grains.	
Gelatin, 10 grains; tragacanth, 10 grains; sugar, 20 grains.	
Gelatin, 15 grains; tragacanth, 5 grains; sugar, 20 grains.	

All these yielded emulsions, and these were submitted to all the variations of temperature from 30° to 40° C. The results showed that the combination of gelatin ten grains, tragacanth ten grains, and sugar twenty grains, yielded the finest product.

Are Flask Emulsions Advisable?

But, after all, are these flask emulsions the ones that the conscientious pharmacist should make? Is a pharmacist who objects to making an emulsion, because, forsooth, it is an unpleasant task to clean a dirty mortar, a pharmacist worthy of success? A man who will be deterred by such considerations is the man who prefers buying his preparations from some manufacturer.

A successful emulsion is the best advertisement of a pharmacist's skill, and that pharmacist whose efforts are directed toward the dispensing of palatable and elegant preparations of this class makes little complaint of hard times. The regulation emulsion of cod-liver oil is, as a rule, carelessly put together by the retailer, hence I feel permitted to suggest special forms of this emulsion which are above the ordinary.

The first is

A Chondrus Emulsion.

The Irish moss emulsion of the National Formulary has never given satisfactory results in the writer's hands. Perhaps the fault lay with the operator, who desires to avoid snap judgment; but the fact still remains that to him the recipe is not all that seemed desired. Quite different, however, is a chondrus emulsion worked up from an acacia base, a process suggested by Bedford (*Proc. A. Ph. A.*, xl., 432). A formula on this plan, given by a Cleveland friend, begins with a continental emulsion of acacia 1½ ounce, oil 6 fluid ounces, and water 3 fluid ounces. To this is added 18 fluid ounces of a decoction of chondrus, prepared from 248 grains of chondrus and a quart of water, and to this oil and water are gradually added, under constant trituration, until one-half gallon of a 50 per cent emulsion results. The product is beautifully white and remarkably limpid, while its keeping properties are excellent, especially when fortified with alcohol, as suggested by the National Formulary.

Formula for Glyconin Emulsion.

A splendid emulsion can be prepared from yolk of egg; the formula of the National Formulary making an emulsion both beautiful and palatable. Glyconin, U.S.P., gives better results than the yolk, which is recommended in many works, and it is a splendid demonstration of the preservative value of glycerin. A sample prepared by the writer in November last is to-day perfectly sweet.

In answer to a demand for an "egg-nog" emulsion, the following modification of the N.F. preparation was devised:—

Glyconin	2½ fluid drachms.
Cod-liver oil	1 fluid ounce.
Syrup	1½ fluid drachm.
Brandy	2½ fluid drachms.
Water	*q. s.* ad 2 fluid ounces.

Emulsionise the oil by gradual addition of the glyconin, with constant trituration; then add the other ingredients in the order given. Flavour with vanilla.

The product is delicious and beautiful, and it should keep as well as, if not better than, the glyconin from which it was prepared.

Extract of Malt as an Emulsifier.

Extract of malt is more successful in covering the taste of cod-liver oil than any other substance yet tried. The following formula was devised by the writer in 1891, and has been used by him almost every winter since. The product is a perfect emulsion, save an aqueous layer of about a thirty-second of the entire bulk, and its stability was proven by subjecting a sample to the action of New Orleans sunshine from October of one year to April of the next. A sample prepared last November is as sweet and palatable to-day as when made. The preparation consists of:—

	Parts.
Cod-liver oil	4
Syrup of wild cherry	2
Extract of malt	1
Sherry wine	1

Emulsify the oil by gradual addition to the extract, alternating with the syrup. Lastly, add the wine.

If any trouble is experienced in emulsification test the malt with litmus paper, for it is likely to become a trifle acid on standing; as is well known, acids interfere with emulsification. If the malt be found acid, add a trace of sodium bicarbonate and the trouble will be removed. For this suggestion I have to thank Mr. M. G. Tielke, of Cleveland.

SELECTED PRACTICAL FORMULÆ.

Diuretic Medicaments.

Martz gives a number of formulæ for diuretic compounds. Pills composed as follow:—Extract of convallaria, 1 grain; powdered convallaria, 1 grain; or a syrup made of extract of convallaria, 4 drachms; syrup of bitter orange, 6 drachms. A teaspoonful night and morning. In other cases he uses, Tincture of squill, 75 minims; syrup of bitter orange, 1 ounce; distilled water, 3 ounces. One teaspoonful every few hours. Or: Extract of squill, 1 grain; powdered squill, 1 grain. Make into one pill and give one night and morning. Or: Theobromine, 7 grains. Place in one cachet, and give four a day. Or: Caffeine, 15 grains; benzoate of sodium, 30 grains; syrup of bitter orange, 1 ounce; water, 4 ounces. This may allbe taken in 24 hours. Or, again: Powdered digitalis, powdered squill, powdered scammony, of each, one grain. Make into one pill, and give one such night and morning. Or: Carbonate of lithium, 7 grains; lemonade, with carbonated water, 1 pint. This to be drunk each day. Or, by the bowel: Nitrate of potassium, 30 grains; oxymel of squill, 6 drachms; milk, 3 ounces. This is to be given by the bowel.—*Therap. Gaz.*, **15,** 468, *after La France Medicale.*

Ointment for Hæmorrhoids.

Nehigan (*Der Frauenartz*) prescribes the following ointment for hæmorrhoids:—Compound tincture of camphor, 1 drachm; camphor, 1 drachm; belladonna ointment, 15 drachms. To be applied directly to the painful part.—*Therap. Gaz.*, **15,** 468.

Elixir of Boldo.

Crushed boldo leaves, 30; alcohol (60 per cent.), 120; Madeira wine, 500; simple syrup, 350; distilled water, *q.s.* to produce 1,000 fl. pts. Macerate the boldo in the alcohol for 48 hours, then add the wine and macerate for 8 days; strain and press, then add the syrup. The residue is treated with sufficient water to bring up the volume of the expressed liquid to 1,000; allowed to stand for some days, then filtered. It is given in atonic dyspepsia, as a stomachic, in doses of a tablespoonful daily after meals.—*Rev. Med. Pharm.*, **6,** 183.

To Remove Wrinkles.

Oil of sweet almonds, 2 drachms; cacao butter, 4 drachms; lanolin, 2 ounces; glycerin, 2 drachms; otto of rose, 2 drops. Melt the three first ingredients, then add the other two. It is applied at night. Another useful application is:—Glycerole of tannin, rosewater, of each 1 drachm. Mix. To be applied to the wrinkled surface with a camel's hair brush.—*Practitioner*, **63,** 117.

THE PROGRESS OF SCIENCE AND ITS RESULTS.*

BY PROFESSOR SIR MICHAEL FOSTER, K.C.B., Sec.R.S.

He who until a few minutes ago was your President said somewhere at the meeting at Bristol, and said with truth, that among the qualifications needed for the high honour of Presidency of the British Association for the Advancement of Science, that of being old was becoming more and more dominant. He who is now attempting to speak to you feels that he is rapidly earning that distinction. But the Association itself is older than its President; it has seen pass away the men who, wise in their generation, met at York on September 27, 1831, to found it; it has seen other great men who in bygone years served it as Presidents, or otherwise helped it on, sink one after another into the grave. Each year, indeed, when it plants its flag as a signal of its yearly meeting, that flag floats half-mast high in token of the great losses which the passing year has brought. This year is no exception; the losses, indeed, are perhaps unwontedly heavy. I will not attempt to call over the sad roll-call; but I must say a word about one who was above most others a faithful and zealous friend of the Association. Sir Douglas Galton joined the Association in 1860. From 1871 to 1895, as one of the General Secretaries, he bore, and bore to the great good of the Association, a large share of the burden of the Association's work. How great that share was is perhaps especially known to the many men, among whom I am proud to count myself, who during his long term of office served in succession with him as brother General Secretary. In 1895, at Ipswich, he left the post of General Secretary, but only to become President. So long and so constantly did he labour for the good of the Association that he seemed to be an integral part of it, and meeting as we do to-day, and as we henceforward must do, without Douglas Galton, we feel something greatly missing. This year, perhaps even more than in other years, we could have wished him to be among us; for to-day the Association may look with joy, not unmixed with pride, on the realisation of a project in forwarding which it has had a conspicuous share, on the commencement of an undertaking which is not only a great thing in itself, but which, we trust, is the beginning of still greater things to come. And the share which the Association has had in this was largely Sir Douglas Galton's doings.

In his address as President of Section A, at the meeting of the Association at Cardiff in 1891, Professor Oliver Lodge expounded with pregnant words how urgently, not pure science only, but industry and the constructive arts—for the interests of these are ever at bottom the same—needed the aid of some national establishment for the prosecution of prolonged and costly physical researches, which private enterprise could carry out in a lame fashion only, if at all. Lodge's words found an echo in many men's minds; but the response was for a long while in men's minds only. In 1895, Sir Douglas Galton, having previously made a personal study of an institution analogous to the one desired—namely, the Reichsanstalt at Berlin—seized the opportunity offered to him as President of the Association at Ipswich to insist, with the authority not only of the head for the time being of a great scientific body, but also of one who himself knew the ways and wants at once of science and of practical life, that the thing which Lodge and others had hoped for was a thing which could be done, and ought to be done at once. And now to-day we can say it has been done. The National Physical Laboratory has been founded. The address at Ipswich marked the beginning of an organised effort, which has at last been crowned with success. A feeling of sadness cannot but come over us when we think that Sir Douglas Galton was not spared to

* Presidential Address to British Association for the Advancement of Science, delivered at Dover Wednesday, September 13, 1899.

see the formal completion of the scheme whose birth he did so much to help, and which, to his last days, he aided in more ways than one. It is the old story—the good which men do lives after them.

Still older than the Association is this nineteenth century, now swiftly drawing to its close. Though the century itself has yet some sixteen months to run, this is the last meeting of the British Association which will use the numbers eighteen hundred to mark its date.

THE POSITION A HUNDRED YEARS AGO.

The eyes of the young look ever forward; they take little heed of the short though ever-lengthening fragment of life which lies behind them; they are wholly bent on that which is to come. The eyes of the aged turn wistfully again and again to the past; as the old glide down the inevitable slope their present becomes a living over again the life which has gone before, and the future takes on the shape of a brief lengthening of the past. May I this evening venture to give rein to the impulses of advancing years? May I, at this last meeting of the Association in the eighteen hundreds, dare to dwell for a while upon the past, and to call to mind a few of the changes which have taken place in the world since those autumn days in which men were saying to each other that the last of the seventeen hundreds was drawing towards its end?

Dover in the year of our Lord seventeen hundred and ninety-nine was in may ways unlike the Dover of to-day. On moonless nights men groped their way in its narrow streets by the help of swinging lanterns and smoky torches, for no lamps lit the ways. By day the light of the sun struggled into the houses through narrow panes of blurred glass. Though the town then, as now, was one of the chief portals to and from the countries beyond the seas, the means of travel were scanty and dear, available for the most part to the rich alone, and, for all, beset with discomfort and risk. Slow and uncertain was the carriage of goods, and the news of the world outside came to the town—though it from its position learnt more than most towns—tardily, fitfully, and often falsely. The people of Dover sat then much in dimness, if not in darkness, and lived in large measure on themselves. They who study the phenomena of living beings tell us that light is the great stimulus of life, and that the fulness of the life of a being or of any of its members may be measured by the variety, the swiftness, and the certainty of the means by which it is in touch with its surroundings. Judged from this standpoint life at Dover then, as indeed elsewhere, must have fallen far short of the life of to-day.

The same study of living beings, however, teaches us that while from one point of view the environment seems to mould the organism, from another point the organism seems to be master of its environent. Going behind the change of circumstances, we may raise the question, the old question, Was life in its essence worth more then than now? Has there been a real advance?

Let me at once relieve your minds by saying that I propose to leave this question in the main unanswered. It may be, or it may not be, that man's grasp of the beautiful and of the good, if not looser, is not firmer than it was a hundred years ago. It may be, or it may not be, that man is no nearer to absolute truth, to seeing things as they really are, than he was then. I will merely ask you to consider with me for a few minutes how far, and in what ways, man's laying hold of that aspect of or part of truth which we call natural knowledge, or sometimes science, differed in 1799 from what it is to-day, and whether that change must not be accounted a real advance, a real improvement in man.

I do not propose to weary you by what in my hands would be the rash effort of attempting a survey of all the scientific results of the nineteenth century. It will be enough if for a little while I dwell on some few of the salient features distinguishing the way in which we nowadays look upon, and during the coming week shall speak of, the works of Nature around us—though those works themselves, save for the slight shifting involved in a secular change, remain exactly the same—from the way in which they were looked upon and might have been spoken of at a gathering of philosophers at Dover in 1799. And I ask your leave to do so.

THE KNOWLEDGE OF THE ELEMENTS.

In the philosophy of the ancients, earth, fire, air, and water were called "the elements." It was thought, and rightly thought, that a knowledge of them and of their attributes was a necessary basis of a knowledge of the ways of Nature. Translated into modern language, a knowledge of these "elements" of old means a knowledge of the composition of the atmosphere, of water, and of all the other things which we call matter, as well as a knowledge of the general properties of gases, liquids, and solids, and of the nature and effects of combustion. Of all these things our knowledge to-day is large and exact; and, though ever enlarging, in some respects complete. When did that knowledge begin to become exact?

To-day the children in our schools know that the air which wraps round the globe is not a single thing, but is made up of two things, oxygen and nitrogen,* mingled together. They know, again, that water is not a single thing, but the product of two things, oxygen and hydrogen, joined together. They know that when the air makes the fire burn and gives the animal life, it is the oxygen in it which does the work. They know that all round them things are undergoing that union with oxygen which we call oxidation, and that oxidation is the ordinary source of heat and light. Let me ask you to picture to yourselves what confusion there would be to-morrow, not only in the discussions at the sectional meetings of our Association, but in the world at large, if it should happen that in the coming night some destroying touch should wither up certain tender structures in all our brains, and wipe out from our memories all traces of the ideas which cluster in our minds around the verbal tokens, oxygen and oxidation. How could any of us, not the so-called man of science alone, but even the man of business and the man of pleasure, go about his ways lacking those ideas? Yet those ideas were in 1799 lacking to all but a few.

Although in the third quarter of the seventeenth century the light of truth about oxidation and combustion had flashed out in the writings of John Mayow, it came as a flash only, and died away as soon as it had come. For the rest of that century, and for the greater part of the next, philosophers stumbled about in darkness, misled for the most of the time by the phantom conception which they called phlogiston. It was not until the end of the third quarter of the eighteenth century that the new light, which has burned steadily ever since, lit up the minds of the men of science. The light came at nearly the same time from England and from France. Rounding off the sharp corners of controversy, and joining, as we may fitly do to-day, the two countries as twin bearers of a common crown, we may say that we owe the truth to Cavendish, to Lavoisier, and Priestley. If it was Priestley who was the first to demonstrate the existence of what we now call oxygen, it is to Lavoisier we owe the true conception of the nature of oxidation and the clear exposition of the full meaning of Priestley's discovery, while the knowledge of the composition of water, the necessary complement of the knowledge of oxygen, came to us through Cavendish and, we may perhaps add, through Watt.

The date of Priestley's discovery of oxygen is 1774, Lavoisier's classic memoir "on the nature of the principle which enters into combination with metals during calcination" appeared in 1775, and Cavendish's paper on the composition of water did not see the light until 1784.

During the last quarter of the eighteenth century this new idea of oxygen and oxidation was struggling into existence. How new was the idea is illustrated by the fact that Lavoisier himself at first spoke of that which he was afterwards, namely in 1778, led to call oxygen, the name by which it has since been known, as "the principle which enters into combination." What difficulties its acceptance met with is illustrated by the fact that Priestley himself refused to the end of his life to grasp the true bearings of the discovery which he had made. In the year 1799 the knowledge of oxygen, of the nature of water and of air, and indeed the true conception of chemical composition and chemical change, was hardly more than beginning to be, and the century had to pass wholly away before the next great chemical idea, which we know by the name of the Atomic Theory of John Dalton, was made known. We have only to read the scientific literature of the time to recognise that a truth which is now not only woven as a master-thread into all our scientific conceptions, but even enters largely into the every-day talk and thoughts of educated people, was a hundred years ago struggling into existence among the philosophers themselves. It was all but absolutely unknown to the large world outside those select few.

THE WORD "ELECTRICITY."

If there be one word of science which is writ large on the life of the present time, it is the word "electricity"; it is, I take it, writ larger than any other word. The knowldege which it denotes has carried its practical results far and wide into our daily life, while the theoretical conceptions which it signifies pierce deep into the nature of things. We are to-day proud, and justly proud,

* Some may already know that there is at least a third thing, argon.

both of the material triumphs and of the intellectual gains which it has brought us, and we are full of even larger hopes of it in the future.

At what time did this bright child of the nineteenth century have its birth?

He who listened to the small group of philosophers of Dover, who in 1799 might have discoursed of natural knowledge, would perhaps have heard much of electric machines, of electric sparks, of the electric fluid, and even of positive and negative electricity; for frictional electricity had long been known and even carefully studied. Probably one or more of the group, dwelling on the observations which Galvani, an Italian, had made known some twenty years before, developed views on the connection of electricity with the phenomena of living bodies. Possibly one of them was exciting the rest by telling how he had just heard that a professor at Pavia, one Volta, had discovered that electricity could be produced not only by rubbing together particular bodies, but by the simple contact of two metals, and had thereby explained Galvani's remarkable results. For, indeed, as we shall hear from Professor Fleming, it was in that very year, 1799, that electricity as we now know it took its birth. It was then that Volta brought to light the apparently simple truths out of which so much has sprung. The world, it is true, had to wait for yet some twenty years before both the practical and the theoretic worth of Volta's discovery became truly pregnant, under the fertilising influence of another discovery. The loadstone and magnetic virtues had, like the electrifying power of rubbed amber, long been an old story. But, save for the compass, not much had come from it. And even Volta's discovery might have long remained relatively barren had it been left to itself. When, however, in 1819, Oersted made known his remarkable observations on the relations of electricity to magnetism, he made the contact needed for the flow of a new current of ideas. And it is perhaps not too much to say that those ideas, developing during the years of the rest of the century with an ever-accelerating swiftness, have wholly changed man's material relations to the circumstances of life, and at the same time carried him far in his knowledge of the nature of things.

The Evolution of Geology.

Of all the various branches of science, none perhaps is to-day, none for these many years past has been, so well known to, even if not understanded by, most people as that of geology. Its practical lessons have brought wealth to many; its fairy tales have brought delight to more; and round it hovers the charm of danger, for the conclusions to which it leads touch on the nature of man's beginning.

In 1799 the science of geology, as we now know it, was struggling into birth. There had been from of old cosmogonies, theories as to how the world had taken shape out of primæval chaos. In that fresh spirit which marked the zealous search after natural knowledge pursued in the middle and latter part of the seventeenth century, the brilliant Stenson, in Italy, and Hooke, in our own country, had laid hold of some of the problems presented by fossil remains, and Woodward, with others, had laboured in the same field. In the eighteenth century, especially in its latter half, men's minds were busy about the physical agencies determining or modifying the features of the earth's crust; water and fire, subsidence from a primæval ocean, and transformation by outbursts of the central heat, Neptune and Pluto, were being appealed to, by Werner on the one hand, and by Desmarest on the other, in explanation of the earth's phenomena. The way was being prepared, theories and views were abundant, and many sound observations had been made; and yet the science of geology, properly so called, the exact and proved knowledge of the successive phases of the world's life, may be said to date from the closing years of the eighteenth century.

In 1783, James Hutton put forward in a brief memoir his "Theory of the Earth," which in 1795, two years before his death, he expanded into a book; but his ideas failed to lay hold of men's minds until the century had passed away, when, in 1802, they found an able expositor in John Playfair. The very same year that Hutton published his theory Cuvier came to Paris, and almost forthwith began, with Brongniart, his immortal researches into the fossils of Paris and its neighbourhood. And, four years later, in the year 1799 itself, William Smith's tabular list of strata and fossils saw the light. It is, I believe, not too much to say that out of these geology, as we now know it, sprang. It was thus in the closing years of the eighteenth century that was begun the work which the nineteenth century has carried forward to such great results. But at that time only the select few had grasped the truth, and even they only the beginning of it. Outside a narrow circle the thoughts, even of the educated, about the history of the globe were bounded by the story of the Deluge—though the story was often told in a strange fashion—or were guided by fantastic views of the plastic forces of a sportive Nature.

Problems of the Living Body.

In another branch of science, in that which deals with the problems presented by living beings, the thoughts of men in 1799 were also very different from the thoughts of men to-day. It is a very old quest, the quest after the knowledge of the nature of living beings, one of the earliest on which man set out; for it promised to lead him to a knowledge of himself, a promise which perhaps is still before us, but the fulfilment of which is as yet far off. As time has gone on, the pursuit of natural knowledge has seemed to lead man away from himself into the furthermost parts of the universe, and into secret workings of Nature in which he appears to be of little or no account; and his knowledge of the nature of living things, and so of his own nature, has advanced slowly, waiting till the progress of other branches of natural knowledge can bring it aid. Yet in the past hundred years the biologic sciences, as we now call them, have marched rapidly onward.

We may look upon a living body as a machine doing work in accordance with certain laws, and may seek to trace out the working of the inner wheels, how these raise up the lifeless dust into living matter, and let the living matter fall away again into dust, giving out movement and heat. Or we may look upon the individual life as a link in a long chain, joining something which went before to something about to come, a chain whose beginning lies hid in the farthest past, and may seek to know the ties which bind one life to another. As we call up to view the long series of living forms, living now or flitting like shadows on the screen of the past, we may strive to lay hold of the influences which fashion the garment of life. Whether the problems of life are looked upon from the one point of view or the other, we to-day, not biologists only, but all of us, have gained a knowledge hidden even from the philosophers a hundred years ago.

Of the problems presented by the living body viewed as a machine, some may be spoken of as mechanical, others as physical, and yet others as chemical, while some are, apparently at least, none of these. In the seventeenth century William Harvey, laying hold of the central mechanism of the blood stream, opened up a path of inquiry which his own age and the century which followed trod with marked success. The knowledge of the mechanics of the animal and of the plant advanced apace; but the physical and chemical problems had yet to wait. The eighteenth century, it is true, had its physics and its chemistry; but, in relation at least to the problems of the living being, a chemistry which knew not oxygen, and a physics which knew not the electricity of chemical action, were of little avail. The philosopher of 1799, when he discussed the functions of the animal or of the plant involving chemical changes, was fain for the most part, as were his predecessors in the century before, to have recourse to such vague terms as "fermentation" and the like; to-day our treatises on physiology are largely made up of precise and exact expositions of the play of physical agencies and chemical bodies in the living organism. He made use of the words "vital force" or "vital principle" not as an occasional, but as a common, explanation of the phenomena of the living body. During the present century, especially during its latter half, the idea embodied in those words has been driven away from one seat after another; if we use it now when we are dealing with the chemical and physical events of life we use it with reluctance, as a *deus ex machina* to be appealed to only when everything else has failed.

Some of the problems—and those, perhaps, the chief problems—of the living body have to be solved neither by physical nor by chemical methods, but by methods of their own. Such are the problems of the nervous system. In respect to these the men of 1799 were on the threshold of a pregnant discovery. During the latter part of the present century, and especially during its last quarter, the analysis of the mysterious processes in the nervous system, and especially in the brain, which issue as feeling, thought, and the power to move, has been pushed forward with a success conspicuous in its practical, and full of promise in its theoretical, gains. That analysis may be briefly described as a following up of threads. We now know that what takes place along a tiny thread which we call a nerve-fibre differs from that which takes place along its fellow-threads, that differing nervous impulses travel along different nerve-fibres, and that nervous and psychical events are the outcome of the clashing of nervous impulses as they sweep along the closely-woven web of living threads of which the

brain is made. We have learnt by experiment and by observation that the pattern of the web determines the play of the impulses, and we can already explain many of the obscure problems not only of nervous disease, but of nervous life, by an analysis which is a tracking out the devious and linked paths of nervous threads. The very beginning of this analysis was unknown in 1799. Men knew that nerves were the agents of feeling and of the movements of muscles; they had learnt much about what this part or that part of the brain could do; but they did not know that one nerve-fibre differed from another in the very essence of its work. It was just about the end of the past century, or the beginning of the present one, that an English surgeon began to ponder over a conception which, however, he did not make known until some years later, and which did not gain complete demonstration and full acceptance until still more years had passed away. It was in 1811, in a tiny pamphlet published privately, that Charles Bell put forward his "New Idea" that the nervous system was constructed on the principle that "the nerves are not single nerves possessing various powers, but bundles of different nerves, whose filaments are united for the convenience of distribution, but which are distinct in office as they are in origin from the brain."

Our present knowledge of the nervous system is to a large extent only an exemplification and expansion of Charles Bell's "New Idea," and has its origin in that.

If we pass from the problems of the living organism viewed as a machine to those presented by the varied features of the different creatures who have lived, or who still live on the earth, we at once call to mind that the middle years of the present century mark an epoch in biologic thought such as never came before, for it was then that Charles Darwin gave to the world the 'Origin of Species.'

That work, however, with all the far-reaching effects which it has had, could have had little or no effect, or, rather, could not have come into existence, had not the earlier half of the century been in travail preparing for its coming. For the germinal idea of Darwin appeals, as to witnesses, to the results of two lines of biologic investigation which were almost unknown to the men of the eighteenth century.

To one of these lines I have already referred. Darwin, as we know, appealed to the geological record; and we also know how that record, imperfect as it was then, and imperfect as it must always remain, has since his time yielded the most striking proofs of at least one part of his general conception. In 1799 there was, as we have seen, no geological record at all.

Of the other line I must say a few words.

To-day the merest beginner in biologic study, or even that exemplar of acquaintance without knowledge, the general reader, is aware that every living being, even man himself, begins its independent existence as a tiny ball, of which we can, even acknowledging to the full the limits of the optical analysis at our command, assert with confidence that in structure, using that word in its ordinary sense, it is in all cases absolutely simple. It is equally well known that the features of form which supply the characters of a grown-up living being, all the many and varied features of even the most complex organism, are reached as the goal of a road, at times a long road, of successive changes; that the life of every being, from the ovum to its full estate, is a series of shifting scenes, which come and go, sometimes changing abruptly, sometimes melting the one into the other, like dissolving views, all so ordained that often the final shape with which the creature seems to begin, or is said to begin, its life in the world is the outcome of many shapes, clothed with which it in turn has lived many lives before its seeming birth.

All, or nearly all, the exact knowledge of the laboured way in which each living creature puts on its proper shape and structure is the heritage of the present century. Although the way in which the chick is moulded in the egg was not wholly unknown even to the ancients, and in later years had been told, first in the sixteenth century by Fabricius, then in the seventeenth century in a more clear and striking manner by the great Italian naturalist Malpighi, the teaching thus offered had been neglected or misinterpreted. At the close of the eighteenth century the dominant view was that in the making of a creature out of the egg there was no putting on of wholly new parts, no epigenesis. It was taught that the entire creature lay hidden in the egg, hidden by reason of the very transparency of its substance, lay ready-made but folded up, as it were, and that the process of development within the egg or within the womb was a mere unfolding, a simple evolution. Nor did men shrink from accepting the logical outcome of such a view—namely, that within the unborn creature itself lay in like manner, hidden and folded up, its offspring also, and within that again its offspring in turn, after the fashion of a cluster of ivory balls carved by Chinese hands, one within the other. This was no fantastic view put forward by an imaginative dreamer; it was seriously held by sober men, even by men like the illustrious Haller, in spite of their recognising that as the chick grew in the egg some changes of form took place. Though so early as the middle of the eighteenth century Friedrich Caspar Wolff, and, later on, others had strenuously opposed such a view, it held its own not only to the close of the century, but far on into the next. It was not until a quarter of the present century had been added to the past that Von Baer made known the results of researches which once and for all swept away the old view. He, and others working after him, made it clear that each individual puts on its final form and structure not by an unfolding of pre-existing hidden features, but by the formation of new parts through the continued differentiation of a primitively simple material. It was also made clear that the successive changes which the embryo undergoes in its progress from the ovum to maturity are the expression of morphologic laws, that the progress is one from the general to the special, and that the shifting scenes of embryonic life are hints and tokens of lives lived by ancestors in times long past.

If we wish to measure how far off in biologic thought the end of the last century stands, not only from the end, but even from the middle of this one, we may imagine Darwin striving to write the 'Origin of Species' in 1799. We may fancy him being told by philosophers, explaining how one group of living beings differed from another group because all its members and all their ancestors came into existence at one stroke when the first-born progenitor of the race, within which all the rest were folded up, stood forth as the result of a creative act. We may fancy him listening to a debate between the philosopher who maintained that all the fossils strewn in the earth were the remains of animals or plants churned up in the turmoil of a violent universal flood, and dropped in their places as the waters went away, and him who argued that such were not really the "spoils of living creatures," but the products of some playful plastic power which, out of the superabundance of its energy fashioned here and there the lifeless earth into forms which imitated, but only imitated, those of living things. Could he, amid such surroundings, by any flight of genius have beat his way to the conception for which is name will ever be known?

A Difference Which Means Progress.

Here I may well turn away from the past. It is not my purpose, nor, as I have said, am I fitted, nor is this perhaps the place, to tell even in outline the tale of the work of science in the nineteenth century. I am content to have pointed out that the two great sciences of chemistry and geology took their birth, or at least began to stand alone, at the close of the last century, and have grown to be what we know them now within about a hundred years, and that the study of living beings has within the same time been so transformed as to be to-day something wholly different from what it was in 1799. And, indeed, to say more would be to repeat almost the same story about other things. If our present knowledge of electricity is essentially the child of the nineteenth century, so also is our present knowledge of many other branches of physics. And those most ancient forms of exact knowledge, the knowledge of numbers and of the heavens, whose beginning is lost in the remote past, have, with all other kinds of natural knowledge, moved onward during the whole of the hundred years with a speed which is ever increasing. I have said, I trust, enough to justify the statement that in respect to natural knowledge a great gulf lies between 1799 and 1899. That gulf, moreover, is a twofold one; not only has natural knowledge been increased, but men have run to and fro spreading it as they go. Not only have the few driven far back round the full circle of natural knowledge the dark clouds of the unknown which wrap us all about, but also the many walk in the zone of light thus increasingly gained. If it be true that the few to-day are, in respect to natural knowledge, far removed from the few of those days, it is also true that nearly all which the few alone knew then, and much which they did not know, has now become the common knowledge of the many.

What, however, I may venture to insist upon here is that the difference in respect to natural knowledge, whatever be the case with other differences between then and now, is undoubtedly a difference which means progress. The span between the science of that time and the science of to-day is beyond all question a great stride onwards.

We may say this, but we must say it without boasting. For the very story of the past which tells of the triumphs of science bids the man of science put away from him all thoughts of vainglory. And that by many tokens.

Whoever, working at any scientific problem, has occasion to study the inquiries into the same problem made by some fellow-worker in the years long gone by, comes away from that study humbled by one or other of two different thoughts. On the one hand he may find, when he has translated the language of the past into the phraseology of to-day, how near was his forerunner of old to the conception which he thought, with pride, was all his own, not only so true but so new. On the other hand, if the ideas of the investigator of old, viewed in the light of modern knowledge, are found to be so wide of the mark as to seem absurd, the smile which begins to play upon the lips of the modern is checked by the thought: Will the ideas which I am now putting forth, and which I think explain so clearly, so fully, the problem in hand, seem to some worker in the far future as wrong and as fantastic as do these of my forerunner to me? In either case his personal pride is checked. Further, there is written clearly on each page of the history of science, in characters which cannot be overlooked, the lesson that no scientific truth is born anew, coming by itself and of itself. Each new truth is always the offspring of something which has gone before, becoming in turn the parent of something coming after. In this aspect the man of science is unlike, or seems to be unlike, the poet and the artist. The poet is born, not made; he rises up, no man knowing his beginnings; when he goes away, though men after him may sing his songs for centuries, he himself goes away wholly, having taken with him his mantle, for this he can give to none other. The man of science is not thus creative; he is created. His work, however great it be, is not wholly his own; it is in part the outcome of the work of men who have gone before. Again and again a conception which has made a name great has come not so much by the man's own effort as out of the fulness of time. Again and again we may read in the words of some man of old the outlines of an idea which in later days has shone forth as a great acknowledged truth. From the mouth of the man of old the idea dropped barren, fruitless; the world was not ready for it, and heeded it not; the concomitant and abutting truths which could give it power to work were wanting. Coming back again in later days, the same idea found the world awaiting it; things were in travail preparing for it; and someone, seizing the right moment to put it forth again, leapt into fame. It is not so much the men of science who make science, as some spirit which, born of the truths already won, drives the man of science onward and uses him to win new truths in turn.

It is because each man of science is not his own master, but one of many obedient servants of an impulse which was at work long before him, and will work long after him, that in science there is no falling back. In respect to other things there may be times of darkness and times of light, there may be risings, decadences, and revivals. In science there is only progress. The path may not be always a straight line, there may be swerving to this side and to that, ideas may seem to return again and again to the same point of the intellectual compass; but it will always be found that they have reached a higher level—they have moved, not in a circle, but in a spiral. Moreover, science is not fashioned as is a house, by putting brick to brick, that which is once put remaining as it was put to the end. The growth of science is that of a living being. As in the embryo phase follows phase, and each member of the body puts on in succession different appearances, though all the while the same member, so a scientific conception of one age seems to differ from that of a following age, though it is the same one in the process of being made; and as the dim outlines of the early embryo become, as the being grows more distinct and sharp, like a picture on a screen brought more and more into focus, so the dim gropings and searchings of the men of science of old are by repeated approximations wrought into the clear and exact conclusions of later times.

The Effect of Increasing Knowledge on Man.

The story of natural knowledge, of science, in the nineteenth century, as, indeed, in preceding centuries, is, I repeat, a story of continued progress. There is in it not so much as a hint of falling back, not even of standing still. What is gained by scientific inquiry is gained for ever; it may be added to, it may seem to be covered up, but it can never be taken away. Confident that the progress will go on, we cannot help peering into the years to come and straining our eyes to forcsee what science will become and what it will do as they roll on. While we do so, the thought must come to us, Will all the increasing knowledge of Nature avail only to change the ways of man—will it have no effect on man himself?

The material good which mankind has gained and is gaining through the advance of science is so imposing as to be obvious to everyone, and the praises of this aspect of science are to be found in the mouths of all. Beyond all doubt science has greatly lessened and has markedly narrowed hardship and suffering; beyond all doubt science has largely increased and has widely diffused ease and comfort. The appliances of science have, as it were, covered with a soft cushion the rough places of life, and that not for the rich only, but also for the poor. So abundant and so prominent are the material benefits of science that in the eyes of many these seem to be the only benefits which she brings. She is often spoken of as if she were useful and nothing more, as if her work were only to administer to the material wants of man.

Is this so?

We may begin to doubt it when we reflect that the triumphs of science which bring these material advantages are in their very nature intellectual triumphs. The increasing benefits brought by science are the results of man's increasing mastery over Nature, and that mastery is increasingly a mastery of mind; it is an increasing power to use the forces of what we call inanimate nature in place of the force of his own or other creatures' bodies; it is an increasing use of mind in place of muscle.

Is it to be thought that that which has brought the mind so greatly into play has had no effect on the mind itself? Is that part of the mind which works out scientific truths a mere slavish machine producing results it knows not how, having no part in the good which in its working it brings forth?

What are the qualities, the features of that scientific mind which has wrought, and is working, such great changes in man's relation to Nature? In seeking an answer to this question we have not to inquire into the attributes of genius. Though much of the progress of science seems to take on the form of a series of great steps, each made by some great man, the distinction in science between the great discoverer and the humble worker is one of degree only, not of kind. As I was urging just now, the greatness of many great names in science is often, in large part, the greatness of occasion, not of absolute power. The qualities which guide one man to a small truth silently taking its place among its fellows, as these go to make up progress, are at bottom the same as those by which another man is led to something of which the whole world rings.

The features of the fruitful scientific mind are in the main three.

In the first place, above all other things, his nature must be one which vibrates in unison with that of which he is in search; the seeker after truth must himself be truthful, truthful with the truthfulness of Nature. For the truthfulness of Nature is not wholly the same as that which man sometimes calls truthfulness. It is far more imperious, far more exacting. Man, unscientific man, is often content with "the nearly" and "the almost." Nature never is. It is not her way to call the same two things which differ, though the difference may be measured by less than the thousandth of a milligramme or of a millimetre, or by any other like standard of minuteness. And the man who, carrying the ways of the world into the domain of science, thinks that he may treat Nature's differences in any other way than she treats them herself, will find that she resents his conduct; if he in carelessness or in disdain overlooks the minute difference which she holds out to him as a signal to guide him in his search, the projecting tip, as it were, of some buried treasure, he is bound to go astray, and the more strenuously he struggles on, the farther will be find himself from his true goal.

In the second place, he must be alert of mind. Nature is ever making signs to us, she is ever whispering to us the beginnings of her secrets; the scientific man must be ever on the watch, ready at once to lay hold of Nature's hint however small, to listen to her whisper however low.

In the third place, scientific inquiry, though it be pre-eminently an intellectual effort, has need of the moral quality of courage—not so much the courage which helps a man to face a sudden difficulty as the courage of steadfast endurance. Almost every inquiry, certainly every prolonged inquiry, sooner or later goes wrong. The path, at first so straight and clear, grows crooked and gets blocked; the hope and enthusiasm, or even the jaunty ease, with which the inquirer set out leave him, and he falls into a slough of despond. That is the critical moment calling for courage. Struggling through the slough, he will find on the other side the wicket-gate opening up the real path; losing heart, he will turn back and add one more stone to the great cairn of the unaccomplished.

But, I hear someone say, these qualities are not the peculiar attributes of the man of science; they may be recognised as belong-

ing to almost everyone who has commanded or deserved success, whatever may have been his walk of life. That is so. That is exactly what I would desire to insist, that the men of science have no peculiar virtues, no special powers. They are ordinary men, their characters are common, even commonplace. Science, as Huxley said, is organised common sense, and men of science are common men, drilled in the ways of common sense.

For their life has this feature. Though in themselves they are no stronger, no better than other men, they possess a strength which, as I just now urged, is not their own, but is that of the science whose servants they are. Even in his apprenticeship, the scientific inquirer, while learning what has been done before his time, if he learns it aright, so learns it that what is known may serve him not only as a vantage ground whence to push off into the unknown, but also as a compass to guide him in his course. And when fitted for his work he enters on inquiry itself, what a zealous, anxious guide, what a strict and, because strict, helpful schoolmistress does Nature make herself to him! Under her care every inquiry, whether it bring the inquirer to a happy issue or seem to end in nought, trains him for the next effort. She so orders her ways that each act of obedience to her makes the next act easier for him, and step by step she leads him on towards that perfect obedience which is complete mastery.

Indeed, when we reflect on the potency of the discipline of scientific inquiry we cease to wonder at the progress of scientific knowledge. The results actually gained seem to fall so far short of what under such guidance might have been expected to have been gathered in that we are fain to conclude that science has called to follow her, for the most part, the poor in intellect and the wayward in spirit. Had she called to her service the many acute minds who have wasted their strength struggling in vain to solve hopeless problems, or who have turned their energies to things other than the increase of knowledge; had she called to her service the many just men who have walked straight without the need of a rod to guide them, how much greater than it has been would have been the progress of science, and how many false teachings would the world have been spared! To men of science themselves, when they consider their favoured lot, the achievements of the past should serve not as a boast, but as a reproach.

If there be any truth in what I have been urging, that the pursuit of scientific inquiry is itself a training of special potency, giving strength to the feeble and keeping in the path those who are inclined to stray, it is obvious that the material gains of science, great as they may be, do not make up all the good which science brings or may bring to man. We especially, perhaps, in these later days through the rapid development of the physical sciences, are too apt to dwell on the material gains alone. As a child in its infancy looks upon its mother only as a giver of good things, and does not learn till in after days how she was also showing her love by carefully training it in the way it should go, so we, too, have thought too much of the gifts of science, overlooking her power to guide.

Man does not live by bread alone, and science brings him more than bread. It is a great thing to make two blades of grass grow where before one alone grew; but it is no less great a thing to help a man to come to a just conclusion on the questions with which he has to deal. We may claim for science that while she is doing the one she may be so used as to do the other also. The dictum just quoted, that science is organised common sense, may be read as meaning that the common problems of life which common people have to solve are to be solved by the same methods by which the man of science solves his special problems. It follows that the training which does so much for him may be looked to as promising to do much for them. Such aid can come from science on two conditions only. In the first place, this her influence must be acknowledged; she must be duly recognised as a teacher no less than as a hewer of wood and a drawer of water. And the pursuit of science must be followed not by the professional few only, but, at least in such measure as will ensure the influence of example, by the many. But this latter point I need not urge before this great Association, whose chief object during more than half a century has been to bring within the fold of science all who would answer to the call. In the second place, it must be understood that the training to be looked for from science is the outcome not of the accumulation of scientific knowledge, but of the practice of scientific inquiry. Man may have at his fingers' ends all the accomplished results and all the current opinions of any one or of all the branches of science, and yet remain wholly unscientific in mind; but no one can have carried out even the humblest research without the spirit of science in some measure resting upon him. And that spirit may in part be caught even without entering upon an actual investigation in search of a new truth. The learner may be led to old truths, even the oldest, in more ways than one. He may be brought abruptly to a truth in its finished form, coming straight to it like a thief climbing over the wall; and the hurry and press of modern life tempt many to adopt this quicker way. Or he may be more slowly guided along the path by which the truth was reached by him who first laid hold of it. It is by this latter way of learning the truth, and by this alone, that the learner may hope to catch something at least of the spirit of the scientific inquirer.

This is not the place, nor have I the wish, to plunge into the turmoil of controversy; but, if there be any truth in what I have been urging, then they are wrong who think that in the schooling of the young science can be used with profit only to train those for whom science will be the means of earning their bread. It may be that from the point of view of the pedagogic art the experience of generations has fashioned out of the older studies of literature an instrument of discipline of unusual power, and that the teaching of science is as yet but a rough tool in unpractised hands. That, however, is not an adequate reason why scope should not be given for science to show the value which we claim for it as an intellectual training fitted for all sorts and conditions of men. Nor need the studies of humanity and literature fear her presence in the schools, for if her friends maintain that that teaching is one-sided, and, therefore, misleading, which deals with the doings of man only, and is silent about the works of Nature, in the sight of which he and his doings shrink almost to nothing, she herself would be the first to admit that that teaching is equally wrong which deals only with the works of Nature and says nothing about the doings of man, who is, to us at least, Nature's centre.

SCIENCE WORKS FOR GOOD.

There is yet another general aspect of science on which I crave leave to say a word. In that broad field of human life which we call politics, in the struggle not of man with man, but of race with race, science works for good. If we look only on the surface it may at first sight seem otherwise. In no branch of science has there during these later years been greater activity and more rapid progress than in that which furnishes the means by which man brings death, suffering, and disaster on his fellow-men. If the healer can look with pride on the increased power which science has given him to alleviate human suffering and ward off the miseries of disease, the destroyer can look with still greater pride on the power which science has given him to sweep away lives and to work desolation and ruin; while the one has slowly been learning to save units, the other has quickly learnt to slay thousands. But, happily, the very greatness of the modern power of destruction is already becoming a bar to its use, and bids fair—may we hope before long?—wholly to put an end to it. In the words of Tacitus, though in another sense, the very preparations for war, through the character which science gives them, make for peace.

Moreover, not in one branch of science only, but in all, there is a deep undercurrent of influence sapping the very foundations of all war. As I have already urged, no feature of scientific inquiry is more marked than the dependence of each step forward on other steps which have been made before. The man of science cannot sit by himself in his own cave weaving out results by his own efforts, unaided by others, heedless of what others have done and are doing. He is but a bit of a great system, a joint in a great machine, and he can only work aright when he is in due touch with his fellow-workers. If his labour is to be what it ought to be, and is to have the weight which it ought to have, he must know what is being done, not by himself, but by others, and by others not of his own land, and speaking his tongue only, but also of other lands and of other speech. Hence it comes about that to the man of science the barriers of manners and of speech which pen men into nations become more and more unreal and indistinct. He recognises his fellow-worker, wherever he may live and whatever tongue he may speak, as one who is pushing forward shoulder to shoulder with him towards a common goal, as one whom he is helping and who is helping him. The touch of science makes the whole world kin.

The history of the past gives us many examples of this brotherhood of science. In the revival of learning throughout the sixteenth and seventeenth centuries, and some way on into the eighteenth century, the common use of the Latin tongue made intercourse easy. In some respects in those earlier days science was more cosmopolitan than it afterwards became. In spite of the difficulties and hardships of travel, the men of science of different lands again and again met each other face to face, heard with their ears, and saw with their eyes what their brethren had to say or show. The Englishman took the long journey to Italy to study there; the Italian,

the Frenchman, and the German wandered from one seat of learning to another, and many a man held a chair in a country not his own. There was help, too, as well as intercourse. The Royal Society of London took upon itself the task of publishing nearly all the works of the great Italian Malpighi, and the brilliant Lavoisier, two years before his own countrymen in their blind fury slew him, received from the same body the highest token which it could give of its esteem.

In these closing years of the nineteenth century this great need of mutual knowledge and of common action felt by men of science of different lands is being manifested in a special way. Though nowadays what is done anywhere is soon known everywhere, the news of a discovery being often flashed over the globe by telegraph, there is an increasing activity in the direction of organisation to promote international meetings and international co-operation. In almost every science inquirers from many lands now gather together at stated intervals in international congresses to discuss matters which they have in common at heart, and go away each one feeling strengthened by having met his brother. The desire that in the struggle to lay bare the secrets of Nature the least waste of human energy should be incurred is leading more and more to the concerted action of nations combining to attack problems the solution of which is difficult and costly. The determination of standards of measurement, magnetic surveys, the solution of great geodetic problems, the mapping of the heavens and of the earth—all these are being carried on by international organisations.

In this and in other countries men's minds have this long while past been greatly moved by the desire to make fresh efforts to pierce the dark secrets of the forbidding Antarctic regions. Belgium has just made a brave single-handed attempt; a private enterprise sailing from these shores is struggling there now, lost for the present to our view; and this year we in England and our brethren in Germany are, thanks to the promised aid of the respective Governments, and no less to private liberality, in which this Association takes its share, able to begin the preparation of carefully organised expeditions. That international amity of which I am speaking is illustrated by the fact that in this country and in that there is not only a great desire, but a firm purpose, to secure the fullest co-operation between the expeditions which will leave the two shores. If in this momentous attempt any rivalry be shown between the two nations, it will be for each a rivalry, not in forestalling, but in assisting the other. May I add that if the story of the past may seem to give our nation some claim to the seas as more peculiarly our own, that claim bespeaks a duty likewise peculiarly our own to leave no effort untried by which we may plumb the seas' yet unknown depths and trace their yet unknown shores? That claim, if it means anything, means that when nations are joining hands in the dangerous work of exploring the unknown South, the larger burden of the task should fall to Britain's share; it means that we in this country should see to it, and see to it at once, that the concerted Antartic expedition which in some two years or so will leave the shores of Germany, of England, and, perhaps, of other lands, should, so far as we are concerned, be so equipped and so sustained that the risk of failure and disaster may be made as small, and the hope of being able not merely to snatch a hurried glimpse of lands not yet seen, but to gather in with full hands a rich harvest of the facts which men not of one science only, but of many, long to know, as great as possible.

Another international scientific effort demands a word of notice. The need which every inquirer in science feels to know, and to know quickly, what his fellow-worker, wherever on the globe he may be carrying on his work or making known his results, has done or is doing, led some four years back to a proposal for carrying out by international co-operation a complete current index, issued promptly, of the scientific literature of the world. Though much labour in many hands has been spent upon the undertaking, the project is not yet an accomplished fact. Nor can this, perhaps, be wondered at, when the difficulties of the task are weighed. Difficulties of language, difficulties of driving in one team all the several sciences which, like young horses, wish each to have its head free with leave to go its own way, difficulties mechanical and financial of press and post, difficulties raised by existing interests—these and yet other difficulties are obstacles not easy to be overcome. The most striking and the most encouraging features of the deliberations which have now been going on for three years have been the repeated expressions, coming not from this or that quarter only, but from almost all quarters, of an earnest desire that the effort should succeed, of a sincere belief in the good of international co-operation, and of a willingness to sink as far as possible individual interests for the sake of the common cause. In the face of such a spirit we may surely hope that the many difficulties will ultimately pass out of sight.

Perhaps, however, not the least notable fact of international co-operation in science is the proposal which has been made within the last two years that the leading academies of the world should, by representatives, meet at intervals to discuss questions in which the learned of all lands are interested. A month hence a preliminary meeting of this kind will be held at Wiesbaden; and it is at least probable that the closing year of that nineteenth century in which science has played so great a part may at Paris during the great World's Fair—which every friend, not of science only, but of humanity, trusts may not be put aside or even injured through any untoward event, and which promises to be an occasion not of pleasurable sight-seeing only, but also, by its many international congresses, of international communing in the search for truth—witness the first select Witenagemote of the science of the world.

I make no apology for having thus touched on international co-operation. I should have been wanting, had I not done so, to the memorable occasion of this meeting. A hundred years ago two great nations were grappling with each other in a fierce struggle, which had lasted, with pauses, for many years, and was to last for many years to come; war was on every lip and in almost every heart. To-day this meeting has, by a common wish, been so arranged that those two nations should, in the persons of their men of science, draw as near together as they can, with nothing but the narrow streak of the Channel between them, in order that they may take counsel together on matters in which they have one interest and a common hope. May we not look upon this brotherly meeting as one of many signs that science, though she works in a silent manner and in ways unseen by many, is steadily making for peace?

Much to Give Hope.

Looking back, then, in this last year of the eighteen hundreds, on the century which is drawing to its close, while we may see in the history of scientific inquiry much which, telling the man of science of his short-comings and his weakness, bids him be humble, we also see much, perhaps more, which gives him hope. Hope is indeed one of the watchwords of science. In the latter-day writings of some who know not science, much may be read which shows that the writer is losing or has lost hope in the future of mankind. There are not a few of these; their repeated utterances make a sign of the times. Seeing in matters lying outside science few marks of progress and many tokens of decline or of decay, recognising in science its material benefits only, such men have thoughts of despair when they look forward to the time to come. But if there be any truth in what I have attempted to urge to-night, if the intellectual, if the moral influences of science are no less marked than her material benefits, if, moreover, that which she has done is but the earnest of that which she shall do, such men may pluck up courage and gather strength by laying hold of her garment. We men of science at least need not share their views or their fears. Our feet are set, not on the shifting sands of the opinions and of the fancies of the day, but on a solid foundation of verified truth, which by the labours of each succeeding age is made broader and more firm. To us the past is a thing to look back upon, not with regret, not as something which has been lost never to be regained, but with content, as something whose influence is with us still, helping us on our further way. With us, indeed, the past points not to itself, but to the future; the golden age is in front of us, not behind us; that which we do know is a lamp whose brightest beams are shed into the unknown before us, showing us how much there is in front, and lighting up the way to reach it. We are confident in the advance because, as each one of us feels that any step forward which he may make is not ordered by himself alone and is not the result of his own sole efforts in the present, but is, and that in large measure, the outcome of the labours of others in the past, so each one of us has the sure and certain hope that as the past has helped him, so his efforts, be they great or be they small, will be a help to those to come.

Distinction Between Human Milk and Cow's Milk.—If 2·5 C.c. of human milk be heated on a water bath for 15 to 20 minutes' with an equal volume of 10 per cent. solution of ammonia, a violet rose coloration is produced. N. Umikoff attributes this reaction to the presence of a peculiar albuminoid. Cow's milk does not give the reaction.—*Pharm. Zeit.*, **44**, 253.

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.*

Potassii Tartras.—The constitutional formula given in the Pharmacopœia is intended to show that tartaric acid is di-oxy-succinic acid.

CH_2—CO·OH	CH·OH—CO·OH
CH_2—CO·OH	CH·OH—CO·OH.
Succinic Acid.	Tartaric Acid.

It will be seen that the acid contains four hydroxyl groups, but only two are readily replaceable by bases, *i.e.*, the acid is dibasic. This serves to show how the properties and behaviour of an element are influenced by its environment. For the two replaceable hydrogen atoms are still those of the hydroxyl groups associated with the —CO— or carbonyl-groups, which are strongly electro-negative. The close proximity of these negative groups causes the hydrogen to be readily interchangeable with metals which are more electro-positive than hydrogen. The other hydroxyl groups are connected with the basic residues HC—CH and behave therefore like the hydroxyl groups in the alcohols.

In the official test for purity the salt is ignited and converted thereby into alkali carbonate like the alkali salts of all organic acids—

$$K_2C_4H_4O_6 = K_2CO_3.$$

The excess of carbon is partly burnt off as carbon monoxide and dioxide and partly left behind as charcoal. The charred mass when lixiviated with water and filtered should yield a *colourless* solution of potassium carbonate. Any trace of yellow or brown colour indicates insufficient incineration, and consequently incomplete conversion of the tartrate into carbonate. The results yielded by the titration of a coloured solution will be, therefore, always too low.

Since one molecule of tartrate ($K_2C_4H_4O_6$, H_2O = 242·46) yields one molecule of carbonate, which is capable of neutralising one molecule of sulphuric acid (H_2SO_4 = 97·34), it follows that 242·46 grammes of tartrate having the formula given in the Pharmacopœia, after incineration, will yield an alkaline solution equivalent to 2,000 C.c. normal sol. of sulphuric acid (N/1 H_2SO_4 contains $\frac{1}{2}H_2SO_4$ = 48·67 grammes per litre). From this it follows that one gramme—the quantity given in the official test—will be equivalent to

$$\frac{2000}{242{\cdot}46} \text{ C.c.} \times \frac{N}{1} H_2SO_4 = 8{\cdot}25 \text{ C.c. of } \frac{N}{1} \text{ sulphuric acid solution.}$$

Unless the salt contains some free potassium carbonate before incineration, it cannot therefore yield more alkali than is sufficient to neutralise 8 25 C.c. N/1 H_2SO_4.

The discrepancy between this figure 8·25 and the number of C.c. given in the Pharmacopœia, viz., 8·4, is due to the employment of an incorrect formula. Neutral potassium tartrate crystallises with only half the water stated in the Pharmacopœia, *i.e.*, the formula should be $(K_2C_4H_4O_6)_2H_2O$, or more simply, $K_2C_4H_4O_6\ \frac{1}{2}H_2O$. The molecular equivalent then becomes 233·52, and one gramme of this salt, if absolutely pure, will, after incineration, neutralise

$$\frac{2000}{233{\cdot}52} \text{ C.c.} \times \frac{N}{1} H_2SO_4 = 8{\cdot}56 \text{ C.c.}$$

Potassii Tartras Acidus.—When pure 1 gramme of the salt neutralises 5·35 C.c. N/1 NaOH. The official requirements are that not less than 5·2 C.c. of soda solution are required. This corresponds very closely with the presence of not more than 2½ per cent. of impurities which may be moisture and neutral salts—chiefly calcium tartrate and sulphate—and do not, therefore, consume any of the soda during the titration.

Pulveres.—The only important change in the preparations belonging to this group is the omission of saffron from aromatic chalk powder. This does not affect the medicinal value of the powder, but produces a great alteration in the appearance and odour of the product, particularly when it is administered—as is usually the case - suspended in water.

Pyroxylin.—To the notes on this substance in the previous series (*P. J.*, Dec. 25, 1897), the following may be added. Although the products of the nitration of cellulose are commonly called nitro-celluloses, it would be more correct to describe them as cellulose nitrates. The prefix nitro is used to indicate compounds (of which nitro-benzene is a familiar example) containing the NO_2 group, the nitrogen being linked directly to the carbon of the nucleus R—NO_2. Such nitro-bodies are not easily hydrolysed, and when reduced they yield amines, *e.g.*, nitro-benzene yields aniline—

$$C_6H_5NO_2 + 6H = C_6H_5NH_2 + 2H_2O.$$

Both these reactions indicate that nitrogen connected directly with the carbon is not easily removed. The nitrated celluloses, on the other hand, behave like esters of nitric acid, *i.e.*, they contain NO_2 groups linked, not directly, but through an oxygen atom to the carbon of the nucleus: thus R—O—NO_2. As a consequence of this method of linkage both hydrolysis and reduction easily effect the separation of the NO_2 group, thus—

$$R—O—NO_2 + H—O—H = R—O—H + HO—NO_2,$$

nitric acid being regenerated. The products of reduction are not so simple. The original alcoholic body R—O—H is, however, obtained, and various products resulting from the reduction of the NO_2 group. In order to avoid confusion in nomenclature, it should also be noted that the empirical formula for cellulose is sometimes written $C_{12}H_{20}O_{10}$, that is, double the formula we have employed. viz., $C_6H_{10}O_5$. The formulæ for the cellulose mono-, di-, and tri-nitrates (commonly called nitro-celluloses), then become $C_{12}H_{18}(O{\cdot}NO_2)_2O_8$, $C_{12}H_{16}(O{\cdot}NO_2)_4O_6$, and $C_{12}H_{14}(O{\cdot}NO_2)_6O_4$, and they would be called cellulose di-, tetra-, and hexa-nitrate respectively. The reason for this doubling of the formula is based chiefly upon the alleged production of penta-derivatives such as cellulose penta-nitrate $C_{12}H_{15}(O{\cdot}NO_2)_5O_5$, for which the half formula is clearly inadmissible. The correctness of this view is, however, not definitely settled.

ANALYTICAL NOTES FOR STUDENTS.

(From a Correspondent.)

Soluble Sulphides.—In Attfield's 'Manual' ammonio-sulphate of copper is given as a test for soluble sulphides, with which it would produce a black ppt., but this reagent will do the same thing in the absence of soluble sulphides with such a solution as of a mixed ferrous and ferric salt, the ppt. being $Fe_3(HO)_8$. As this is a pitfall into which students of the kind sometimes to be met with in chemical laboratories may fall, it seems advisable to make reference to it.

Insoluble Phosphates.—Such salts as the insoluble phosphates of Ca, Ba, Sr, and Mg may very easily be detected, so far as their acidulous radical is concerned, by boiling them with an aqueous solution of silver nitrate—a yellow ppt. is produced which, when separated by filtration, can be identified in the usual way, and the liquid will contain the bases as nitrates. The phosphate of iron does not respond to this test unfortunately. Why?

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

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THE SCIENCE OF THE CENTURY AND ITS OUTCOME.

THE subject chosen by Sir MICHAEL FOSTER for his presidential address to the British Association was an ample one, being neither more nor less than the development of science during this fast-expiring nineteenth century, and the results of that development. Not that he attempted the impossible—a survey of all the scientific results of the century; for, as he well said, it was enough to dwell on some few salient features distinguishing the way in which we nowadays look upon the works of Nature around us. In 1799, he points out, the ideas which now cluster around the words oxygen and oxidation were lacking to all but a few, the light of truth about oxidation and combustion, which had flashed out in the writings of JOHN MAYOW, in the third quarter of the seventeenth century, having died away as soon as it had come. The phantom suggestion called phlogiston misled philosophers for the next hundred years, and it was not until the end of the third quarter of the eighteenth century that the new light which still persists lit up the minds of men of science. During the last quarter of the eighteenth century, then, this new idea of oxygen and oxidation, which is now woven as a master-thread into all our scientific conceptions, was struggling into existence, and a hundred years ago it was all but absolutely unknown to the world outside a select few among the philosophers. Again, electricity, as we now know it, took its birth in 1799. It was then that VOLTA brought to light the apparently simple truths out of which so much has sprung, and the ideas suggested by him and stimulated by OERSTED have since wholly changed man's material relations to the circumstances of life, while carrying him far in his knowledge of the nature of things. Turning to the science of geology as we now know it, we find it was struggling into birth in 1799. "Outside a narrow circle the thoughts, even of the educated, about the history of the globe were bounded by the story of the Deluge—though the story was often told in a strange fashion—or were guided by fantastic views of the plastic forces of a sportive Nature." Finally, in biology—that branch of science which deals with the problems presented by living beings—the thoughts of men in 1799 were also very different from the thoughts of men to-day. The quest after the knowledge of the nature of living beings was one of the earliest on which man set out, but, as time has gone on, the pursuit of natural knowledge has seemed to lead him away from himself, and his knowledge of the nature of living things, including that of his own nature, has advanced slowly, waiting till the progress of other branches of natural knowledge could bring it aid. But the biologic sciences have marched rapidly onward during the past hundred years. Most of the exact knowledge of the laboured way in which each living creature puts on its proper shape and structure is the heritage of the present century, and if we wish to measure how far off in biologic thought the end of the last century stands, it is only necessary to try to imagine DARWIN striving to write the 'Origin of Species' in 1799.

The sciences of chemistry, electricity, and geology, then, have grown to be what we know them now within about a hundred years, and the study of living beings has been so transformed within the same time as to be to-day something wholly different from what it was in 1799. Our knowledge of mathematics and astronomy, too, has moved onward during the past hundred years with a speed which is ever increasing. "Not only has natural knowledge been increased, but men have run to and fro spreading it as they go. Not only have the few driven far back round the full circle of natural knowledge the dark clouds of the unknown which wrap us all about, but also the many walk in the zone of light thus increasingly gained. If it be true that the few to-day are, in respect to natural knowledge, far removed from the few of those days, it is also true that nearly all which the few alone knew then, and much which they did not know, has now become the common knowledge of the many." The great point insisted upon, however, by Sir MICHAEL FOSTER, is that the difference between then and now is a difference which means progress. "The path may not be always a straight line, there may be swerving to this side and to that, ideas may seem to return again and again to the same point of the intellectual compass; but it will always be found that they have reached a higher level—they have moved, not in a circle, but in a spiral." The growth of science is likened to that of a living body, phase following phase as in the embryo, and each member of the body putting on different appearances in succession, though all the while the same member. A scientific conception of one age may seem to differ from that of a following age, though it is the same one in the process of being made, and as the dim outlines of the early embryo become more distinct and sharp as growth proceeds, so the dim gropings and searchings of the old philosophers are by repeated approximations wrought into the clear and exact conclusions of later times.

But while the story of natural knowledge in the nineteenth century is one of continued progress, the question suggests itself, will all the increasing knowledge of Nature avail only to change the ways of man, and have no effect on man himself? The material good accruing to mankind through the advances of science is so imposing as to be obvious to everyone, but is science useful and nothing more, asks Sir MICHAEL FOSTER. "Beyond all doubt science has greatly lessened and has markedly narrowed hardship and suffering; beyond all doubt science has largely increased and has widely diffused ease and comfort. The appliances of science have, as it were,

covered with a soft cushion the rough places of life, and that not for the rich only, but also for the poor." But, whilst the material benefits of science are so abundant and so prominent that in the eyes of many they seem to be the only benefits which she brings, is her work only to administer to the material wants of man? In reply, it is urged that the pursuit of science may be regarded as itself a training of special potency, giving strength to the feeble and keeping in the path those who are inclined to stray. That being so, it is obvious that the material gains of science, great as they may be, do not make up all the good which science can bring. Science has been defined by HUXLEY as organised common sense, and that dictum may be read as meaning that the common problems of life, which common people have to solve, are to be solved by the same methods by which the man of science solves his special problems. But that will necessitate the pursuit of science by the many; the influence of science must be acknowledged, and it must be understood that the training to be looked for from science is the outcome of the practice of scientific inquiry. A man may have a wide knowledge of accomplished results and current opinions of one or more branches of science and yet remain wholly unscientific in mind; but if he has carried out even the humblest research the spirit of science must in some measure rest upon him. Those are wrong who think that, in the schooling of the young, science can only be used with profit to train those for whom science will be the means of earning their bread, and scope should be given to show the value claimed for it as an intellectual training fitted for all sorts and conditions of men. The studies of humanity and literature need not fear the presence of science in the schools, for she herself would be the first to admit that teaching to be wrong which deals only with the work of Nature and says nothing about the doings of man.

In conclusion, looking back on the century which is drawing to its close, Sir MICHAEL FOSTER sees much to give the man of science hope. There are not a few writers, who know not science, who are losing or have lost hope in the future of mankind. But if the intellectual and moral influences of science are no less marked than her material benefits, such men may pluck up courage and gather strength by laying hold of her garment. To men of science the past is a thing to look back upon, not with regret, but with content, as something whose influence is still with them, helping them on the further way. The past, indeed, points to the future, the golden age is in front, and that which we know is a lamp whose brightest beams are shed into the unknown before us, showing how much there is in front, and lighting up the way to reach it.

MEDICAL MEN AND SECRET COMMISSIONS.

IT was not to be expected that Sir EDWARD FRY'S letter on the subject of secret commissions, alleged to be accepted by the medical profession, would be allowed to go unanswered, and several replies by leading medical men have since appeared in the *Times*. Dr. SAUNDBY has explained that he had no intention of palliating the acceptance—whether before or after the event—by a medical practitioner of any payment or consideration from a tradesman for recommending his wares. What he endeavoured to show at the annual meeting was that no evidence was forthcoming in support of the charge that medical men received commissions in order to induce them to do certain things, and he quite agrees that it would be better for the profession if the General Medical Council would take more notice of the conduct of members than it does. Dr. J. ROBERTS THOMSON, the new President of the Council of the British Medical Association, thinks Sir EDWARD FRY'S description of the action of that body is the reverse of the actual position, and a gross travesty of the facts. But a much more important contribution to the controversy is a letter signed "F.R.S.," the writer of which is apparently one of the heads of the medical profession. In his opinion the strictures of Sir EDWARD FRY'S letters derive their importance entirely from the eminence and uprightness of their author—a former Lord Justice of Appeal, and now a Privy Councillor, and "to reply to them may have been a duty of courtesy, but was scarcely a duty of defence." Nothing has ever occurred in this writer's long experience of thirty-two years as a consultant, which suggested a corrupt practice, and he retorts upon Sir EDWARD FRY by suggesting that barristers and solicitors are not absolutely impeccable.

In reply to his numerous critics, Sir EDWARD FRY deals in detail with their objections to his remarks, and practically leaves the matter where it was before. He does not consider that the allegations against the medical profession have yet been disproved, and he insists that, while there are apparently black sheep in the medical profession, the Council of the British Medical Association has shown no zeal against those black sheep, but abundant zeal against those who point them out. At the same time he repeats that he was anxious not to be understood as making a charge against the medical profession as a whole, and refers some of his critics to an explicit statement to that effect in his first letter, wherein he stated that he was "sure that many of its members are as incapable of taking a secret commission as her Majesty's judges are of accepting a bribe." Unfortunately, he does not yet define what is a secret commission. So far as chemists are concerned, it may be remarked that there is nothing more criminal in a medical man realising a profit from the dispensing of medicines for his patients than there is in one of her Majesty's judges receiving dividends as a shareholder in a joint stock company of unqualified persons who, by registration under the Companies Acts, are enabled to evade the Pharmacy Act and carry on a business which, as individuals, they are legally incompetent to conduct. Of the two, the medical man has the cleaner hands; and on the whole it must be concluded that Sir EDWARD FRY is hardly justified in writing about "evidence which shows that a noble profession is not untainted in its lower walks by the vice of secret commissions." Nevertheless, the Council of the British Medical Association has undoubtedly been remiss in not dealing with the allegations of the London Chamber of Commerce in a firmer manner. It is always difficult to prove a negative, but that fact should not have deterred the leaders of the medical profession from doing their utmost either to show that the charges brought against certain members of the profession did not apply generally, or to agitate for the enforcement of suitable disciplinary measures in the event of such charges being borne out by satisfactory evidence.

ANNOTATIONS.

Though Exemption from Jury Service is secured by Statute to all registered pharmaceutical chemists actually in practice in England and Wales, it is essential that those who wish to avoid serving upon any juries or inquests should ascertain whether, by any chance, their names have been inserted in the jury lists. It is specifically provided by the Legislature that no person whose name appears in the jury book as a juror shall be entitled to be excused from attendance when summoned, on the ground of any disqualification or exemption other than illness, unless the disqualification or exemption has been claimed by him at or before the revision of the list by the Justices of the Peace. The list of "all men qualified and liable to serve on juries" should be found at the door of "every church, chapel, or other public place of religious worship," on the first three Sundays of September, with a notice subjoined to the effect that all objections to the list will be heard by the Justices in Petty Sessions on a given day in September.

The Jury List, it should be noted, is expressly provided for by Statute, the Clerk of the Peace in every county in England and Wales being bound, on or before July 20 in every year, to issue a precept to the churchwardens and overseers, requiring them to make out a list of all men qualified and liable to serve on juries. Complaints are sometimes received that jury lists have not been prepared or publicly exhibited in certain districts. But, in the event of the Clerk of the Peace, churchwardens, or overseers neglecting their duties with regard to the preparation and public exhibition of the lists, pharmaceutical chemists should bring the facts at once to the notice of the Justices. Sunday next, September 17, is the last day upon which the lists are required to be affixed to the church and chapel doors this year, and readers who have not already searched the lists are advised to do so at once. It should be noted that the lists are not, as a rule, actually affixed to the doors, but to notice boards which may be some distance apart. If any person finds that his name has been included in error, he should promptly notify the overseers, stating his claim for exemption, and follow up the matter, if necessary, by appearing before the Justices of the Peace upon the day named in the notice subjoined to the list. If after appeal to the Justices the error is allowed to remain unremedied the pharmaceutical victim would be justified in standing upon his statutory right and refusing to serve if summoned.

The Arrangements for the October Examinations in London, unless the number of candidates should be abnormally large or unexpectedly small, will be as follow: The Minor practical work will commence on Friday, September 22, and is expected to continue each day until the following Friday, September 29. On Saturday, September 30, the Major practical chemistry will be taken. In Edinburgh, the practical portion of the Minor examination will not commence so early as it does in London. The Major written work in chemistry and physics, and in botany and materia medica, will proceed simultaneously at the two centres on Tuesday, October 3, and Wednesday, October 4.

Persons Desirous of Entering for the October "First" examination are requested to note that the last day for sending in entries to the Registrar is Tuesday, September 26—that is to say, fourteen days prior to the date of examination. This timely intimation, it is hoped, may save some intending candidates the unpleasant experience of having their entry refused, and should thus deliver them from the temptation of anathematising the Society, its bye-laws, and all its works, for faults which are personal to the anathematiser.

The Medicines Stamps sold in Great Britain during the twelve months ending March 31 last brought in a revenue of £266,404—a record sum. The revenue from this source amounted to £240,062 in 1892, but dropped to £213,210 two years later; since that time, however, it has steadily risen, year by year, the increase for the year ending March 31 being £5,552 over the preceding twelve months. The receipts for the past ten years have been as follow; 1890, £217,264; 1891, £225,701; 1892, £240,062; 1893, £220,325; 1894, £213,210; 1895, £234,881; 1896, £238,946; 1897, 254,726; 1898, £260,852; 1899, £266,404. The total for the ten years is £2,372,371, a not inconsiderable sum to be derived by the State from the sale of quack medicines, and indicative of an almost fabulous amount actually spent on those nostrums by a gullible public.

The Death of Rai Bahadur Kanny Lall Dey, C.I.E., at the age of sixty-eight years, is reported as having occurred at Calcutta on August 16 last. The deceased was an honorary member of the Pharmaceutical Society of thirty-six years' standing. He had devoted much attention to the investigation of the indigenous drugs of India, and his book on that subject is a useful work of reference. At an early age he entered the service of the Government of India as an assistant surgeon, and he was subsequently appointed Assistant to the Professor of Chemistry in the Calcutta Medical College. Later, he was appointed Professor of Chemistry in the Residency College, Calcutta, and he also occupied many other important positions as a teacher and examiner.

The Appointment of Pharmacists as Analysts is not likely to become common unless evidence is forthcoming of a much more thorough training in analytical work than can be compassed in a pharmaceutical course of the usual kind and length. The question was discussed by the Council of the Pharmaceutical Society of Ireland last week, but though pharmaceutical chemists might possibly, many years ago, have secured recognition as public analysts, they must not expect to attain to that position now without further effort, such as is required by candidates for the Fellowship of the Institute of Chemistry. Professor Tichborne was entirely wrong in describing that as an English institution, for its full title is the Institute of Chemistry of Great Britain and Ireland, and as such it has been incorporated by Royal Charter. The headquarters of the body are in London, it is true, but they must be somewhere, and can hardly be in two places at once, even if one of those places should happen to be Dublin. And, after all, London is the larger and more important city of the two. With regard to the statement that there are very few "F.I.C.'s" in Ireland, the only remedy we can suggest is to import more or to educate more Irishmen up to the necessary standard, and let them qualify for the Fellowship. So long as the supply of "F.I.C.'s" falls short of the demand, the Irish Local Government Board—which is not altogether an unreasonable body—will doubtless continue to sanction the appointment of trained analysts possessed of an inferior qualification—inferior, that is to say, when considered from the point of view of the work required to be done.

The Fulham Cases under the Sale of Food and Drugs Act, reported in last week's Journal, have attracted much attention locally, and we understand that general dissatisfaction is expressed in the district at the action taken by the local medical officer in initiating the prosecutions. It is curious, by the way, to notice how differently the magistrate's decision appears to have affected some persons. Mr. A. J. Giles, Secretary of the Federation of Grocers' Associations, writing to the *Grocer*, expresses the opinion that the Fulham Vestry authorities received a well-merited snub from Mr. Rose, and he thinks it is no wonder that the magistrate dismissed the summons and gave three guineas costs against the

Vestry. On the other hand, the Editor of *Food and Sanitation* writes absurdly about a London magistate encouraging drug adulteration. Where could the adulteration come in when, as the magistrate apparently found, there was merely an excess of one-third of a grain of potassium iodide in each fluid ounce of the mixture? There should have been only forty grains in each fluid ounce, and the excess of one-third of a grain hardly seems sufficient upon which to base a prosecution. It is, of course, a fact that the Vestry analyst alleged that he had found an excess of potassium iodide equivalent to three grains in each fluid ounce, *i.e.*, nine times more than the magistrate was persuaded the excess really was, but too great accuracy must not be looked for in the average public analyst's certificate. As a case in point, reference may be made to a recent prosecution at Manchester, for selling flour which was alleged by the county analyst to contain one hundred and seventy grains of alum to the pound. The defendant said she had put no alum in the flour, and the analyst engaged by her could detect none. The Somerset House chemists also failed to find any trace of alum in the sample of flour purchased, and the obvious explanation was that the county analyst had made a mistake. That explanation commended itself to the magistrate who tried the case, and he dismissed the summons. But even the editor of *Food and Sanitation* fails to take umbrage at that decision, possibly because the defendant was not a registered chemist.

INACCURATE DISPENSING should undoubtedly be regarded and dealt with as an offence against the public health, but the evidence of such inaccuracy should be clear and irrefutable. The use of adulterated or otherwise unsatisfactory drugs and chemicals should also be a punishable offence. But it is neither adulteration nor substitution to dispense the one-hundred-and-twentieth part more of a medicament such as potassium iodide, and we question whether many public analysts could dispense such a mixture with much greater accuracy than was proved to exist. They might, of course, weigh the required quantity of medicament exactly to within the third decimal place, but a much greater discrepancy than that is inevitable in ordinary dispensing work. Moreover, if public aualysts perform their especial work as crudely as appears to have been the case in the instances commented upon any efforts of theirs to dispense medicines would probably land them in a coroner's court. Seriously, however, there seems to be nothing but prejudice against registered chemists to justify the editor of *Food and Sanitation* iu writing about "surprising decisions," the "vagaries of magistrates," or the "amazing incapacity" of Mr. Rose. Fortunately that worthy magistrate realised that defendants have rights as well as the public, and that even local authorities may be misled at times into doing what is unjust.

THE PHARMACEUTICAL SOCIETY OF IRELAND has been favoured by its president with a succinct and vigorous statement regarding the present position of the company-pharmacy problem. In his speech, a full report of which appears at page 290, he claims credit for his Couucil where credit is due; defines the Lord Chancellor's real or supposed position; pleads for the co-operation of the British Society; and corrects the misstatements of the official organ of his own Society. It will be noted that Mr. Downes is decidedly averse to any further tinkering of the Pharmacy Acts, and regards it as essential that the attention of pharmacists should be limited to the Companies Acts. He asks, in brief, that the principle of the Pharmacy Acts should be recognised by Parliament in considering any other legislatiou, and that it should not be possible to evade the Pharmacy Acts by registration under the Companies Acts. Not the least important point in the speech was the warning to pharmacists, that they must be prepared to do something iu defence of their own interests. As Mr. Downes wisely said, they must bear in mind that the question is theirs, and that according as they enlighten and instruct their representatives in Parliament will the fight be made easy or difficult, successful or unsuccessful. In other words, though the Councils of the two Pharmaceutical Societies may foresee events and take action, it depends upon the Societies themselves—*i.e.*, upon their individual members—to make that action effective.

WIRELESS TELEPHONY follows close upon the heels of wireless telegraphy, some remarkable experiments by Sir William Preece being recorded by the *Daily News*. It appears that for some weeks experiments of great interest in wireless telephony, as distinguished from Signor Marconi's wireless telegraphy, have been carried on near Carnarvon. Four high poles have been erected near Llanfaglan Church, at the South end of Menai Straits. On a sandbank across Gwyrfal River, half-a-mile off, four similar poles were erected. Half-a-mile still further, at Belan Fort, is a high pole supporting a coil of wire, one end being anchored in deep water between these points. Sir William Preece has succeeded without other intermediary than the ether in transmitting the sound of a succession of taps. Those taps were made with a view of sending messages by the Morse code. They were distinctly heard at the receiving station by placing the newly invented ethereal telephone to the ear. Messages have been sent without interruption for several days. Further experiments from Belan Fort to Llanddwyn Lighthouse and to Carnarvon Castle are contemplated. So far the system is reported to yield much more rapid results than Marconi's, although the sounds are not quite so distinct as could be desired.

THE RECONSTITUTION OF LONDON UNIVERSITY, as should be well known, is now under consideration by a Statutory Commission, of which Lord Davey is Chairman, and a "draft statute" is understood to have been issued to various parties concerned, for consideration prior to the reassembling of the Commission after the recess. What purports to be part of that draft statute was published by the *British Medical Journal* a fortnight ago and is reprinted iu this week's Journal, but we have reason for believing that the publication is entirely unauthorised, and that the matter published must not be regarded as representing the intentions of the Statutory Commission. It is only fair to add that the *British Medical Journal* refers to the document from which it quotes as beiug "strictly confidential," but points out at the same time that the Convocation of the University was summoned to consider it iu public meeting. In view of the fact that "pharmacy" is included iu the list of Boards of Studies, an impression prevails that this may be an indication of the possibility of a degree iu pharmacy being instituted by the University of Loudon. Such an event, however, is in the highest degree improbable. A degree "for" pharmacists is not unlikely to be a feature of the reconstituted University, but it will not necessarily be a degree "in" pharmacy. Indeed, the probability is that it most certainly will not, though training in pharmacy may iu some way be taken iuto consideration in the grauting of a degree in science.

THE LONDON UNIVERSITY COMMISSION ACT provides that the members of each Board of Studies are to be appointed by the Senate of the University from (*a*) members of a faculty who teach or examine in the Board's subjects; (*b*) other teachers of the University, who teach the Board's subjects; or (*c*) such other persons, not exceeding one-fourth of the total number of the Board, as it may think fit; adequate representation on each Board being secured for teachers of the University not belonging to any school of the University. Whether or not the Pharmaceutical Society's School of Pharmacy may be expected to be recognised as a school of the University it would be premature to state, but in auy case members of the teaching staff of that institution will be eligible to become teachers of the reconstituted University, and as such may be appointed as members of a Board of Studies.

THE RECONSTITUTION OF THE UNIVERSITY OF LONDON.

When the Statutory Commission reassembles after the recess it will have before it the various representations made by the University of London, the Technical Education Board, the medical schools, and various colleges respecting the "Draft Statute No. 1," which together with certain draft regulations having reference to the B.Sc. Examination, were issued to the parties concerned in June last. According to the *British Medical Journal* the "draft statute" contains 93 clauses which deal with the whole question of the reconstitution of the University, and amplify while they follow the main provisions of the Act of last year and the schedule attached thereto, which contained the so-called "com promise" arranged between the rival parties in university politics.

The Senate.

The new Senate will consist of the Chancellor, the Chairman of Convocation, and 54 other persons. The schedule to the Act requires 16 senators to be elected by Convocation and 16 by the faculties. Clause 11 deals with the appropriation of the 16 senators to be elected by Convocation among the graduates in the various faculties.

At first the 16 representatives are to be elected as follows: 6 by the graduates in arts, 1 by the graduates in laws, 1 by the graduates in music, 2 by the graduates in medicine and surgery, 6 by the graduates in science; but as soon as the registered graduates in theology number 30, 1 member shall be elected by the graduates in theology, and 5 by the graduates in arts; in the meanwhile the graduates in theology are to vote with the graduates in arts. The same clause appropriates the 16 members of the Senate elected by the faculties among the several faculties as follows: 1 by the faculty of theology, 4 by the faculty of arts, 1 by the faculty of laws, 1 by the faculty of music, 3 by the faculty of medicine and surgery, 4 by the faculty of science, 1 by the faculty of engineering, 1 by the faculty of economics and political science.

The Academic Council.

The Academic Council is dealt with in Clauses 28 and 29; the constitution of the Council is defined by the Act, and of the 20 members 16 are the persons appointed to the Senate by the faculties. The Act, Schedule, Part 2, provides for the due representation on the Senate and the Academic Council of all sections of teachers of the University. The draft statute provides in Clause 66, in accordance with the Act, Schedule 1, Section 11, that the Senate shall take care that teachers of the University, not belonging to any school of the University, shall be adequately represented on each Board of Studies, but there is no such corresponding provision with respect to the representation of teachers not belonging to a school of the University on the faculties, and therefore there is no guarantee that such teachers will be found among the representatives of the faculties on the Senate, and as the representatives of the faculties on the Senate constitute the great majority of the Academic Council, there is no guarantee that the external teachers will be adequately represented on the Academic Council.

External Students and University Extension.

The next following clauses in the draft statute relate to the Board for External Students and that for the promotion of University Extension.

The Faculties.

Clause 54 provides that there shall be eight faculties, namely :—

Theology.
Art.
Law.
Music.
Medicine and surgery.
Science.
Engineering
Economics and political science (including commerce and industry).

The faculties will consist of (1) those teachers who are nominated as members of the respective faculties by the Commissioners, (2) professors, (3) assistant professors, (4) readers and lecturers appointed by the Senate, and (5) such other teachers of the University as may from time to time be admitted by the Senate.

The Boards of Studies.

Clause 64 provides for the appointment of 35 boards of studies. These boards are the following :—

(1) Theology.
(2) Greek and Latin.
(3) Oriental (including Semitic) languages.
(4) Mediæval and modern languages.
(5) Ancient mediæval and modern history and geography (see also 29).
(6) Greek, Roman, and Syriac, Egyptian, and general archæology with palæography and diplomatique.
(7) Philosophy, including logic, psychology, and metaphysics, moral, political, and social philosophy and the history of philosophy.
(8) Pedagogy.
(9) Fine art, including architecture.
(10) Law.
(11) Economics and political science (including commerce and industry).
(12) Music.
(13) Preliminary medical studies, such as physics, chemistry and biology.
(14) Early medical studies, such as anatomy, physiology, general pathology, and pharmacology.
(15) Advanced medical studies.
(16) Dentistry.
(17) Pharmacy.
(18) Hygiene and public health.
(19) Mathematics.
(20) Astronomy and navigation.
(21) Physics.
(22) Chemistry.
(23) Chemical industries.
(24) Geology, including petrology, palæontology, and mineralogy.
(25) Ethnology.
(26) Zoology and comparative anatomy.
(27) Physiology and experimental psychology.
(28) Ethnology (?)
(29) Physical, political, and commercial geography.
(30) Mechanical and marine engineering.
(31) Electrical engineering.
(32) Naval architecture.
(33) Civil engineering.
(34) Mining and metallurgy.
(35) Agriculture.

Matriculation.

Clause 80 provides that every candidate for admission as internal or external student shall pass such entrance or matriculation examination or fulfil such other test of fitness as may be from time to time prescribed. The Senate may make provisions for separate examinations by way of matriculation for different classes of students according to the course of study they propose to follow, and there is to be a special board to advise the Senate on questions relating to the matriculation both of internal and external students, the Board to consist of the Vice-Chancellor, the Chairman of Convocation, and such teachers of the University and other persons as the Senate may annually appoint, provided that the number of such other persons shall not exceed one-fourth of the total number.

Internal Students.

The last six Clauses, 88 to 93, relate to internal students. The course of study for an internal student must be approved by the Senate and extend over not less than three academic years. The Senate is to provide for the guidance of the courses of study for internal students, with however a wide option in the choice of study and with power to vary the course. It appears that a matriculation may be dispensed with in some cases, but certificates of courses f study must be produced by candidates before admission to examination for the first degree. Such course of study, if approved by the Senate, may be carried on in any school of the University. A graduate who has taken a degree as an external student may proceed on approved conditions to the next higher degree as an internal student.

PHARMACEUTICAL SOCIETY OF IRELAND.

The monthly meeting of the Council of the Pharmaceutical Society of Ireland was held on Wednesday, the 6th instant, at 67, Lower Mount Street, Dublin.

The President, Mr. R. J. Downes, was in the chair, and there were also present the Vice-President (Mr. Beggs), and Messrs. O'Sullivan, Porter, Michie, Simpson, Professor Tichborne, J. J. Bernard, Wells, and Grindley.

The Lord Chancellor's Speech.

The PRESIDENT said: Gentlemen, I am very pleased to meet you again after two month's absence, and allow me to express my acknowledgments for the sympathy I received from every member of the Council, as well as from other members of the Society. Since we last met we have had a pronouncement by the Lord Chancellor in moving the third reading of the Companies Acts Amendment Bill in the House of Lords. You will remember that in July I reported that the clauses to control company pharmacy had been inserted in the Bill, and I claimed credit to this Society for that. I consider we may now claim to have won the whole of our case in the House of Lords, for on the 2nd of August the President of the Pharmaceutical Society of Great Britain said: "He might say that they had probably pursued a wise course in lying low, and not taking the course they were much pressed to do on some sides, of opposing the Bill in the House of Lords." I am much obliged to him for that admission, for I confess I am jealous for the honour of this Council that we should get credit for what we have done. When we turn to the address of the Lord Chancellor, and consider it paragraph by paragraph, you find that he admits all our contention. He says:—"I am still very strongly convinced that a company ought not to be permitted to do what a private person is prohibited from doing, and that the public must be protected against practising of that sort." After expressing his agreement with the decision of the House of Lords, he proceeds:—"and that decision left the law that a company could be formed to do the very thing which an individual is not permitted to do without examination as to qualifications"; and having defined the law as it is, he says: "I think I may say that the Committee to whom this matter was referred was unanimously of opinion that the formation of companies to practise any profession, and also intended really to take advantage of the company machinery to do that which an individual without qualification may not do, should be stopped." This pronouncement is, to my mind, definite and clear, and quite in harmony with our desires; but we have another statement which is equally satisfactory, and that is his reply to those who are opposing us. They have been in correspondence also, suggesting "that this is an effort to prevent enterprise, and so forth," so he has had both sides of the question before him, and his reply is: "As a matter of fact I think the writers were not familiar with the state of the law. It is true to say that although at present a company cannot be prosecuted for doing it, and a company cannot undergo an examination to enable them to do it, yet if an individual dispenses without qualification you can catch him and prosecute. And it was in view of that state of the law on the subject that the Committee to which this matter was referred came to their conclusion." That is, the entity of a company should be treated as an individual, and, being unqualified, should not be allowed to practise. I would again draw attention to the stress that is laid throughout on what I would call the pharmaceutical side of the question. His statement that "we should guard very carefully the language used" indicated that we are not to regard the phrasing of the clauses as definite; but I rather think that the clauses have been given a place in the Bill in order to secure their discussion, and no doubt the fight will be in the Commons. I think that altogether we may be satisfied with our position to-day as compared with that of this time last year. It remains now for the two societies to unite, and, if they can, to agree as to the phrasing of the amendment we require. Our modes of action may not be identical, but I do deem it essential that we should be at one as to what we want; and I believe that this Council will be pleased to receive the overtures of the British Society, and through our committees to discuss matters in confidence. I think it essential that we should bear in mind that it is an amendment of the Companies Acts that we are dealing with, and that we cannot hope for—nay, it would be damnation to our cause to try for—any amendment of our Acts. We want them and their principle to be recognised under any other legislation that may be passed by Parliament. Our questions are:—(1) How can we provide that no unqualified person may be proprietor in an establishment kept open for the purposes for which our Acts require that the person keeping open shop shall be qualified; and (2) what are "proper vested interests." I fear the Lord Chancellor takes a broader view of this question than we may be expected to take, and I think this will be our hardest nut to crack. In an editorial of the *Chemist and Druggist* on August 26 it was asserted that "the representatives of the Society appear to be endeavouring to drive the trade to secure the exclusion of pharmacy from the privileges of the Companies Acts, seeing that they advocate complete negation of the company principle as far as pharmacy is concerned." It may be that this was written of the British Society. I do not think it is true of it; it can hardly be, seeing that several of the Council are company men; and it certainly is not true of this Council, which has always contended for the proviso "unless each member of the company is qualified." On the contrary—and I throw it out as a suggestion—I believe we would be glad if the number 7 in the Act was reduced to 3 so that the advantages of the Act might be more conveniently availed of, and I see no reason why a partnership of three should not have equal law with a partnership of seven. Our licentiates must bear in mind that the question is theirs, and according as they enlighten and instruct their representatives in Parliament will our fight be made easy or difficult, successful or unsuccessful. Our own conferences are of little value, except in so far as they reach and influence public opinion. I do not dwell on what course we ought to adopt, for that will properly be for our Law Committee to consider, or for a joint committee if there should be *rapprochement*. I don't know whether anyone wishes to make a remark on the speech of the Lord Chancellor, which has been printed and sent to the licentiates. If not, we shall proceed to the next business.

Licentiates as Analytical Chemists.

The VICE-PRESIDENT reported that a deputation, consisting of Messrs. Wells, Grindley, Bernard, Kelly, Dr. Walsh, and himself had an interview with the Local Government Board at their office. They did not gather much from Dr. Stafford, the Medical Inspector of the Board, but from what they did gather his mind seemed made up that pharmaceutical chemists could not be accepted as analytical chemists. He suggested that if the Society could establish a higher grade the members of it might possibly in future be deemed eligible.

Mr. WELLS said they certainly received a very patient hearing from Dr. Stafford. He was very courteous, but they could see that his mind was definitely made up that their men were not competent to be public analysts. They contended that they were. He asked, did they say that every one of their licentiates was competent to get into the box and give evidence as an analyst in court? They said they did not go so far as that, no more than it could be said that every medical man was competent to take patients; but they maintained that their licentiates, from their training and the examinations that they passed, were perfectly competent to do the work that was required from an analyst of drugs. They pointed out that the training received by those who were Fellows of the Institute of Chemistry afforded no guarantee that they knew anything whatever about drugs. He relied on the curriculum of the Institute of Chemistry, which recommended students intending to qualify for appointments as public analysts to take out courses in therapeutics, pharmacology, and microscopy; but he (Mr. Wells) found that what they were examined in was "the recognition of poisonous chemicals and crude drugs ordinarily found in commerce, and having well-marked physical characters." They pointed out that that afforded no guarantee of competence to analyse drugs, and that what was wanted for the position was a competent pharmacist, who could walk into a dispensary, examine the drugs, and take home and analyse any that he thought were wrong. Until something of that sort was done the system would never succeed. He (Mr. Wells) felt, however, that the Society had done its duty to their licentiates in approaching the Local Government Board, but at present he did not think it could do anything more for them. But it was a great blot on the Society that the Government should act in this way. It was perfectly clear that only a few of the members of the Institute of Chemistry were qualified in some of the technical matters that were required for the office. It was further pointed out by the deputation that any of the men taking out the qualifications required by the Board, who were connected with wholesale houses, would not be fit persons for the office.

Mr. Bernard said Dr. Stafford explained that the course taken by the Irish Local Government Board was not really their own action, because they felt bound to follow on the lines of what was done in England. They gathered that he fully recognised that pharmaceutical chemists could render valuable service in the way of detection, but that the difficulty the Board felt was that prosecutions could not be sustained without the technical evidence of men who held the degree of "F.I.C." It was not fair, therefore, to lay the blame altogether on the Irish Local Government Board. He (Mr. Bernard) thought that Dr. Stafford met them very reasonably. On the one hand they could not contend that all their men were eligible; and, he said, on the other, how could the men that were eligible be selected? Therefore, until some degree was established for the benefit of the licentiates they would have to let the F.I.C.'s have a monopoly of those offices. According to the newspapers, it was not a very valuable monopoly.

Mr. Wells: I think Mr. Bernard is in error in saying that they were bound to follow the course taken by the English Local Government Board. The Irish Act is a distinct one.

Mr. Bernard: I don't say he said that they were bound, but that they felt compelled to follow the course taken in England.

Professor Tichborne said that, although he had the honour of holding a professorship in connection with the Society, he felt that on this question he was a perfectly free lance, for he was too old to take any extra work, and was, therefore, out of the running. He could not see why the Council should not meet the objections that were made by instituting a course that would meet the requirements of the Local Government Board. It should be a course supplementary to the existing courses. The medical candidate for the position of officer of health had to take out an extra six months in chemistry, and an extra six months in bacteriology. The Institute of Chemistry was an English institution. He was himself one of its Fellows, but he did not see why Irishmen should not be provided with facilities for obtaining an equivalent degree. He was quite sure that if they got up a good degree the Local Government Board would accept it. It was not merely a matter of chemistry; they would have to teach microscopy and several other things bearing on the matter. And when they should have done that they would have instituted a course that would probably pay, for his experience was that voluntary courses in Ireland did not pay. Students would not come to them. But if something tangible was offered they would join the course. When the Society's school was first proposed there was considerable opposition to it on the ground that their funds could not be legitimately spent on it, but the establishment of the school was sanctioned by the Privy Council. In the present case it was necessary to educate men in order to supply a public want—to educate them so that they would be able to make the required analyses. That was perfectly germane to the function of the Society, and he thought that in instituting a course such as he suggested they would receive every encouragement both from the Privy Council and the Local Government Board.

Mr. Wells: You would have to get a charter or a new Act of Parliament.

Professor Tichborne: I don't think so.

Mr. Kelly said nothing could have been nicer or kinder than Dr. Stafford's reception of the deputation. He listened to everything they had to say, and said he had a high opinion of the Society's qualifications and examinations. He (Mr. Kelly) asked could the Board themselves appoint two examiners like Professor Hartley or Dr. Reynolds by whom the Society's licentiates could be qualified, but his answer was that the Board could not do that because they were not an examining body. He asked why the Society's licentiates could not go in for the degree of "F.I.C.," but their reply was that they could not—that it would take three years to get. They added that there were very few "F.I.C.'s" in Ireland, that the present supply would not last for ever, that they would afterwards have to be imported, and that that would be creating a new Irish grievance.

Mr. Bernard: He warmly impressed on us the advisability of establishing this examination, saying that the Board would do anything in their power to assist us to create such a body. I think he felt that being a pharmaceutical chemist first, and a qualified analyst afterwards, would form a man who would be far more suited to their purpose than the present men.

The President said that when the last examinations were going on he was so impressed with the appropriateness of the examination that he thought if a representative of the Local Government Board had been present at the Society's last July examination he would have been convinced that it was exactly what was wanted to qualify men for the detection of impurities in drugs, and having consulted with Mr. Baxter, who was present, he drove over and sought an interview with the head of the Local Government Board, to invite him or his representative to attend and inspect the examination. This was before the deputation waited on Dr. Stafford. He (the President) was most courteously received, but he ridiculed the idea of licentiates of the Society being fitted as witnesses in court against large wholesale houses possessed of an immense amount of capital. He said the former would not have a leg to stand on. He also said that the Board had referred the question as to whether they should accept the Society's licentiates for the posts in question to the English Local Government Board, and the language of the latter in reply was so strongly negative that he (President) did not like repeating it. Dr. Stafford admitted that some men who were not "F.I.C.'s" were recognised, but they had been appointed public analysts previously, and that the Board had felt bound to recognise them still; but he said that he would be delighted to see an Irish qualification established, and that he would give the Society all the support he could for that purpose.

Mr. Wells: The question is shall we go further in this matter? The present system is a new one, and may not be adhered to. It may be better to hold our hand.

Professor Tichborne remarked that although the fees paid to the public analysts might be very small, the appointments brought other business to those who held them.

Further discussion on the subject was reserved till later on.

The Conference at Plymouth.

The Vice-President reported that he and Messrs. Wells and Kelly attended the Pharmaceutical Conference, which took place at Plymouth, and were very warmly and graciously received.

Mr. Wells: It may be well to add that we gave an informal invitation to the Conference to meet in Dublin in 1901. It was very warmly received. They meet in London next year, and I am sure that if you send someone to London next year to renew our invitation it will be cordially accepted. I know that they are anxious to come here again.

A letter from Mr. Robert Spence, of Castleblaney, who had been co-opted a member of the Council, intimated that he would not seek re-election, as he found that he would be unable to attend the Council meetings.

Irish Pharmacists in the Colonies.

A letter from the Colonial Office having reference to the proposed Gibraltar Pharmacy Ordinance intimated that Irish pharmacists would be placed on an equal footing there with British pharmacists, and that as regarded other Colonies the attention of the Governors had been called to the claims of Irish pharmacists as being equally entitled to recognition with British pharmacists.

Mr. Wells: It is well that some Government department is prepared to recognise us.

A letter from Mr. J. B. Dougherty, Under-Secretary, Dublin Castle, intimated that in a case of R. H. Anderson, chemist and druggist, who had been fined £5 for using the title "Pharmaceutical Chemist," the Lords Justices had decided that the law should take its course.

A letter from the Under Secretary, Dublin Castle, requested the observations of the Council on a memorial of William Carlin, praying for a refunding of a fine of £5 which had been imposed on him for unlawfully selling phosphorus paste.

Mr. Wells: Has the Lord Lieutenant any power to make us disgorge the money?

A letter from Mr. J. A. Woodside, licentiate of Ballymena, complained that the Local Government Board had declined to sanction his appointment as public analyst by the Guardians of Ballymena, Larne, and Antrim Unions, and that the Guardians had passed a resolution disagreeing with the Board.

The President: Let him get the Guardians to forego the refusal and then they can hold on to him.

Donations.

Donations were received from the Ontario College of Pharmacy of a copy of their "Announcement"; from the Missouri Botanical Garden of a copy of their Tenth Report, 1899; and from the Smithsonian Institute of a copy of a pamphlet entitled "The Rarer Metals and their Alloys."

On the motion of Mr. Kelly, seconded by Mr. O'Sullivan, thanks were voted to the donors.

THE LICENSE.

From reports of the Examiners it appeared that at the last examination for the License twenty-three candidates presented themselves, of whom eight passed.

SCHOOL SESSION—ANNUAL DINNER.

Committees were appointed to make arrangements for the opening of the School Session and for the Annual Dinner.

ELECTION.

On the motion of the VICE-PRESIDENT, seconded by Mr. MICHIE, Dr. M. R. Whitla was re-elected Examiner for the Practical Pharmacy Division of the License Examination.

HONORARY MEMBERSHIP AND FELLOWSHIP.

The following notice of motion stood in the name of the President:—(*a*) Honorary Members.—The Council may elect to honorary membership persons of eminence in pharmacology and its kindred subjects. Such honorary members shall have the privileges of members, but shall not be licentiates of the Society, nor shall they exceed the number of twenty at any time, nor shall more than three be elected in any one year.

(*b*) Fellows.—That members of five years' standing may be elected Fellows of the Society for approved original scientific work done and laid before the Evening Meetings of the Society. For the purpose of judging of the merits of such work it shall be referred to a committee, consisting of three of the Fellows, assisted by an expert nominated by the Council. The subject may be either chemico-pharmacological or botanico-pharmacological.

The PRESIDENT moved the adoption of the first part of the notice relating to honorary membership. It had been objected that as the wording stood it would exclude licentiates of the Society from honorary membership, and, therefore, he proposed to make the latter clause of the motion read "such an election shall not confer the privileges of a licentiate."

VICE-PRESIDENT: There would be a large number.

The PRESIDENT: It would not follow that you should have twenty at any time.

Mr. GRINDLEY: The question is: Have you power to institute this Fellowship?

The PRESIDENT: I would be inclined to send it on to the Privy Council.

Mr. GRINDLEY said he thought there was only one means of becoming a member of the Society under the Act, namely by becoming a licentiate, being elected a member in the ordinary way, and paying a guinea.

Mr. SIMPSON; I do not see what advantage it would be to the Society to have honorary members.

Mr. WELLS said he failed to see that there was power under the Society's Acts to elect such members. The Pharmaceutical Society of Great Britain had power under their charter to elect honorary and corresponding members. Their Society had no such power. He failed to see what advantage they could give to such honorary members. According to the Bye-laws, only paying members could vote.

The PRESIDENT: Well, the resolution drops. As to the proposal of Fellowships, I would be inclined to refer it to the Law Committee in order to see whether a scheme could be framed on a basis which would meet the requirements of the Local Government Board in the matter of the qualification for public analysts.

Professor TICHBORNE said he would like to see Fellowships established, and moved by way of amendment to the President's motion:—"That the following subjects be considered and reported on to the Council: (1) The institution of a degree to meet the requirements of the Local Government Board as regards public analysts. (2) The creation of Fellows of this Society. (3) The best mode of carrying out a course of Theoretical Chemistry in connection with the Society."

The PRESIDENT: I agree to that.

THEORETICAL CHEMISTRY.

Mr. MICHIE moved: "That lectures on Theoretical Chemistry in addition to the present practical instruction be given in the School of Chemistry. That a special committee be appointed to draw up a syllabus with a view to improving the education in the Society's School of Chemistry, and report to the Council." There was an impression general amongst students that the School was not up to the standard that was needed for preparing them for the examinations. He did not want to condemn the School, but he thought something might be done to modernise it, especially as regarded the teaching of chemical theory, for without a knowledge of the theory he did not see how the student could understand the practical work. The students spent the hundred hours at the bench, and were pretty nearly as well educated when those hundred hours were done as when they went into it. They went there as a matter of course. If lectures on chemical theory were delivered contemporaneously with the bench work, it would give them an interest in the latter. There were one or two subjects which were not taught, namely, the estimation of alkaloids and the use of the microscope. A syllabus was necessary because a student joining the School would naturally desire to know what he would be taught.

The PRESIDENT: Theoretical chemistry is in the Preliminary Examination. The student is supposed to know it.

Mr. MICHIE: That is merely elementary. I mean that the theoretical teaching should be carried much further. I understand that there is no teaching of theory in the School.

Mr. O'SULLIVAN: There is.

Mr. WELLS seconded Mr. Michie's motion. There had better be a report from a committee on the subject, and then they would see what was being done in the School, and whether there were any faults.

Professor TICHBORNE said he had intended to second Mr. Michie's proposals. He had always thought, and had often said there, that a recognised course of theoretical chemistry was necessary for the students. Their work at the bench should be intelligent.

Mr. WELLS: The Council agreed long ago that we should have a theoretical class of some sort.

Mr. KELLY said he could not allow to pass without contradiction Mr. Michie's statement that the students came out of the School as they went into it. He could name men who had been trained in the School and who afterwards took the highest places in examinations for the Army and other services.

Mr. WELLS said he had known men who had attended the School and had afterwards boasted that they humbugged the professors. At the same time, he would not have seconded Mr. Michie's motion if he thought it was intended to cast a slur on the School.

Mr. MICHIE said he meant no reflection on the school. What he had said only applied to some of those who attended it. Nor did he intend any reflection upon Mr. Kelly and Professor Tichborne as teachers.

Mr. Michie's motion was then put and carried unanimously; and the following committee were named by Mr. Michie:—Messrs. Wells, Bernard, Grindley, Kelly, Dr. Walsh, Professor Tichborne, Michie, and the President and Vice-President.

Professor Tichborne's proposal, which he had read as an amendment to the President's motion, was then put and carried.

Mr. MICHIE said he did not agree to the proposal to have Fellowships.

OTHER BUSINESS.

Mr. BERNARD called attention to the fact that the Council had on a former occasion passed a resolution that circulars should be issued for the purpose of obtaining the names and addresses of all pharmaceutical chemists and apothecaries keeping open shop for the compounding of prescriptions and the sale of poisons, and of all chemists and druggists keeping open shop. The object of this was to enable a directory of such persons to be compiled. The resolution had not been acted upon.

The PRESIDENT said the circular would be issued.

On the motion of Mr. GRINDLEY, seconded by Mr. WELLS, Mr. A. J. Paterson, of Dublin, and Mr. R. J. Savage, of Dublin, were elected members of the Society.

On the motion of Mr. KELLY, Mr. A. Forbes Watson, B.Sc., was re-elected Examiner to conduct the Pharmaceutical and General Chemistry Division of the License Examination.

On the motion of Mr. O'SULLIVAN, seconded by Mr. KELLY, Mr. J. Hartley, of Phipsborough, Dublin, was nominated for membership, and on the motion of the PRESIDENT, seconded by Mr. GRINDLEY, Mr. D. A. Stewart, of Londonderry, was nominated for membership.

Law and other business having been transacted,

The Council adjourned.

SAPONIN IN AËRATED BEVERAGES.—Saponin added to aërated beverages to increase the froth is detected by Frehse as follows:—The liquid is evaporated to the consistence of a pasty mass, then extracted with acetic ether. On evaporating off the solvent the residue, in the presence of saponin, will give a permanent froth on shaking with water; when treated with strong H_2SO_4 it develops a reddish violet colour. On boiling with HCl a precipitate of sapogenin is formed, generally accompanied by the evolution of an odour resembling that of cedar wood.—*Journ. de Pharm.* [6], **10**, 13.

EXTRACTS FROM CONSULAR REPORTS.

Gut Industry in Procida.—Consul Neville-Rolfe, in an interesting report on the trade of the consular district of Naples for the year 1898 states that some of the inhabitants of the island of Procida manufacture very fine gut from silkworms. They call the product "fili di seta," or "silk threads," their special properties consisting in their strength and flexibility. They are made from the stomachs of silkworms, just before they begin to spin their silk and form their cocoons. The following is the process of manufacture:—The worm is selected when fully matured, that is to say, at the moment when his nourishment ceases, and just before his metamorphosis. He is then cut open, great care being taken not to injure the membrane of the stomach. This is then removed, and usually reaches the length of 13 or 20 millims., with a diameter of 1½ to 2 millims. The stomachs are then put into a pickle, which is the keynote of the whole process and the secret of which is carefully kept. When the pickling process is over, the workpeople, who are mostly women, take one end of the stomach in their teeth, and draw the other end with their hands. This part of the work requires great dexterity, for the threads are drawn out to the length of thirty to fifty centimetres the whole value of the product depending upon its length in relation to its thickness, and the strain it will carry. There are two seasons for the production, namely, in spring, when the best gut is produced, and in autumn when the quality is inferior. The cost of production is considerable, as the worms must be bought just as they are coming into profit for making silk, when they are at their dearest, and again, many worms, on dissection, are found not to be suitable, and have to be discarded. The various operations require a good many hands, and though labour is cheap it runs away with a good deal of money, as skilled hands are alone satisfactory.

The Question of Stamping Out Tuberculosis has, according to Consul Neville-Rolfe, occupied the serious attention of the Italian medical faculty during the past year, and a very interesting pamphlet has been published by the Sanitary Commission of the Naples Hospital for Incurables, recommending that a separate hospital be opened in a selected situation for the treatment of consumptive patients. Various sites have been inspected and are reported upon by the Commission, the members of which are fully persuaded of the benefit to be derived from open-air treatment at a fairly lofty elevation, where pine trees and eucalyptus flourish in profusion. The salubrity of the Neapolitan district in cases of phthisis the Consul thinks is not sufficiently known to the British public, or to the doctors who attend them, and send them elsewhere on the Continent. The extraordinary dryness of the soil, and the refreshing air of the slopes of Vesuvius, it is stated, have proved of marvellous efficacy in many severe cases, and have arrested the disease altogether in numerous cases.

Intending Purchasers of Olive Oil in large quantities are urged by Consul Neville-Rolfe to be early in the field if they wish to secure the completion of their orders, as this year's olive crop in Italy may on the whole be considered considerably below the average. Hence stocks may prove inferior to the large requirements they may probably have to face, especially as it is expected that the Spanish crop will yield little, if any, surplus for exportation over local wants. An active trade is looked forward to in Italy during the coming season, the more so as the oil produced from the first crushings proved to be of excellent quality.

The Quantity of Tartars Exported to Austria from Barletta (Italy) in 1898 amounted to 268½ tons (241,700 lire), and tartaric acid to the United Kingdom amounted to 447½ tons (427,800 lire). The Società l'Appula, which produces tartaric acid, sent in the year 1898 330 tons to the United Kingdom, 150 tons to several countries, viz., France, Spain, Germany, Austria, Egypt, etc., and about 270 tons to Southern Italy. This is one of the most important industries in the district.

A Sharp Rise in the price of copper sulphate was witnessed in the Italian markets at the close of last year. From 63 lire per quintal, it rose to 68 lire, and even at the latter price, Vice-Consul Drinkwater reports, manufacturers would not deliver less than 53 quintals, nor engage themselves even to that for more than 24 hours at a time. A very brisk rise was anticipated, and advertisers cancelled the prices from their advertisements. The rise is a serious matter in Italy where such vast quantities are used as a remedy for vine disease.

The Camphor Monopoly.—The Formosa camphor trade, that is, the manufacture of camphor, for some time past in the hands of German merchants only, according to a recent report, has ceased to be of interest to any but Chinese and Japanese, the latter having in every way more facilities for handling this article in the interior. Since it has been decided by the Formosa Government to institute a camphor monopoly, production has materially increased, owing to the high prices ruling in Hong Kong during the last few months. The lines upon which the Government intends to work the monopoly are as follows:—The monopoly came into force on July 1 of this year, and after that date the Government alone will be allowed to purchase camphor from the producers, and as they will only buy a certain quantity per annum, they will have absolute control of the working of camphor, together with all matters respecting the cutting down of trees, etc.

Permits will be Issued to producers, and anyone having the proper concession-papers, and who has taken out a licence in due form, will be allowed to produce camphor. The Government will undertake the sale of the raw camphor after production in its unrefined state, and will dispose of it to purchasers at certain points. These places will probably be Daitotei (Twatutia), Shinchiku (Tekcham), Tokoham, and the towns on the West Coast where camphor has usually hitherto been deposited awaiting transport.

The Price of Camphor for the period from July 1 last to the end of the financial year has been fixed by the Government at 30 yen (say £3) per 100 catties (say 133⅓ lbs). This price, however, in the opinion of Consul Layard, seems to be too low, and will very probably be raised a few months after the monopoly came in force, for the following reasons:—If the Government buys at 30 yen at the places of production, *i.e.*, as it comes out of the stills, this would give the manufacturer only two or three yen profit, not taking account of possible and probable losses occasioned by typhoons or other causes, whilst if the Government proposes to make its purchases at Daitotei (Twatutia), Shinchiku (Tekcham), and the other places mentioned, thirty yen would be quite insufficient to give a profit after deducting expenses for cost of transport from the stills and loss in weight. The latter item alone would amount to at least 10 per cent.

The Profit on Purchased Camphor during the nine months of the financial year to run after July 1 last is estimated at 369,168 yen (say £36,917), but as the organisation and management of the monoply involves an outlay of over 277,000 yen (say £27,700), the net profits will scarcely exceed £20,000 per annum.

It is Very Doubtful, Consul Layard thinks, whether foreign firms will ever again engage in the manufacture of camphor in Formosa, after the reverses they have experienced since the arrival of the Japanese. The monthly export to Hong Kong is calculated at from 2,000 to 2,500 boxes from Tamsui, and from 100 to 200 boxes from Kelung to Japan. Owing to the enhanced prices ruling in Hong Kong, in anticipation of the monopoly, and prior to its coming into force the total export from Formosa increased by about 600 boxes a month. The Government will use every endeavour to put the camphor-producing business on a firm basis, but it will for some time be very uphill work, although the country is gradually becoming pacified. There has, it is stated, been some talk of a private arrangement between the Government of Formosa and a foreign firm for a grant of the monopoly, but authoritative information is wanting and, as a fact, it is doubtful.

The Government Opium Refinery at Taihoku (Taipeh), is reported to be in full working order, but it is stated that the drug is sold at cost price, and with no idea of making any profit. If it is to be assumed that the restrictions put upon the use of opium by the Formosa Government have been efficiently carried out, it would appear from the increased import figures that the authorities have been successful in checking illicit smoking to a considerable extent, for nearly a quarter of the increase of £305,171 in the total import trade is due to the large arrivals in 1898 of opium.

LETTERS TO THE EDITOR.

Pharmacy as a Profession.

Sir,—There has been handed to me a letter which is of so startling a nature that I have thought your readers may take interest in perusing it. It is from a first-rate tip-top Edinburgh pharmacist, wishful to engage a young man as assistant, and is as follows :—

Edinburgh, September 6, 1899.

Dear Sir,—I have received a satisfactory reference from Mr. —— and shall be pleased to hear from you by return that you can begin your duties on Monday, 11th, at 8.30 a.m. The hours are from then to 9 p.m. Saturdays, 10 p.m. Every second Sunday, 10 to 11 a.m., 12.30 to 2 p.m., 5.30 to 9 p.m. Salary, 18s. per week. Dinner-hour, 12 to 1 p.m. Tea half-hour, 4.30 to 5 p.m.

I am, yours, etc., ——.

From the letter one gathers that the hours of labour are sixty-seven for one, and seventy-three for the second week, or an average of seventy hours per week. And the remuneration is 18s. per week. And the prospective employee was an educated, intelligent, well trained young man. "O tempora! O mores!" This state of things I am quite aware is not typical of the drug trade generally, nor of Edinburgh; but it indicates sufficiently the callousness and utter want of consideration for others which characterises some at least of our members. Why, Mr. Editor, I ask you in all solemnity whether the life of a day labourer with his £1 a week and forty-five hours of toil is not preferable to the life of an assistant in a pharmacy such as this?

Dunfermline, September 9, 1899. JOHN H. FISHER.

The Ethics of Advertisement.

Sir,—Doubtless, like a large number of your readers, I have received a cutting from the *Police News* about a deceased chemist, a traveller, and a "frog in your throat." I understand the last refers to some bronchial lozenges. My object in writing you is to point out that it is not the travellers and retail chemists only who do the poaching, but the capitalists who pirate the formulæ for iron pills, liniments, etc., and by their flagrant advertisements rob the chemists of their legitimate business. If medical men are prohibited advertising, how is it that we have Dr. Scott's Pills, Dr. Williams' Pills, Dr. Collis Browne's Chlorodyne, etc.? It may be they are dead, but the public does not know the fact, and it makes it none the less illegal. If ever the chemists become sufficiently professional to adopt pharmaceutical ethics, I should suggest including "That it is vulgar to advertise."

Newark, September 12, 1899. L. PRIESTLEY.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Cultures of Bacteria (S. E. D.—33/31).—Living cultures of bacteria, moulds, etc., can be procured from C. Baker, 244, High Holborn, London, W.C.

Depilatory (S. H.—33/30).—The most recent form of depilatory is the soap, which is said to give good results. Details for preparing and using it are given in the *P.J.* for June 10 last, p. 536, which see.

Siccative Amber Varnish (R. R.—34/3).—If you will send a sample of the varnish you wish to imitate, with full particulars of the purpose for which it is used, we may be able to assist you in the matter.

Sale of Laudanum (E. A. M.—33/32).—You exercised a wise discretion. The sale of large quantities of scheduled poisons to entire strangers, though perfectly legal, is a distinctly reprehensible practice.

Botanical (E. J. I.—201/20).—If you had looked carefully in the Journal of the same week (see page 198), instead of looking every week since, you might have avoided making the suggestion of neglect.

Subscriptions (C. P. A.—34/2).—Subscribers to the Society must be either student-associates or members, but anyone can subscribe to the Journal. The annual subscription of one pound must be sent to the publishers, 5, Serle Street, Lincoln's Inn, London, W.C.

Tobacco Flavour (J. R. S.—32/25).—Oil of amber, rectified, 10; oil of pimento, 10; oil of cinnamon bark, 5; vanillin, 1; coumarin, 3; oil of peppermint, 1. Mix. A trace of oil of spearmint or oil of cedar wood is sometimes used as well. For perfumed cigarettes oil of rose geranium may be employed.

Destroying Flies (T. C. B.—200/61).—It is gratifying to find that our suggestions have been the source of such favourable results. Doubtless the stable manure was greatly responsible for your plague. As others will probably find your recipe for fly poison useful we print it here :—Inf. quassiæ conc., 1 ounce; beer, 7 ounces; moist brown sugar, 1 tablespoonful.

Ferro-Prussiate Paper (F. B.—33/21).—First size raw paper, free from bleach, with a solution of arrowroot, 5 grains to the fl. oz. of water. Then treat with the following solution :—Ammonio-citrate of iron, 96 grains; distilled water, 1 oz.; potassium ferridcyanide, 72 grains; water, 1 oz.; potassium bichromate, 5 grains; water, *q.s.* to dissolve. Dissolve each salt separately, mix the three solutions, filter, and at once apply to the surface of the paper with a brush. Then dry quickly in the dark. For fuller and more minute details of the *modus operandi*, see *P. J.* [4] **6**, 402.

To Destroy Moles (J. H. C.—33/29).—Pour an ounce or so of carbon disulphide down the hole underneath the mole hill; plug it up at once with a good thick turf. Branches of elder placed in the runs are said to drive away the moles; so, too, are a few bulbs of garlic steeped in paraffin oil. Possibly pouring paraffin itself down the runs would have the same effect. Of all these expedients carbon disulphide is the most effectual, as it kills the animals. It is equally useful against rabbits and wasps applied in the same way. Care must be taken that the liquid is kept away from all lights and fire.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Appleyard, Baker, Bennett, Butcher, Cullurck, Dixon, Dowdy, Downes, Ferrall, Gartside, Glew, Goodman, Griffith, Hill, Hogg, Holoran, Hubbard, Ireland, Jennings, Mair, Morgan, Ramsey, Reynolds, Robinson, Roe, Sargeant, Shepherd, Smith, Walker, Waterhouse, White, Wills.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

CHEMISTRY OF CASCARA. In addition to the constituents already recorded, Leprince has isolated chrysarobin, chrysophanic acid and emodin from the bark of *Rhamnus purshiana*. It is evident that those constituents play an important part in the therapeutic action of the bark.—*Comp. rend.*, **129**, 60.

POISONING BY FORMALDEHYDE. The toxic effects of formaldehyde are apt to be disregarded now that the compound is so extensively used for antiseptic and germicidal purposes, but, as the *Medical Press* points out, the preparations of formaldehyde usually employed are quite strong enough to cause harmful, if not fatal, effects. Thus, a case is recorded of a young man who drank about two ounces of a four per cent. formaldehyde solution which was used for treating seed potatoes. The immediate effect was to cause vomiting of matter containing traces of blood, and death occurred about twenty-nine hours afterwards, as the result of heart failure. A post-mortem examination showed that the œsophagus was slightly inflamed, and escharotic changes were visible in the stomach.

WOOD-TAR CREOSOTE. L. F. Kebler is of opinion that the pharmacopœial requirements, in the case of wood-tar creosote, should be based on the following points:—Physical appearance, reaction, solubility, specific gravity (not below 1·08° at 15° C.), boiling point (200° to 220° C.), reaction with a 20 per cent. solution of potassium hydroxide in absolute alcohol, and a test for neutral oils, apart from the boiling point. To differentiate between creosote and phenols he thoroughly agitates the liquid with diluted glycerin (3 of glycerin to 1 of water), and the diminution in volume on standing roughly indicates the amount of soluble impurities. The collodion, ferric chloride, and bromine tests did not yield results on which any reliance could be placed.—*Am. Journ. Pharm.*, **71**, 409.

HISTOLOGY OF GELSEMIUM. C. B. Thompson has made a histologieal study of *Gelsemium sempervirens*, and finds that the internal phloem arises primarily as four longitudinal strands, which are an integral part of the leaf trace bundles. Its origin is simultaneous with, or slightly later than, the protoxylem and external phloem, so that the leaf trace bundles are bicollateral from the first. The patches formed by the internal phloem—two of which arise just below the cotyledonary node and the other two just below the node bearing the first pair of leaves—are bounded internally by a two-celled phloem sheath, and they grow centrifugally by means of a medullary cambium, the inner and older layers in time becoming crushed and obliterated. The pith dies early in the first year of the plant's growth, and the cavity is subsequently filled up with internal phloem. Where that phloem runs into the petiole it constitutes at first a bicollateral bundle system, but at the base of the petiole it descends through the xylem as two strands, and from that point upwards the primitive collateral bundle system prevails. No internal phloem occurs in the root, in the lower portion of the hypocotyl, nor in the cotyledons. In the root cortex a copious fungoid growth is found, and absorption of starch usually results in cells being occupied by the fungus. In conclusion, it is stated that internal phloem is an acquired characteristic of the plant, and has probably been developed in the long and sometimes twisted stems, to supplement the external phloem. The material used in the investigation consisted of specimens of varying age, preserved in alcohol, and of fresh seedlings grown in hothouses.—*Am. Journ. Pharm.*, **71**, 422.

IODINE IN SEA-WATER. Continuing his researches on the occurrence of iodine in its various combinations in sea-water, A. Gautier has found that, although the total iodine present in water collected at different depths in the Mediterranean does not show much variation in quantity, the condition in which it is present varies greatly. In the lowest depths the amount of mineral iodides is considerable, while that of insoluble organic iodine is relatively small; surface water collected at the same spot contained no mineral iodine, but a relatively large amount of insoluble organic iodine. Thus surface water gave: Insoluble organic iodine, 0·286; soluble organic iodine, 1·960; and inorganic iodine, *nil*; total iodine, 2·246 parts per million. At a depth of 880 metres the figures obtained were: Insoluble organic iodine, 0·100; soluble organic iodine, 2·130; and inorganic iodine, 0·150; total iodine, 2·380 parts per million. At 980 metres below the surface the following proportions were present: Insoluble organic iodine, 0·065; soluble organic iodine, 1·890; inorganic iodine, 0·305; total iodine, 2·260 parts per million. Thus, as organised life becomes more plentiful towards the surface, so the amount of insoluble organic iodine increases and the inorganic salts of the haloid decrease in quantity.—*Comp. rend.*, **129**, 9.

ACIDIMETRY OF ALKALOIDS. For the volumetric determination of alkaloids, E. Faliéres advocates the use of an ammoniacal solution of cupric oxide for the titration of free acid, since as soon as the last trace of uncombined acid is used up, an evident turbidity is produced in the solution. The copper solution is prepared by dissolving cupric sulphate, 10 Gm., in about 500 C.c. of water, adding ammonia until the precipitate at first formed is nearly dissolved, making up to 1 litre and filtering. The solution is then standardised with $H_2SO_4/10$. To conduct a titration about 0·10 Gm. of the alkaloidal substance is dissolved in 20 C.c. of $H_2SO_4/10$ solution, the containing glass vessel is stood upon a black background; the standard copper solution is then run in until a permanent turbidity results, indicating the moment when the free acid is neutralised; from the amount thus found the quantity used up by the alkaloid may be deduced. The author has obtained excellent results by this process with sparteine, morphine, codeine, cinchonine, cinchonidine, quinidine, strychnine, conine, atropine, veratrine, and brucine. In the case of cinchona, the total alkaloids may be determined in the first extraction since the accompanying impurities do not affect the appearance of copper oxide precipitate.—*Compt. rend*, **129**, 110.

PIRALAHY RUBBER. Piralahy or vahaelahy rubber is the product of a new species of *Landolphia*, named *L. perieri* by H. Jumelle. It is a native of the forests of Madagascar. The caoutchouc is described as being of excellent quality, containing but 5·5 per cent. of resin. The latex is obtained by the natives by cutting the climbing stems and allowing them to drain into suitable vessels, then coagulating it with lemon juice or crushed tamarind fruit. During the dry season but little sap is obtained, but this coagulates spontaneously; during the rainy season it is much clearer, but gives but little caoutchouc, only about 6 per cent. of the juice. The latex has a sp. g. of 0·996, which is lower than that of most rubber-producing plants. The density of the dry caoutchouc is 0·910 whereas that of Para rubber is 0·920. The latex contains but little solid matter besides caoutchouc, neither starch nor sugar being present. The whole of the caoutchouc is not coagulated on boiling, nor is it readily precipitated by alcohol. Acids, and most salts, such as sodium chloride and magnesium sulphate, which do not coagulate ordinary rubber, at once precipitate the caoutchouc of *Landolphia*.—*Comp. rend.*, **129**, 349.

ETHER-SOAP.

BY EDMUND WHITE, B.SC., F.I.C.
Pharmaceutist to St. Thomas's Hospital.

Among the many details of surgical technique which have received attention during the last few years the cleansing of the skin of the patient around the area of operation, as well as the hands of the surgeon, have taken a prominent position. With regard to the patient, one method which has been employed to secure the sterility of the skin has been to apply soft soap, and allow it to remain in contact with the skin several hours. After scraping off the soap, a brush is freely used to detach the upper layers of epidermis which have been loosened by the soap. As adjuncts to this treatment the skin may be treated also by various antiseptic fluids, preceded by ether, with a view to removing superficial grease, and so make the skin more readily penetrable by the antiseptics applied. The use of soft soap in this manner makes the skin and adjacent tissues rather tender, and requires more time for its accomplishment than can be given by the surgeon for the cleansing of his hands either before an operation or between several cases operated upon in succession. In order to facilitate the detergent action of the soap it has been proposed to use a solution of soap in some volatile solvent capable of penetrating the skin and carrying the soap with it. After the evaporation of the solvent the soap is thus left in the skin beneath the superficial layers of epidermis which it is desired to remove, since these will naturally be more infected than the skin below. If the skin be now moistened with warm water and scrubbed, the lather which is formed beneath the superficial cells will, so to speak, lift them off and considerably facilitate their removal.

I propose to publish here a formula for such a solution, which has been used in St. Thomas's Hospital for some time past, and which represents the result of numerous experiments made to prepare a solution which will best realise the conditions described above. The solution is made as follows:—

Oleic Acid	36 C.c.
Solution of Potassium Hydroxide, 1 in 1	7 C.c. or a sufficiency.
Alcohol, 90 per cent.	16 C.c.
Methylated Ether, 0·720	Sufficient to produce 100 C.c.

Mix the oleic acid with the alcohol in a flask, and drop in the potash solution until a neutral solution of soap is obtained, using phenol-phthalein as indicator. Then add 0·1 C.c. of potash solution in addition, so that the reaction is just alkaline. Set aside to cool, and finally add the ether. The composition of the finished product will be, in round numbers:—

Potassium oleate	40
Water	4
Alcohol, 90 per cent.	16
Ether	40
	100

When finished the solution may be set aside and decanted from a slight deposit which usually forms. The commercial oleic acid has been employed, and is sufficiently good for the purpose. To make the potash solution take 100 grammes of potassium hydroxide in sticks, add 55 C.c. of water, and dilute the resulting solution to the volume of 100 C.c. It will be found that this solution will neutralise about five times its bulk of oleic acid, but since commercial oleic acid and caustic potash are not absolutely constant in composition, it is necessary to determine the point of neutrality each time a batch of soap solution is made. I have also employed an alcoholic solution of potash, in order to obtain a product containing as little water as possible, but the alcoholic solution darkens rapidly on keeping, and yields a finished article whose colour varies with the age of the potash solution employed. For this reason I now use a strong aqueous solution, as described above, and do not think the presence of the small quantity of water so introduced diminishes the penetrative properties of the ether-soap solution. I also think a very slight alkalinity is advantageous, equal to about one per cent. of the total potassium hydroxide used. It improves the subsequent lathering, and, except in the case of very delicate skins, will not be found too strong. Considerable heat is developed by the neutralisation of the acid; hence it is advisable to set aside the alcoholic solution of soap till cold before adding the ether.

The method of using is as follows:—Pour over the surface to be cleansed sufficient of the solution to well moisten it—for the hands 5-10 C.c. is sufficient. Immediately rub it in vigorously, and continue until the solvent has evaporated. Next moisten with just sufficient water to produce a thick lather when the surface is well rubbed and kneaded with the hands or a brush, finally rinsing with a copious supply of water. Although it cannot be claimed that by this or any other method absolute sterility of the skin can be attained, there is no doubt that the detergent action of this soap solution is very great. Perfuming agents in the form of essential oils, terebene, etc., may be added if desired to mask the slight odour left upon the skin. 0·2 to 0·5 per cent. of an essential oil like lavender or about 1 per cent. of terebene is sufficient. If used in larger proportion than this they retard the production of the lather.

In addition to its use for strictly surgical purposes, the ether-alcohol solution of soap will be found very effectual in removing deep stains or offensive odours from the hands.

The direct solution of soft soap in solvents like ether has not yielded satisfactory results in my hands. It must be remembered that soft soap, as met with in trade, is a somewhat variable article, containing about half its weight of water. The removal of this water—a necessary preliminary operation for the end in view—is very tedious, and during the drying the soap suffers considerable alteration, and becomes more insoluble in alcohol and ether. Moreover, even the best samples of soft soap are not entirely soluble in alcohol, and the filtration of an ethereal fluid is to be avoided if possible.

I have obtained a presentable solution by warming 40 grammes of good olive oil soft soap with 20 C.c. of 90 per cent. alcohol and then adding ether to 100 C.c. Such a solution will, however, only contain half the proportion of soap and at least five times as much water as the solution made by the neutralisation of oleic acid as described above. My object has been to prepare a solution containing a very small proportion of water so that the penetrating property of the ether shall not be reduced by admixture with other fluids which are not solvents of fat.

ODOUR AS AN AID TO THE RECOGNITION OF DRUGS.*

BY PROFESSOR CLEMENT B. LOWE.

There is some little art in treating a drug so that its odour will be brought out most distinctly. If the drug is such that it can be readily powdered, then by rubbing a small portion briskly between the palms of the hands, so as to rupture the oil glands or resin cells, etc., and partly volatilise their contents, then by bringing the closed hands to the nose, the odour will be most distinctly perceived. In the case of a hard drug, a little powder can be scraped off with a knife and treated in this manner.

Thinking that it might be of some value in the recognition of drugs, or at least give us truer ideas of their odours (as even the Pharmacopœia contains some incorrect statements concerning them), I have endeavoured to work out a classification of drugs based on their odours. There are difficulties in making such a classification, as on account of the personal element involved, no two investigators will probably agree to all of the conclusions reached; besides, it is exceedingly difficult to describe odours in words. In quite a number of cases a drug will be found to have almost equal affinities for two or more classes.

* From the *American Druggist*.

CLASSIFICATION OF DRUGS BASED ON THEIR ODOURS.

Division I.

DRUGS HAVING AN AGREEABLE ODOUR.

CLASS A.—Drugs with an aromatic odour (odours which are spicy or strong, and generably agreeable):

(1) With a simple aromatic odour:

(a) Odour strong and characteristic—Asarum, anthemis, cascarilla (stronger when burned), gelsemium, hops, lupulin (strong on keeping), inula, marrubium, matricaria, rhubarb (peculiar), sage, tanacetum, sandal wood (somewhat musklike) wormwood.

(b) Odour less strong, and not characteristic—Arnica flowers, arnica rhizome, angustura (musty), columbo, eupatorium, juniper, melissa (fragrant, lemon-like when fresh), pilocarpus.

(2) With an aromatic, mint-like odour (the mint odour predominating)—Buchu, peppermint, spearmint, horsemint, pennyroyal.

(3) With an aromatic, camphoraceous odour (the aroma has a suggestion of camphor in it): Calamus, eucalyptus, rosemary, santonica, serpentaria.

(4) With au aromatic, spicy odour (the spicy odour predominates): Cloves ginger, cubebs, matico, pepper, pimenta.

(5) With an aromatic and fragrant odour (odours which are strong, spicy and agreeable):

Anise, Fennel, Illicium — Anise Group. Nutmeg, Mace, Cola — Nutmeg Group.

Coriander, Caraway, Cardamon.

(6) With a bitter-almond odour (odour developed by moistening or bruising) Bitter almond, cherry-laurel leaves, wild cherry bark.

(7) With a honeylike odour—Manna, mel.

(8) With a fenugreek odour—Elm bark, fenugreek, marshmallow.

CLASS B.—With a fragrant odour (odours which are sweet smelling and fragrant):

(1) With a simple fragrant odour:

Cinnamon, Canella, Cinnamodendron — Cinnamon Group. Bitter orange peel, Sweet orange peel, Lemon peel — Citrus Family Group.

Gaultheria, Sweet Birch — Wintergreen Group. Sassafras, Vanilla (peculiar).

(2) With an odour of flowers—Orange flower, pale and red rose, orris root (violet odour).

(3) Having an odour of tea—Cusso (fragrant), coca (slight), digitalis (slight), senna indica, thea.

(4) Having an odour of chocolate—Guarana, cacao butter.

(5) Having a fruity odour—Fig, persimmon, raspberry, raisin, prune (feeble), purging cassica (prune-like).

CLASS C.—With a balsamic odour (odours which are aromatic and resinous).

(1) With a simple balsamic odour—Eriodictyon, grindelia, myrrh, guaiacum wood (when heated).

2) With a balsamic and fragrant odour (odours which are balsamic and agreeable): Benzoin, storax, sweet gum, bals. tolu (vanilla-like), bals. Peru (also empyreumatic).

(3) With a balsamic and terebinthinate odour (odour increased by heating), Burgundy pitch, Canada pitch, Canada turpentine, gum olibanum, mastiche, sandarac, tar (empyreumatic), resin (faint), turpentine, thuja.

CLASS D.—Drugs with peculiar odours:

Camphor (penetrating), cochineal, convallaria, coffee (faint in green state), capsicum, gentian (sweet), jalap (smoky, sweetish), quercus (tan-like), pulsatilla (aromatic and hay-like).

CLASS E.—Drugs with a slight odour:

(1) Those having a characteristic odour—Logwood (faint, agreeable), rumex, red saunders.

(2) Those not having characteristic odours—Aspidium, aspidosperma, castanea, cypripedium, dulcamara, euonymus, catechu, caulophyllum, cetraria (odour when wet), frangula (little odour when dry), nutgall, when bruised), juglans, chimaphila, cimicifuga, chinchona (somewhat aromatic), menispernium, sarsaparilla (earthy), scattelaria.

Division II.

DRUGS WITH DISAGREEABLE ODOURS.

CLASS A.—Drugs with narcotic odours (odour heavy and somewhat stupefying)—Belladonna leaves and root (slight), calendula (somewhat heavy), canabis Indica (heavy), chelidonium (strong when fresh), hyoscyamus (heavy), lactucarium (somewhat heavy), lobelia (slight), tobacco (heavy, peculiar), stramonium leaves (slight).

CLASS B.—Drugs with alliaceous odours (sulphuretted odours resembling garlic)—Asafetida, garlic, sinapis alba and nigra (when moistened).

CLASS C.—Drugs with valerianaceous odours (odour produced on keeping, by oxidisation of the volatile oil)—Lupulin (when old), valerian, viburnum prunifolium.

CLASS D.—Drugs with animal-like odours—Ambergris, cantharides, civet, conium (mouse-like when triturated with potassa), pepsin (should be slight), sumbul.

CLASS E.—Drugs having disagreeable, characteristic odours.

(1) Odours which are strong—Ammoniac, aloes, chenopedium, copaiba, ergot, galbanum, podophyllum, senega (strong in fresh root), stillingia sabina.

(2) Odours not strong—Apocynum, chondrus (sea-weed like), hydrastis, ipecac (nauseous when powdered), iris, lappa, scammony (cheese-like), strophanthus, scoparius (when bruised).

DRUGS WHICH ARE DESTITUTE OF ODOURS.

Acacia (odour sometimes sour), aconite, asclepias, bryony, chirata, castor oil beans, croton oil beans, chrysarobinum, cocculus Indicus, colchicum root, colchicum seed, colocynth, gamboge, geranium, tamarind, taraxacum, tragacanth, cottou root bark, granatum, hamamelis, kamala, kino, krameria, leptandra, linum, lycopodium, mezereum, nux vomica, pareira, pepo, triticum, veratrum viride, viburnum opulus, physostigma, phytolacca root and fruit, pyrethrum, quassia, quillaja, rhamnus purshiana, rhus glabra, rhus toxicodendron, rubus, sassafras pith, squill, sweet almond, sinapis alba and nigra (when dry), xanthoxylum, tea.

THE PHYSIOLOGICAL TESTING OF DRUGS.*

BY F. P. TUTHILL, B.S., PH.G., PHR.D.

The physiological testing of drugs is one of the most important problems for the pharmacist of to-day. Many drugs have been gradually discarded owing to the unreliability of resultant products as made from apparently select material. The variance in strength of some crude material is remarkable, and hence, unfortunately, owing to the unreliability of chemical tests, several valuable drugs have been dropped by many physicians. In some cases no effect would be obtained, while in other cases alarming symptoms would be produced, causing suspicion on the part of the patient and much annoyance to the physician. The latter may be ever so well versed in therapeutics, but if his prescriptions are filled with inert drugs or drugs varying in strength, his efforts are apt to be useless or even harmful.

The therapeutic effect of all powerful drugs is almost wholly due to certain constituents, called active principles, which impart to a drug the particular effect derived from that principle which predominates in that drug. These principles may be alkaloids, glucosides, resins, or other specific substances. Thus, for instance, belladonna is used for the effect of its atropine; digitalis and strophanthus for the digitalin and strophanthine; mandrake for its podophyllin, and so on.

For years the only method of determining the strength of galenical preparations of these most important drugs has been by chemicals, based on the fact that alkaloids, like alkalies, have the power of combining with acids and neutralising them. Thus, by following the regular method of titration, the strength of the active principle was supposedly found. The all-important fact was overlooked, however, that many times the chemicals used in titration destroyed the active principle to some extent; therefore, the final result was uncertain. "Is it not then an advance step in pharmacy, when we can have reliable products of these important drugs, which have been physiologically tested, and can be used with safety and certitude?"

Only those drugs and active principles should be tested physiologically which cannot be assayed by chemical means. Dr. E. M. Houghton has found thus far that cannabis indica, ergot, digitalis, strophanthus, convallaria, and squill cannot be tested satisfactorily by the chemical method, and he, therefore, is using the physiological method for these drugs.

Ergot is one of the most important drugs that physicians prescribe. This drug loses much of its activity shortly after being harvested, and often becomes entirely inert. The menstruum used in extracting ergot often leaves the more important constituents in the improperly exhausted drug, all of which make the finished product very uncertain for the physician. There is annually placed on the market thousands of pounds of ergot which has little therapeutic value. A physiologically tested ergot will always be reliable. The

* Read before the Kings County Pharmaceutical Society and reprinted from the *Western Druggist*.

oxytocic power is determined upon pregnant animals, the related hemostatic action by feeding the drug or extract to cocks, the result being shown in the comb and wattles of the fowl.

In cannabis indica we have a valuable but much-abused drug, and through preparations inert or giving rise to alarming symptoms, many physicians have entirely discarded its use. Of twenty-seven samples of crude Indian cannabis of excellent physical appearance recently physiologically tested by Dr. E. M. Houghton, only thirteen proved to be active when administered to animals.

An amusing, yet serious, incident came to my notice some time ago, which proves the necessity of a reliable cannabis indica. A certain pharmacist had always made his tincture of cannabis from solid extract. He used a large quantity of this tincture on one particular doctor's prescription, who was also his family physician. The doctor prescribed tincture of cannabis indica in the usual dose for this gentleman's wife. It seems that a new lot of tincture had been made from a solid extract the pharmacist had never used before, but had used the same quantity of extract in making his tincture. After taking the medicine as ordered, his wife had symptoms most alarming, but to an outsider most amusing—a typical "hasheesh drunk," which is rarely serious, but said by those who have experienced it to be a most delightful sensation. Moral: Use only such preparations of cannabis as have been physiologically tested, which is usually done by administering the extract to dogs, the action being manifest in staggering gait, loss of muscular control, reduction of temperature and often insensibility.

In strophanthus and digitalis we have two drugs whose active principles are known but which cannot be assayed chemically because the glucosides, to which they owe their activity, are of such delicate structure that they decompose more or less by the chemical manipulations. The unreliability of these products has caused the discontinuance of strophanthus by many physicians, and others look upon digitalis with suspicion. These drugs are physiologically tested by administering them in fluid form to frogs and other animals, the demonstration of their action being rendered more vivid through the use of graphic tracings on the kimograph and similar instruments.

The physiological standardisation of pharmaceutical products is based upon the rational idea of administering to animals doses proportionate to body-weight, thereby producing manifestations of therapeutic activity such as we desire to produce in the human subject, but rendered relatively more intense in animals by the administration of larger proportionate doses. From the effects produced we are enabled to institute comparisons with standard samples.

WHAT IS PHARMACOGNOSY.*

BY HENRY KRAEMER.

It is rather difficult in these days of specialisation of knowledge and differentiation of the sciences to determine whether the various departments are becoming more and more distinct, or whether they are becoming more and more dependent upon one another. This apparent difficulty is due ofttimes to the fact of the objective importance of the study rather than its subjective dependence. For instance, bacteriology has received more attention at the hands of medical students than from any other class of investigators. This is due to the fact, however, that the results of bacteriological study more deeply concern the physician than the botanist, whereas, according to the nature of bacteria their study more properly belongs with that of cryptogamic botany, and is, to a limited extent, considered in all thorough courses in botany. The scope and influence of the different sub-departments of science cannot be determined once and for all, but must be evolved as experience and progress add to our knowledge of the various branches.

It may be said that some terms indicating the various sub-departments have been employed rather as a convenience, whereas others have been coined by reason of necessity. Materia medica is one of those convenient terms which may be utilised to mean anything or everything relating to the materials used in medicine. For a great many years it has been associated in colleges of pharmacy with botany and in schools of medicine with therapeutics. Years ago there were evidently some reasons for the use of an elastic term like materia medica, and it does not seem so long ago when a teacher of materia medica might be versed in botany, chemistry, pharmacy, and even medicine. Gradually, some of these subjects have been eliminated from the meaning of the term.

As early as 1821 the returns from the science of chemistry were so great as to cause the two distinct chairs to be made—viz., of chemistry and materia medica in the Philadelphia College of Pharmacy. In 1846, in the same institution, pharmacy, which up to this time had been considered in connection with materia medica, was given distinct rank. Nearly twenty years later (in 1864) the special training of the physician was not considered necessary in the teaching of materia medica, and in 1897 the department of botany and pharmacognosy was established as a separate course of instruction, thus more clearly differentiating the province of materia medica. It ought to be said, however, that this differentiation of these branches of study has not been carried to the same degree in all schools of pharmacy. As to what is meant by materia medica it is not my province to say.

It is recognised in Europe that the knowledge of botany and chemistry which the pharmaceutical student receives at the University is not of a character in itself to make him a pure botanist or chemist. For some time in some of the leading universities the lectures on chemistry have been given to the pharmaceutical students not by the professor in chemistry in the Chemical Institute, but by the professor of pharmaceutical chemistry at the Pharmaceutical Institute. The pharmacy students still go to the botanical institute for their botanical work, but they receive a distinct course of instruction in the science of botany as applied to them in their work. As in chemistry, so in botany, the need of a term to indicate the kind of work that the pharmacist is instructed in is manifest. Very wisely has the chemical work been denominated "pharmaceutical chemistry." It would be well if the botanical work were termed "pharmaceutical botany." Instead of this, however, we find that the word "pharmakognosy" (coming from two Greek words meaning drug knowledge) has been invented, or at least applied.

In 1867 Flückiger published the first edition of his book, entitled 'Pharmakognosie des Pflanzenreiches.' The last (or third edition) was published in 1891. It is practically a collection of brief scientific monographs on the various commercial products of the plant kingdom, treating of their origin, formation, gathering, physical properties, chemical composition, and history. The title of Flückiger's work indicates that we might have at least also an animal pharmacognosy, if not a mineral pharmacognosy. Marmé has published a work on the 'Pharmakognosie des Pflanzen- und Thierreiches.'

Quite a number of works on pharmacognosy of the vegetable kingdom have appeared within the past ten or twenty years. There has been little or no desire upon the part of anyone to define what shall constitute the study of pharmacognosy, but it is fair to say that each author has endeavoured to give in his treatise those facts that he considered essential for a work treating of the knowledge of vegetable drugs. A. Wigand, in his 'Lehrbuch der Pharmakognosie' (the second edition of which appeared in 1874), gives us to understand from his treatment of the subject that a knowledge of drugs consists, primarily, in knowing their macroscopic and microscopic structure. He also mentions the origin, natural order, adulterants and prominent chemical constituents. The work reminds one very much of Maisch's 'Materia Medica,' only there is no treatment whatsoever of medical properties.

In 1892 August Vogl published his 'Pharmakognosie.'

* From the *Alumni Report*.

One hardly observes that there is an undue prominence given in it to any of the features of the works of either Flückiger or Wigand. In fact, there is an apparent assimilation of all of the features contained in these and other works which will tend to promote a knowledge of the vegetable drugs of which he treats. He begins the consideration of each drug with a definition as to what it is, what plant yields it, the natural order to which the latter belongs, its habitat, and whether wild or cultivated. He then proceeds with careful macroscopic and microscopic descriptions of the commercial drug, following this with the study of related drugs, the chemical constituents, an enumeration of the preparations into which the drug enters and a few historical words on the drug. The more we study this work of Vogl, the more likely are we to arrive at a better significance of the term pharmacognosy and the more apparent does it become that pharmacognosy is an end and not a means. The end is drug knowledge, and everything that is likely to bring this condition to pass is to be utilised.

The test-tube, the microscope, or the senses, unaided by any apparatus, are all to be employed wherever necessary.

And yet the study of pharmacognosy has a subjective as well as objective side. The latter is dependent upon the former. Arthur Meyer, in the monographs which he has collected in his 'Wissenschaftliche Drogenkunde' (1889), as well as Tschirch and Oesterle, in their 'Anatomischer Atlas der Pharmakognosie und Nahrungsmittelkunde' (1893), clearly indicate to us that pharmacognosy or drug knowledge must be based on careful scientific work.

In later years we find that all of the valuable work in differentiating genuine from spurious drugs is based on prominent scientific facts. The whole study of powdered drugs is based on this same kind of information, and it is not too much to say that the more accurate knowledge of drugs in the future must be based on the results of scientific work on drugs in both a crude and a natural condition.

We may, therefore, say that while the end of pharmacognosy is drug knowledge and that the object is practical, nevertheless the treatment of the subject must be scientific. This is the part of the work that is so little understood, and that will require some time for comprehension by educators and investigators. We may say for convenience that we have a pure scientific pharmacognosy and a practical pharmacognosy.

Only they can labour in the former field who are trained scientists and possessed of the spirit of scientific research, whereas in the latter it is necessary that this knowledge be turned to some practical account. Indeed, a practical pharmacognosy is the art of making money out of drug knowledge. It plays the same *rôle* with drugs as the study of metallurgy does with ores.

The problems of the two kinds of pharmacognosy may be the same, and the results, to some extent, may be the same, but the objects had in view are very different. The one investigates that our knowledge of drugs may be made perfect. It considers neither the cost nor the time. The other only dares to proceed so far in the search for this knowledge as the object permits for the occasion in question. The results of the former will be published, whereas the results of the latter may be concealed. It is not the object of this paper to argue for a scientific pharmacognosy at this time, but rather to enable you to comprehend what is meant by a practical pharmacognosy and of what use it is to practical pharmacists. I can best do this by indicating to you some of the problems with which practical pharmacognosy is dealing to-day. I need hardly refer to the work in the identification of crude and powdered drugs as at present taught the students in this college (the Philadelphia College of Pharmacy), and which has been referred to on a number of occasions in various papers by the author.

(1) Practical pharmacognosy is concerned in developing that work which will enable the pharmacist to stick to his drugs. The necessity for the pharmacist grinding his own drugs and making his own preparations is very well known, but the economics of the question or the practical pharmacognostical consideration of it has not received the attention it should receive.

I am well aware that this subject is dependent upon certain commercial conditions. Pure powdered drugs may be easily obtained and our students are able to test the powders they purchase. It is questionable, however, as to whether this information has received more than a rather limited commercial value as yet. Most pharmacists, I understand, purchase most of their vegetable drugs in a powdered condition. Where time is an important consideration, business heavy, and room expensive, this may be a more economical procedure. But there are many pharmacists who are doing other work than that upon drugs. Their clerks, as well as they themselves, are putting their energies in outside fields. Their place of business, as well as time, is being devoted to these outside ends. When we consider that powdered drugs cost about 30 per cent. on an average more than that of crude drugs, and that the cost of pharmaceutical preparations purchased is also at least this much more (probably on an average 50 per cent. more) than if the pharmacist made them himself, we can readily enough appreciate that if the pharmacist's bills amount to 1,000dols. per year for these drugs and their preparations, that 300dols. or more is being paid to someone else for the work that could be performed in his store just as well. This means that he could devote 1,000dols. worthless energy in a certain direction and save 300dols. in his purchases by having the drugs ground, and the preparations made therefrom, in his store. This would alone pay for a junior clerk to carry on this work, and give him the kind of experience that he needs. Some pharmacists sell hundreds of pounds of spices alone per annum. Let us, for the purpose of comparison, see what are the prices per pound of some of these products in a whole and in a powdered condition:—

	Crude.	Powdered.
Allspice	$0 12	$0 18
Black Pepper	12	17
White ,,	21	25
Black Mustard	8	15
White ,,	8	20
	61	95

The question might be properly asked, Can the pharmacist practically grind his own drugs? I show you here samples of powdered nux vomica, mustard, flaxseed, pepper, mace, strophanthus, etc., all considered to be drugs that are with some difficulty powdered, which have been ground in this small Excelsior mill, which has cost but a few dollars. Finally, in view of these facts, the question may be asked as to whether the time of the pharmacist can be more profitably employed in the direction indicated than in some other way. I leave the question to the pharmacists themselves, as it is not one for me to answer.

(2) Practical pharmacognosy is furthermore concerned in the selection of drugs. It is very apparent in consulting the various price lists that the same drug may be purchased at various prices, according as it is considered to be "pure," "A," "garbled," etc., or whether it has come from a certain locality or through a certain firm, etc. An "A" of one firm may be like a "B" in another firm's warehouse, and this explains to some extent differences in prices quoted. One is apt to think that, in purchasing an "A" drug from one firm at an apparently less price than a similar drug from another firm, an economical transaction has been made. This is not necessarily the case, and is best exemplified in the purchase of drugs like asafœtida, ammoniac, etc. Fortunately, to-day some of our drugs are sold according to assay (as cinchona, ipecac., etc.), and yet assay is no criterion of price. Short buchu, for instance, sells at a price that is 35 per cent. less than long buchu, and yet it contains probably 50 per cent. more oil. Curaçoa aloes sells at 80 per cent. less than Socotrine aloes, and yet it contains 50 per cent. more aloin. Selection of drugs must be based on a knowledge

of their intrinsic value and not on price. Practical pharmacognosy is concerned in imparting such information as will enable its students to purchase the most valuable drugs with the least amount of money. It matters not what the terms or signs "pure," "garbled," "A," source, etc., may mean to some, to him it must mean actual value in quality of drug. If he chooses to pay a higher price for a drug because of appearance or brand, he must see to it that he receives a corresponding profit on its sale over one that is superior in point of activity and which he may purchase at a less figure. The practical pharmacognosist is conscious of the value of the drug that he is purchasing or selling, and he does not expend any more energy or money than is consistent with the object of utilisation for which he has purchased the drug.

(3) One of the most promising fields of experiment and study is in the collection of medicinal plants and their cultivation. It is true that in this country large quantities of certain drugs, as podophyllum, sanguinaria, caulophyllum, wild cherry, cataria, hamamelis, etc., are annually gathered. These are collected chiefly, probably by the poorer people, in the Blue Ridge Mountain districts of North and South Carolina and Tennessee. There are many regions where large quantities of our indigenous official drugs can still be gathered, as is manifest in all of our botanical excursions. These drug-yielding plants are by no means so abundant as formerly, and this extermination without replacement must be met some day by the products of drug farms. The pharmacists in our large cities may not practically be able to consider this field of operation, but he who is located in smaller towns can consider the collection of wild medicinal plants and their cultivation to at least some extent in supplying his own demand of trade. A few tramps in the neighbouring woods will reveal how many drugs may be profitably collected, and a glance at the catalogues of any of our seedsmen will show how many of our medicinal plants may be grown, and at very little cost. Of course there will be a limit found in every locality to the plants that may be successfully grown. This phase of the subject means the consideration of the principles of general gardening, agriculture, etc., from a practical and theoretical standpoint; various economic problems, as the getting the most out of the soil, the number and kind of plants that may be planted, the sacrifice of one part of a plant for another, as the leaves of hyoscyamus or stramonium for the seeds or the leaves of belladonna for the root, etc.—all of these problems must be solved on a limited scale before larger farms can be made. There is probably no part of practical pharmacognosy in which more profitable work can be done than in the prosecution of preliminary studies in both the collection of wild medicinal plants and their cultivation.

(4) Practical pharmacognosy has been always concerned with the origin and habitat of drugs. It makes a great amount of difference as to what is the origin of the plant which yields us our strophanthus, ipecac., etc., and what is the habitat of the plant which furnishes us coca, belladonna, etc. It is not always possible to decide whether differences are due to origin or habitat and to discern what further study is likely to reveal. Who can say as yet that Carthagena ipecac. is of different origin from that of Rio ipecac., or that the cocas of Peru and Bolivia are necessarily of the same origin. We must not forget that practical pharmacognosy is not concerned in publishing all of the information. Whatever is known and written about drugs may be of some commercial value, but the real and valuable information commercial of many of our drugs is a secret often only to those who profit by commercial transactions. This particular kind of information is to be ascertained most readily in our drug markets. Now and then some traveller or observer tells us something of value, but everyone who has tried to secure commercial information of our drugs finds that this is the information that is coveted, and that it is not printed. The books are rich in a certain kind of knowledge, but, after all, it is not the kind that the practical pharmacognosist desires. Mr. Heap (in a paper read at the Chemists' Assistants' Association, London, March 16) has given some pertinent facts relative to the necessity for commercial study of drugs. He says:—"The wholesale druggist buys one description of aloes always as Curaçoa, but he always sells it as Barbados."

"Sarsaparilla on the London market is divided into six or seven kinds, yet how many of these do you see described or even noted in text-books? Cardamoms are classed under two chief varieties, but who that does not follow the article on the market knows this? In the text-book there will be found at the most three descriptions of benzoin. In the primary market people are accustomed to four. "This commercial observation is not only necessary for commercial ends, but also for scientific ends—for the purposes of the botany and chemistry of drugs. To see this it is only necessary to reflect how, for instance, a pharmaceutical botanist, being desirous of investigating the botanical sources of an Indian gum, might be led by this common statement that it really came from African trees to waste a good deal of time and labour to no purpose. There is no doubt but that the botanical origin of many drugs has been long observed through imperfect commercial information as to their source. Much of this is due to the difficulty of obtaining the right sort of information, but some is also due to defective study of what information is available."

Sufficient has been said to indicate that a practical knowledge of the origin and habitat of drugs can only be gleaned satisfactorily from the drug markets of the world and by expeditions to the source of supply.

In summing up the foregoing observations, it may be said that pharmarcognosy is primarily concerned in the development of a knowledge of drugs. This knowledge may come through the common people as well as through the investigations of botany and chemistry, or the labours of the geographer and explorer. There is a scientific and a practical pharmacognosy. The results of the former are likely to be published and may be turned to account for practical purposes. The information pertaining to practical pharmacognosy is, in addition to the knowledge from literary sources, to be found chiefly in the commercial world among the collectors and dealers of drugs. The information from the latter source is less likely to be published than the former, for when once widely known it generally ceases to possess financial value. The problems of pharmacognosy are many, and some of the problems of practical pharmacognosy are indicated in this paper. Some of the problems of scientific pharmacognosy will be referred to later.

ANALYTICAL NOTE.

SATURATED SODIUM SALICYLATE SOLUTION FOR THE EXAMINATION OF ESSENTIAL OILS.—M. Duyk finds that a saturated (1:1) solution of sodium salicylate, sp. g. 1·14, is a useful solvent for separating many of the constituents of essential oils. It readily dissolves a number of alcohols, aldehydes, ketones, and phenols. The solution is perfectly clear, but again liberates the dissolved substances on dilution with water. In this way eugenol, geraniol, linalool, borneol, benzaldehyde, carvol, citral, carvone, cinnamic aldehyde, and citronellone may be separated from the oils containing them; esters and terpenes are insoluble in this reagent. Santalol, anethol, safrol, apiol, cineol, and camphor are only partially dissolved. This solution is applicable for the extraction of the soluble bodies from oils on the manufacturing scale as well as for the quantitative determination of them in the analytical examination of essential oils. For the latter purpose a known volume (1 C.c.) of the oil is introduced into a burette, graduated with 1/20 C.c., with three times its volume of the sodium salicylate solution, the whole is thoroughly shaken up, and allowed to separate; the clear lower liquid is drawn off, a fresh portion of the salicylate added, and the operation repeated. The volume of the insoluble oil is then read off. The details of the examination of various essential oils by this method are being published.—*Bull. de la Soc. Roy. de Pharm. de Brux.*, **43**, 225.

EGG ALBUMIN.*

BY THOMAS B. OSBORNE.

Hopkins has recently shown† that the crystallisation of egg albumin is greatly facilitated by the addition of acetic acid to the half-saturated ammonium sulphate solution. I have found that crystallisation is thus promoted, because the crystallised egg albumin is a compound of the protein substance with acid.

When egg white is first mixed with half-saturated ammonium sulphate solution an alkaline reaction towards litmus can be detected, and a decided odour of free ammonia develops. After this solution has stood for some hours, all evidence of free ammonia disappears, and the solution is then perfectly neutral to litmus and continues neutral during the gradual separation of the albumin. The deposited substance, whether in the form of spheroids or of crystals, when filtered out and dissolved in water, reacts distinctly acid with litmus, as well as with phenolphthalein.

In order to obtain the albumin in crystals, it has heretofore been necessary to precipitate it several times, evidently because, during the earlier evaporations, an insufficient amount of acid is formed to produce the crystalline compound. It is also for this reason that, if acetic acid be added as Hopkins directs, the albumin is obtained completely crystallised by a single precipitation, and that, too, without any concentration by evaporation.

I have found that if, instead of acetic acid, a molecularly equivalent quantity of hydrochloric acid be added, the separation takes place even more quickly, and, so far as my experience has as yet gone, within a short time is more complete than with acetic acid during the same time. Thus, I prepared from two portions of 1500 C.c. each of perfectly fresh egg white a quantity of crystallised egg albumin by aid of each of these acids, with the following results:—

After adding to one-half of the egg white acetic acid in the proportion and manner directed by Hopkins, and a molecularly equivalent quantity of hydrochloric acid mixed with 300 C.c. of half-saturated ammonium sulphate solution to the other half, the two solutions were set aside to deposit albumin. After three hours a very large crystalline precipitate had separated in the portion with hydrochloric acid. This precipitate was then filtered out, but the portion with acetic acid was allowed to stand for twenty-four hours, because the separation appeared to be much less than that in the hydrochloric solution.

These two precipitates were each twice recrystallised, freed as completely as possible from mother-liquor by pressing out with filter-paper, dissolved in water, and the solutions dialysed for ten days, until wholly freed from sulphate, when they were filtered clear and evaporated at about 50°. The residue left by the acetic acid solution, A.1, weighed twenty-nine grammes; that from the hydrochloric acid, H.1, fifty-nine grammes.

The filtrates from the several crystallisations of these two preparations yielded a second crop of completely crystallised albumin; that from the acetic acid solution, A.2, weighing forty-three grammes; that from the hydrochloric acid solution, H.2, seven and nine-tenths grammes. Similarly, from the mother-liquors from these preparations, two other entirely crystalline products were obtained, weighing respectively, A.3, eight grammes, and H.3, four and nine-tenths grammes. From the finally remaining acetic acid solutions another preparation separated, consisting wholly of spheroids, A.4, which weighed nine and one-tenth grammes.

There were thus secured from 1500 C.c. of egg white, by adding acetic acid, 80 grammes of wholly crystallised albumin, and from 1500 C.c., with hydrochloric acid, 73·2 grammes, or 5·30 and 4·90 grammes respectively per cubic centimetre of egg white.

The crystallised albumin, like all the other protein preparations which I have as yet examined, is a compound of a protein substance with an acid. In order to neutralise to litmus and to phenolphthalein the solutions of one gramme of each of these preparations of albumin, it was necessary to add the following quantities of decinormal potassium hydroxide solution:—

	A.1.	A.2.	A.3.	A.4.	H.1.	H.2.	H.3.
To phenolphthalein	2·05	2·30	2·30	2·35	2·05	2·25	2·20
To litmus	1·30	1·60	1·65	1·55	1·30	1·60	1·50
Difference	0·75	0·70	0·65	0·80	0·75	0·65	0·70

If, as pointed out in another paper, the molecular weight of the protein substance is about 15,000,* one gramme would react with 0·67 C.c. of a decinormal solution, a quantity nearly equal to the difference in acidity shown by these two indicators. Three molecules of acid reacting with one of albumin would be equal to two C.c. of decinormal solution per gramme of albumin, a quantity in very close agreement with that found for the two fractions constituting the greater part of the albumin, A.1, and H.1, and which also differs but little from that required to neutralise one gramme of all the other fractions.

When the albumin, dissolved in water, was neutralised with decinormal potassium hydroxide, the solution evaporated to dryness and the proteid matter burned off, an ash was left containing potassium carbonate almost molecularly equivalent to the acid of the albumin originally neutralised. From this it appears that the acid is mostly, if not wholly, organic.

It has been, thus far, impossible to discover what acid or acids were united to the albumin. Neutralisation of the albumin suspended in fifty per cent. alcohol resulted in the formation of a gummy mass difficult to filter and wash, and from which none of the products of neutralisation could be separated. Neutralisation of a solution of ten grammes of the albumin and dialysis in distilled water failed to give enough salts in the diffusate to shed light on the nature of the acid. Neutralisation with baryta of a solution of two grammes of the albumin gave a very slight precipitate which, after standing some days, was filtered out, washed, and ignited, but only four milligrammes of mineral matter were obtained.

The preparations showed no excess of sulphur over that usually found in coagulated and thoroughly washed albumin prepared without the use of sulphuric acid or sulphates. Determination of total phosphorus showed A.1 and H.1 to contain 0·38 and 0·40 per cent. phosphorus pentoxide respectively. These preparations contained 0·87 and 0·69 per cent. of ash, which was almost wholly insoluble in water, and appeared to consist chiefly of calcium phosphate. The total phosphorus in these preparations was equal to 0·59 and 0·64 per cent. of tricalcium phosphate respectively.

Towards lacmoid these preparations reacted alkaline, about one C.c. of decinormal acid being required to neutralise the solution of one gramme, and three C.c. to give an acid reaction. When one gramme was treated with decinormal hydrochloric acid no evidence of free acid was shown with tropæolin until eight or nine C.c. were added.

When pure water solutions containing two and five-tenths per cent. of my albumin preparations were heated they all became turbid at 58°—59°, and separated a minute quantity of flocks at 59°—60°. On gradually raising the temperature the coagulum slowly increased until at 70° much of the dissolved albumin had coagulated. The solutions, heated for some time at 74° and filtered, still contained a little proteid, which even on heating at 99° did not separate until some salt was added. No break in this gradual coagulation of the albumin was detected, the solutions when filtered after partial coagulation yielding a coagulum on again heating up to the temperature to which they had been previously heated.

When solutions of pure ten per cent. sodium chloride brine, containing two and one-half per cent. of each of these preparations except A.3, H.3, and A.4 were slowly heated, turbidity developed at 56°—59°, and flocks at 56°—60°.

* From the *Journal of the American Chemical Society*.
† *Jour. Physiology*, **23**, 131.

* Sabanejeff: *Chem. Centrbl.* (1891), 10, found the molecular weight of purified egg albumin by determining the lowering of the freezing-point to be 15,000.

Only a trace of coagulum was obtained, however, below 64°, and the solutions filtered from this remained perfectly clear until heated to nearly or quite 70°, when the alumin began to coagulate. It was, however, found necessary to heat the solution to nearly 84° before most of it was separated.

The three preparations, A.3, H.3, and A.4, behaved as just described, except that below 64° each yielded a relatively considerable coagulum. These preparations, it is to be noted, are final fractions obtained in small quantity, and it seems probable that this coagulum obtained at 60°—64° is due to the presence of a different substance from that constituting the chief part of the other fractions. This is the more probable as A.3 and A.4 also showed a difference in specific rotation, as well as in composition.

The degree of acidity was found to have much influence on the coagulation of the albumin. Exact neutralisation to phenolphthalein, as might be expected, entirely prevented coagulation, even on boiling. When the acid of the albumin was neutralised so that the acidity was equal to one and two-tenths C.c. of decinormal solution per gramme of albumin, a solution containing two and five-tenths per cent. of the proteid became slightly opalescent on heating to 72°, and remained otherwise unchanged, even after heating for a long time in a boiling water-bath. If, however, the acidity was but one-tenth C.c. greater—that is, equal to one and three-tenths C.c. per gramme of albumin—the solution became turbid at 70°, and very opaque after heating in the water-bath at 99°. The difference between the two solutions was marked, and it is evident that the additional one-tenth C.c. had caused a change in the condition of the albumin. An acidity of 1·33 C.c. per gramme is almost exactly equal to two molecules of acid per molecule of albumin, assuming the latter to have a molecular weight of 15,000. From this it would seem to be necessary to add three molecules of acid to one of albumin in order to form the coagulable substance.

The specific rotation of these preparations was approximately determined by means of a Schmidt and Haensch polarimeter using a 200 Mm. tube. The readings on the sugar scale were converted into degrees of circular polarisation by multiplying by 0·346. The formula used in calculating the results was:—

$$(a)_D = \frac{a \times 100}{p \times d \times l}$$ where

a = observed rotation,
p = per cent. of albumin in the solution,
d = density of the solution,
l = length of tube in decimetres.

The results obtained were as follows:—

Preparation.	Per cent. of dissolved albumin.	Solvent.	Rotation.	Average.
A.1.....	5·861	Water	—29° 48′	—29°
	6·670	,,	—28° 46′	
A.2.....	3·422	,,		—29°
A.3.....	3.273	,,		—33°
A.4.....	3·404	,,		—41°
H.1.....	3·425	10 per cent. NaCl	—29° 0′	
	3·237	Water	—28° 33′	—28° 35′
	6·478	,,	—28° 1′	
H.2.....	1·699	,,		—28° 14′
H.3.....	3·205	,,		—39° 31′

As the results obtained on A.1, A.2, H.1, and H.2 agree closely, and as these preparations represent very different proportions of the total albumin of the egg white, it seems probable that we have in these fractions but one substance.

Bondzynski and Zoja, working with solutions containing ammonium sulphate, obtained similar but somewhat lower figures for the specific rotation of their least soluble fractions—namely, 25° 8′ and 26° 2′, duplicate determinations on the same fraction. Two other fractions gave them 34° 18′ and 42° 54′, figures agreeing fairly with those obtained by me for my more soluble fractions. They determined the albumin in the polarised solution by coagulation, a process which does not admit of so exact a determination of the dissolved albumin as that employed by me, which consisted simply in evaporating the pure water solution to dryness, drying to constant weight at 110°, and deducting ash. A slight error in determining the dissolved albumin causes a considerable error in the specific rotation.

The effect of acid and alkali on the rotation of the albumin solutions is shown by the following results, obtained by dissolving one gramme of A.2 in twenty-five C.c. of water, and treating with the given quantities of acid or of alkali:—

1 gramme A. 2	+ nothing		—29° 17′
	+ 0·8 C.c.	N/10 HCl	—29° 5′
	+ 8·0 C.c.	,,	—33° 46′
	+ 1·4 C.c.	N/10 KOH	—28° 45′
	+ 2·7 C.c.	,,	—30° 20′
	+ 4·2 C.c.	,,	—32° 30′

It is to be noted that by eight C.c. of the acid and by four and two-tenths C.c. of the alkali a rotation was produced about ten per cent. higher than with the smaller quantities of acid or alkali. This increase may well be due to a local over-reaction taking place on mixing the acid and alkali with the proteid solution, it having been demonstrated that large proportions of acids and alkalies yield products of high specific rotation.

Panormoff* has studied the specific rotation of fractionally precipitated crystallised egg albumin, and concludes that there are two albumins present in egg white, one with a specific rotation of —23·6°, and the other —46·2°. The albumin with the lower rotation he obtains from the so-called egg globulin precipitated by adding an equal volume of saturated ammonium sulphate solution to the egg white. This he succeeded in crystallising, and, so prepared, finds it to have the properties and composition of albumin. He considers, therefore, the egg globulin to be a compound of egg albumin with some unknown substance.

As the egg white is alkaline to litmus and ammonia is set free on adding to it a saturated solution of ammonium sulphate, it is not surprising that a product should be produced of different solubility from that of the albumins which we have been considering.

Panormoff converted his crystallised albumin into a chloride by dialysis against two-tenths per cent. hydrochloric acid. He analysed the product obtained, and it is interesting to note that, if calculated free from hydrochloric acid, the figures for the albumin are in exceedingly close agreement with the average of the best analyses of albumin. Furthermore, the proportion of hydrochloric acid in the compound is exactly the same as that which I found with tropæolin to be fixed by the albumin—that is, I found that one gramme of albumin united with eight C.c. of decinormal acid or 0·0292 hydrochloric acid to form a compound showing no free acid with tropæolin, while Panormoff's chloride contained 2·92 per cent., or exactly the same quantity.

In regard to the composition of egg albumin, confusion has recently been caused by Hofmeister, who states† that he has found in repeatedly crystallised egg albumin 1·01 and 1·18 per cent. of sulphur, and that Dr. F. N. Schulz, in his laboratory, has obtained 1·24 and 1·27 per cent. He consequently calls in question the purity of the samples of crystallised albumin, analysed with great care by Bondzynski and Zoja. As Hofmeister's figures for carbon are higher, and for nitrogen lower, than those of Bondzynski and Zoja, as well as of other investigators who have analysed *amorphous* egg albumin, the whole question of the composition of this substance is again thrown into confusion.

Having at hand a sample of egg albumin, which had been three times recrystallised in the manner described by Hofmeister as necessary for its purification, and obtained in the same proportion from the egg white as stated by him to be the usual yield after thorough purification, and which had been coagulated with alcohol and thoroughly washed until all the ammonium sulphate

* Ref. in *Chem. Centrbl.* (1898), II., 358 and 487.
† *Ztschr. physiol. Chem.*, **24**, 166.

had been removed, I analysed it, dried at 110°, with the result given under No. 1.

Analyses of the seven fractionally crystallised preparations, A.1—4 and H.1—3, were made after drying them to constant weight at 110°.

	No. 1.	H.1.	H.2.	H.3.
Carbon	52·18	52·85	52·33	51·72
Hydrogen	6·91	6·92	6·90	6·90
Nitrogen	15·67	15·66	15·77	15·26
Sulphur	1·70	1·572	1·644	1·958
Oxygen	23·54	22·998	23·356	24·162
	100·00	100·00	100·00	100·000
Ash	0·56	0·69	0·67	0·59
Total phosphorus pentoxide	....	0·40	0·21	trace
	A.1.	A.2.	A.3.	A.4.
Carbon	52·60	52·61	52·33	51·44
Hydrogen	7·02	6·94	6·93	6·88
Nitrogen	15·54	15·76	15·40	15·20
Sulphur	1·610	1·612	1·778	1·912
Oxygen	23·230	23·078	23·562	24·568
	100·000	100 000	100·000	100·000
Ash	0·87	0·65	0·67	0·40
Total phosphorus pentoxide	0·37	0·28	trace	trace

There can no longer be question about the amount of sulphur in albumin being greater than that stated by Hofmeister. My sulphur determinations were made with extreme care, fusing more than a gramme of the substance over an alcohol lamp with pure sodium hydrate and peroxide in a nickel crucible,* dissolving the fusion in excess of hydrochloric acid, neutralising most of the excess of acid, and precipitating with barium chloride from a boiling solution of at least 800 C.c. volume. Blank determinations showed no trace of sulphur in the reagents, and also that none was absorbed during the fusion over the alcohol lamp. These results agree with those obtained by Bondzynski and Zoja, though the difference in composition between their extreme fractions was not quite so great as found for my preparations.

The composition, rotation, heat-coagulation points and reactions of the crystallised egg albumin obtained by aid of hydrochloric or acetic acids show this to be the same substance as that which has in the past been regarded as egg albumin.

My results, those of Bondzynski and Zoja, and of Panormoff, make it plain that there are two protein substances in the egg white, which are commonly obtained admixed when preparing egg albumin by the usual processes. Whether the extremes of my fractional precipitations of these two albumins consist wholly or even largely of each one of these bodies requires further investigation of large quantities of egg white. This work we now have well under way.

Moerner† has described ovomucoid as identical with Neumeister's **pseudopeptone**‡, and states that it constitutes about one-eighth of the organic substance of the egg white. As this substance is described as largely, though not wholly, precipitated by two-thirds saturation of its solution with ammonium sulphate, it ought, if present as such in the egg white, to be found among the more soluble fractions thrown down by successive additions of ammonium sulphate. It is intended to direct especial attention to the isolation of this substance, and to determine if possible in how far it may be admixed with the albumins.

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* I have found many times when using a nickel crucible that, on dissolving the fusion, there was a black substance present (this looks and behaves like nickel sulphide, but it seems hardly possible that nickel sulphide could escape oxidation), which, when filtered out and oxidised, was found to contain sulphur. This black substance should be dissolved by the chlorine liberated from the hydrochloric acid by the peroxide of hydrogen, otherwise too low results will be obtained.

† *Ztschr. physiol. Chem.*, **18**, 525.

‡ *Ztschr. Biologie*, **9**, 369.

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.*

Salicin.—The reactions of salicin have been already described [*P.J.*, Jan. 29, 1898, p. 100]. In this connection it is interesting to compare the remarks made under saccharum purificatum [*P.J.*, Sept. 1, 1899] with regard to the behaviour of cane sugar towards Fehling's solution. The absence of reducing properties in cane sugar and glucosides is probably to be referred to the same cause, viz., the atomic arrangement in the condensed molecule of cane sugar or glucoside, by which the carbonyl group (to which the reducing properties are due in glucose) is in some way altered. Several formulæ have been proposed by which it may be shown how the carbonyl group may be supposed to be altered in the cane sugar, and to reappear as ketone and aldehyde in the products of hydrolysis—lævulose and dextrose. The explanation is, however, somewhat hypothetical, and cannot be further pursued here. The formula given for salicin in the 1898 B.P. may be used to show how this substance splits up on hydrolysis into glucose and salicylic alcohol, the so-called saligenin—

$$\left.\begin{matrix} C_6H_{11}O_5\cdot O\cdot C_6H_4\cdot CH_2OH \\ + \\ HO\,H \end{matrix}\right\} = \left\{\begin{matrix} C_6H_{12}O_6 \\ C_6H_4\langle \begin{matrix} CH_2OH \\ OH. \end{matrix} \end{matrix}\right.$$

Salol.—This is the phenyl ester of salicylic acid. The esters derived from the phenols present certain differences in their formation and reactions as compared to the esters of aliphatic alcohols. For example, ethyl acetate and phenyl salicylate may be regarded as derived in an analogous manner, viz., by the condensation of a molecule of alcohol or phenol and acid with elimination of a molecule of water as shown below—

$$\left.\begin{matrix} CH_3COO\,H \\ + \\ C_2H_5\,OH \end{matrix}\right\} = \left\{\begin{matrix} CH_3COOC_2H_5 \\ + \\ H_2O \end{matrix}\right.$$

$$\left.\begin{matrix} C_6H_4\langle \begin{matrix} OH \\ CO\cdot O\,H \end{matrix} \\ + \\ C_6H_5\cdot OH \end{matrix}\right\} = \left\{\begin{matrix} C_6H_4\langle \begin{matrix} OH \\ COOC_6H_5 \end{matrix} \\ + \\ H_2O \end{matrix}\right.$$

The practical realisation of these two equations, requires however very different conditions, owing chiefly to certain differences between the behaviour of the aliphatic alcohols and the aromatic alcohols or phenols. Compare the properties of alcohols and phenols in your text-book of organic chemistry. These differences are chiefly due to the fact that the characteristic hydroxyl group is in one case connected with an aliphatic or open chain nucleus, and in the other with an aromatic or closed chain nucleus, which is comparatively rich in carbon and poor in hydrogen. This accumulation of carbon atoms causes the phenols to behave somewhat like acids, *e.g.*, ordinary phenol reacts with potash and soda solutions to form potassium and sodium phenates, C_6H_5OK and C_6H_5ONa, because the phenyl-radicle C_6H_5 is negative and influences the hydroxyl group, so that its hydrogen may be easily exchanged for the more strongly electro-positive metals potassium and sodium.

For the production of ethyl acetate, it is only necessary to disti the alcohol and acetic acid in presence of a dehydrating agent like sulphuric acid. Compare in your text-book the section on general methods of formation of esters. For the reason given above, however, the phenols do not so readily exchange the hydrogen of their hydroxyl for acid radicles, and hence this method does not yield good practical results in the case of salol. Some analogy may,

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

however, be found between the behaviour of phenols and tertiary alcohols of the aliphatic series. The tertiary alcohols contain the group $\equiv C{\cdot}OH$, *i.e.*, the hydroxyl is linked to a carbon atom, which is connected by its three remaining valencies with carbon. The phenols also contain their hydroxyl group linked to a carbon atom which is also connected with two, or perhaps three, other carbon atoms. As a matter of fact it is found that the formation of esters of tertiary alcohols by the direct action of acids only proceeds to the extent of about 6 per cent. of the alcohol. The subject of esters has been already treated very fully in the Student Columns *P.J.* [4], **7**, 552. In the case of esters of phenol the reaction must be assisted by using a high temperature in presence of some agent like phosphoryl chloride (phosphorus oxychloride) $POCl_3$ which reacts energetically with the water produced, and so prevents saponification of the ester. The reaction between phosphoryl chloride and water results in the formation of phosphoric and hydrochloric acids.

$$PO\begin{matrix}Cl\\Cl\\Cl\end{matrix} + \begin{matrix}H\,OH\\H\,OH\\H\,OH\end{matrix} = PO\begin{matrix}OH\\OH\\OH\end{matrix} + 3HCl$$

It is found in practice that a better yield is obtained when the sodium salts of salicylic acid and phenol are employed. In this case sodium phosphate and chloride are produced as by-products, and this prevents a secondary reaction between the phenol and phosphoric acid which results in the production of phenyl esters of phosphoric acid.

Carbonyl chloride behaves very similarly to phosphoryl chloride, thus—

$$CO\begin{matrix}Cl\\Cl\end{matrix} + \begin{matrix}H\,OH\\H\,OH\end{matrix} = CO\begin{matrix}OH\\OH\end{matrix} + 2HCl.$$

The carbonic acid so formed decomposes immediately into carbonic anhydride and water—

$$CO\begin{matrix}OH\\OH\end{matrix} = CO_2 + H_2O.$$

Among the official characters and tests the insolubility of salol in water should be carefully noted as a point to be remembered in dispensing this substance. The action of bromine in alcoholic solution results in the formation of an insoluble bromo-derivative by replacement of a hydrogen atom in the phenol residue by bromine. Compare action of bromine upon phenol itself. The violet colour with ferric chloride is characteristic of salicylates. Salol, like other esters, is saponified by boiling with solutions of caustic alkalies and more quickly by fusion as described in the Pharmacopœia.

$$\left.\begin{matrix}C_6H_4\begin{matrix}OH\\COO\end{matrix}C_6H_5\\+\\Na\,OH\end{matrix}\right\} = \begin{matrix}C_6H_4\begin{matrix}OH\\COONa\end{matrix}\\+\\C_6H_5OH\end{matrix}$$

In presence of excess of caustic soda the phenol yields sodium phenate

$$C_6H_5O\,H + HO\,Na = C_6H_5ONa + H_2O.$$

The fused mass dissolves in water but on acidulating with hydrochloric acid the sparingly soluble free salicylic acid is precipitated and phenol regenerated. Salol is not decomposed by contact with water, and is practically insoluble ; hence if water be shaken with salol and then filtered the filtrate should give no colour with ferric chloride unless the salol contains uncombined salicylic acid. The medicinal use of salol is based upon the combination of two powerfully antiseptic and caustic substances—salicylic acid and phenol—into a neutral, almost tasteless substance, which passes through the stomach unchanged, but is slowly hydrolysed by the alkaline intestinal juice into its constituents. Hence it is employed as an antiseptic in certain disease associated with putrefactive or fermentative changes in the intestine. Owing to its stability in the gastric acid juice and to its insolubility salol passes on unabsorbed until it reaches the intestine, whose secretion is alkaline and capable of hydrolysing it into its soluble and active constituents.

Sapo Animalis, Sapo Durus, and Sapo Mollis.—The official characters and tests for these soaps have been considerably amplified in the present Pharmacopœia. Even now they are very incomplete ; for example, the characters and tests for curd and hard soaps are practically identical, and no test is given to show that one is chiefly sodium stearate and the other sodium oleate. The identification by analysis of the exact kind of oil or fat used in making a given sample of soap is a matter of great difficulty, and in the case of a mixture of oils or fats it becomes almost impossible. In the case of two soaps like the official curd soap and hard soap the difference may be shown very simply in the following manner, which depends upon the separation and determination of the melting points of their fatty acids. Dissolve 5 grammes of the soap (in shavings) in 100 C.c. of hot water. To the solution contained in a beaker add a little solution of methyl orange and then standard sulphuric acid until a permanent acid reaction is obtained. The mineral acid decomposes the soap forming sodium sulphate and liberating the fatty acids. These, being insoluble in and lighter than water, rise to the surface of the hot liquid, and form a clear oily layer. Now set the beaker aside to cool : the oily layer will solidify and form a circular cake which may be removed and dried on blotting paper. In the case of curd soap the cake will be hard at ordinary temperatures and melt at about 45° to 50° C. With a soap made from olive oil the cake of fatty acids will be soft at ordinary temperatures, and melt at about 25° C. The method of testing for free alkali in soap given under Sapo Animalis should be carefully noted by the student. If perfectly neutral sodium stearate or oleate be dissolved *in water* an alkaline solution is obtained, and this alkalinity increases with increasing dilution. This is owing to the dissociating effect of water, which hydrolyses the neutral soap into an insoluble acid soap and free alkali. Hence alkalinity must be determined in strong alcohol which does not have this dissociating action. The Pharmacopœia does not admit the presence of any free alkaline hydroxide in curd, hard or soft soap, because the alcoholic filtrate from 5 Gm. exhausted by 90 per cent. alcohol should not give any colour with phenol-phthalein. Usually, however, even in the best made soaps, a trace of free alkali is found as carbonate, but since sodium carbonate is insoluble in strong alcohol it must be sought for in the residue (if any) on the filter paper. This is therefore washed with water, and the filtrate titrated with sulphuric acid, of which not more than 3 C.c. of N/10 solution should be required. This amount corresponds to rather more than 0·3 per cent. of anhydrous sodium carbonate because

$$1{,}000\text{ C.c.} \frac{N}{10} H_2SO_4 = \frac{Na_2CO_3}{20}$$

$$= 5{\cdot}2655\text{ Gm. } Na_2CO_3$$

$$\therefore 1\text{ C.c. } ,, = 0{\cdot}0052655\ ,,\ ,,$$

$$\text{and } 3\text{ C.c. } ,, = 0{\cdot}0157965\ ,,\ ,,$$

and 0·0158 Gm. Na_2CO_3 in 5 Gm. of soap is 0·316 per cent. Sodium soaps when incinerated yield a non-deliquescent ash of sodium carbonate, while soft soaps made with potassium hydroxide yield a deliquescent ash of potassium carbonate. The limit of moisture allowed in curd and hard soaps is rather high, for there is no difficulty in getting good soaps containing about 20 per cent. of water. In determining moisture the soap should be cut in the thinnest possible shavings ; even then many hours' heating will be necessary to remove all the moisture. Under Sapo Mollis a residue of 3 per cent. insoluble in 90 per cent. alcohol is allowed. This allowance is made because soft soap cannot be "salted out" like hard soap. Hence the impurities found in commercial caustic potash—potassium chloride and sulphate and silica for example—remain in soft soap, while in the case of soda soaps they remain in the aqueous liquor from which the hard soap has been "salted out." These impurities are for the most part insoluble in strong alcohol—hence the allowance of 3 per cent. insoluble residue. The copper test in the ash of soft soap is to exclude the use of that metal for communicating the conventional green colour to the soap.

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THE PHARMACEUTICAL SOCIETY AND THE COMPANIES BILL.

DURING the past few years the idea has been sedulously fostered by critics—apparently unacquainted with the facts of the case—that the Council of the Pharmaceutical Society has been backward in attempting to secure such amendment of the law as would prevent companies of unqualified persons from carrying on the business of a chemist and druggist. At the present time that idea is being brought to the front once more, as a means of instituting an invidious comparison between the Pharmaceutical Society of Ireland and the older body on this side of the Channel. Whilst disclaiming any desire to begrudge the President of the Irish Society the credit to which he is entitled for what he has done in the matter, it must yet be pointed out that his remarks published last week (see p. 290) betray a somewhat imperfect acquaintance with the earlier history of the matters referred to. Judging only from what has recently been published, it might be imagined by anyone not conversant with all the facts that, whilst the Executive of the Irish Society has long been labouring at the subject without intermission and with conspicuous success, the Council of the British Society has done absolutely nothing. But the real truth of the matter is that the Pharmaceutical Society of Great Britain has, for several years past, been actively engaged in attempting to obtain a remedy for the invasion of chemists' privileges by companies, while the Irish Society—like the medical and dental corporations—has taken up the agitation quite late in the day. The satisfaction expressed by the President of the Irish Society might therefore be regarded in the light of seeking to reap where others have sown. The whole credit of getting pharmaceutical affairs referred to in the Companies Acts Amendment Bill is being claimed for the Council of the Irish Society, and the Council of the British Society is blamed—not only by inference—for not having devoted its energies to the same end. So far as concerns the clause relating to pharmacy in the Companies Bill, no one need be particularly anxious to claim credit for it, as its chief effect would be—in direct opposition to the principle and obvious intention of the Pharmacy Acts—to recognise that unqualified persons have acquired a right to practise pharmacy and style themselves accordingly, if they only take the trouble to secure registration under the Companies Acts. But it is the principle of the Pharmacy Acts that is in question, and the point now to be considered is that there is not a particle of evidence to prove that any public body anticipated the Pharmaceutical Society of Great Britain in seeking to prevent companies of unqualified persons from carrying on a business which is prohibited to individuals until they have been duly examined and registered. Moreover, from the very outset of the agitation, the view of the Council of the British Society has been that the existing anomalous state of affairs should be remedied by an amendment of the Companies Acts rather than of the Pharmacy Acts.

As early as January, 1895, Mr. MICHAEL CARTEIGHE, who was then President of the Pharmaceutical Society, was authorised by his colleagues to communicate with the Departmental Committee appointed by the Board of Trade to inquire what amendments appeared necessary in the Companies Acts, and to direct the attention of that Committee to certain companies which had been registered under the Acts. He pointed out that, though it is obviously of paramount importance from a public point of view that the administration of the salutary provisions of the Pharmacy Act of 1868 should be subject to no serious hindrance, the decision of the House of Lords—that a "company" registered under the Companies Act is not a "person" within the meaning of the Pharmacy Act—prevented a joint-stock company from being made liable to penalties imposed on individuals convicted of offences. To that extent, therefore, the Pharmacy Act was rendered inoperative and incapable of being the safeguard which the Legislature intended it to be, since it was open to any person, without training, skill, or knowledge, associating himself with six others, equally ignorant and unqualified, to obtain sanction under the Companies Acts to sell, dispense, or compound indiscriminately any potent poison or dangerous drug by payment of the necessary registration fee. The Council of the Pharmaceutical Society, therefore, deemed it to be its duty to urge the Departmental Committee seriously to consider the desirability of so amending the Companies Acts that means might no longer be offered by those Acts for evading the provisions of the Pharmacy Act of 1868. Subsequently, in accordance with a suggestion made by the Secretary of the Committee, Mr. CARTEIGHE submitted a draft clause for the Companies Acts Amendment Bill. The effect of that clause would have been to prevent a company from practising any profession or calling in connection with which the law requires a personal qualification, except under the same conditions as individuals, and therein any rational person will recognise the origin of the clauses inserted in the Companies Bill. That is to say, a company would have been prohibited from practising pharmacy, medicine, etc., unless the individuals constituting it were all legally qualified to do so. The Departmental Committee, however, did not think the specific amendment of the law asked for fell within the scope of its reference, and in the report of the Committee the opinion was expressed that any real grievance should be met by an amendment of the Pharmacy and Medical Acts. The utmost, therefore, that the Committee did was to suggest the insertion in the draft Bill of a clause providing for winding up a company if it could be proved that the company had been formed for any illegal purpose.

After communications addressed to the Departmental Committee by leading medical bodies, supporting the action taken by the Pharmaceutical Society, had also proved abortive, a conference was held at the Society's London house for the purpose of discussing the position. As related in the Journal of April 9, 1898, the delegates attending that conference represented the British Medical Association, the Medical Defence Union, the Apothecaries' Society, the Pharmaceutical Society, the Royal College of Veterinary Surgeons, and the British Dental Association. After prolonged discussion, a deputation was appointed, which waited upon the President of the Board of Trade, and submitted the following clause for insertion in the Companies Acts Amendment Bill:—

If any company shall take, use, or exhibit any name, title, sign, description, or addition which cannot by law be taken, used, or exhibited, unless the person taking, using, or exhibiting the same has a personal qualification, such company shall (1) be deemed to be carrying on business for an illegal purpose within the meaning of this Act, and shall (2) be subject to the same consequences in all respects as though the company were a natural person taking, using, or exhibiting such name, title, sign, description, or addition, without having such qualification.

That clause was drafted and submitted in 1895, but it was not inserted in the Bill, although the late Lord HERSCHELL attempted to secure amendment of the Bill in the direction indicated. Subsequent attempts to influence the Board of Trade as well as the Privy Council also met with failure. The only response made by the Privy Council officials was, as explained in the article previously referred to (see *P.J.* [4], **6**, 356), the hint that, if the Companies Bill were left alone, a joint Bill promoted by the bodies interested might be supported by the Government. That vague half-promise was to some extent fulfilled when the LORD CHANCELLOR introduced his two Bills last year. By the subsequent incorporation of the substance of those Bills in the Companies Bill the Government has apparently endorsed the LORD CHANCELLOR'S action, and relinquished the position previously taken up—that a Companies Bill was not the proper measure in which to deal with the matter. How the clause in question came to be inserted in the Companies Bill is not evident, and though it is probable that the LORD CHANCELLOR was responsible for inserting the clause, it is more than likely that, in so doing, he was influenced by the representations made to him by Mr. WALTER HILLS, as President of the Pharmaceutical Society of Great Britain. But what is distinctively obvious is that the Council of the Pharmaceutical Society has missed no opportunity during recent years of bringing before the responsible authorities the necessity of amending the law relating to companies, so as to prevent unqualified persons from evading the provisions of the Pharmacy Acts. The Pharmaceutical Society of Great Britain was also the first important body to suggest to the Government that the chief defect proved to exist in the Pharmacy Acts could best be remedied by amendment of the Companies Acts. Though that view was not accepted by the Government at the time, nor for several years subsequently, the credit of first mooting the idea, and of pressing it whenever an opportunity offered, must rest with the Council of the British Society. The suggested clause, printed above, must also be regarded as the first definite declaration of the policy that unqualified persons should not be allowed—by registration under the Companies Acts—to secure immunity from the consequences of acts which would constitute offences against the law if committed by individuals.

ANNOTATIONS.

THE INAUGURAL MEETING of the fifty-eighth Session of the School of Pharmacy will take place on Monday, October 2, at 3 p.m., when the prizes for the past session will be distributed by the President, and an address by Dr. D. J. Leech—an honorary member of the Society and a member of the General Medical Council—will be given to the students. The meeting will possess additional interest on account of the presentation of the Hanbury Gold Medal, which has been awarded to Professor Ladenburg, of Breslau. It is hoped that the distinguished recipient of the award may be able to personally attend on the occasion of the presentation. Members and Student-Associates of the Society are cordiall invited to attend, and a crowded lecture theatre is expected. It may be of interest to point out that this classic home of inaugural addresses has undergone complete renovation, and an electric light installation, with electric fans, precludes the possibility of any future complaints on the ground of bad light or stuffy atmosphere.

MEDICAL DISPENSING is strongly advocated by a correspondent of the *British Medical Journal*, who infinitely prefers dispensing to non-dispensing practices. He states that double the income with half the work is the result of dispensing. If the practice exceeds £700 he recommends that a dispenser be kept, and, he continues, "this can be done with little expense, even in smaller practices by the aid of a pupil or lady dispenser, who will also act as governess." He has never found dispensing affect his social position, though he certainly thinks it is *infra dig.* to be seen mixing medicines (*sic*). As an example, says this exceedingly commercial-minded practitioner, "take a case of anæmia, say five shillings for a prescription; the patient takes the medicine six weeks and is cured, and prescribes for all her friends, whereas by supplying medicine, with an occa ional consultation, such case pays, say, fifty shillings." Comment on this effusion is unnecessary here, but it is noteworthy that the editor of the *British Medical Journal* publishes the letter without comment. In the editorial columns of the same paper, by the way, Sir Edward Fry's reply to his medical critics is commented upon, and it is stated that "if a medical man wishes to give up dispensing he is at liberty to send his patients to a chemist, but he must pay the chemist himself, and recover the cost of the medicines from his patients, or retain no interest whatever in the profit derived from their sale." To let the chemist charge what he pleases and take a share of the profit is condemned as unprofessional.

"A MEDICAL UTOPIA" is the heading of a letter by another correspondent, who remarks that in no country in Europe is the practice of medicine placed upon such a commercial basis as in England, and consequently in no country has the doctor such an inferior social position. "Such purely commercial transactions as buying and selling practices, entering into partnerships, keeping assistants, selling drugs, are not calculated to make the public look upon the practice of medicine as one of the learned professions." It is pointed out that anyone who has come into contact with the poor must be familiar with the expression "the doctor's shop," and that the poor are generally under the impression that it is chiefly for their medicines that they pay their doctor, and are often indignant if they be charged the same price for a 2-oz. as for a 6-oz. bottle. At the same time, it is urged that in a country so thickly populated as England, where, moreover, unlike some other countries, there is no Government monopoly, and hence no limit to the number of chemists' shops, there is no necessity for medical men dispensing their own medicines. The conviction is also expressed that all economic grievances and jealousies in the medical profession that are constantly being aired in the medical journals are due to nothing else but this commercial spirit, and the writer

of the letter continues: "If medical men did not enter into competition with chemists by dispensing their own medicines, the latter would not pay us back by prescribing and spreading the sale of quack medicines. The practice of keeping assistants, and thereby appropriating the profit of another's work, is far more unprofessional and injurious to the interest of one's fellow practitioners than the comparatively harmless practice of advertising."

The Capsicum Habit is discussed by Mr. J. H. Hart in the *Mirror*, a Trinidad paper. He points out that but few people who habitually use capsicum in any form as a condiment, are aware, or will admit, that they are indulging in a habit which is highly pernicious and specially hurtful to the constitution. So fixed does the habit of using "pepper" become that many persons, accustomed to its use, cannot enjoy a meal without their beloved pepper, in some one of its many forms. One individual who advanced special arguments as to capsicum being good for digestion, being an appetiser, good for the liver, etc., is now a confirmed dyspeptic, and a needle-woman who used to consume with her breakfast two or three large capsicums became a chronic dyspeptic, and only obtained relief by abandoning the vegetable. A high official in Trinidad once entered upon a discussion of the virtues of hot pepper, and, like many another converted one, told the story of his conversion. He said that one day he observed a pet monkey very sick, and refusing all offers of food. Thinking to trick him, a "hot pepper," or capsicum, was offered, and, contrary to expectation, was greedily eaten. The monkey got better, and the official was convinced of the virtues of hot peppers. That official, however, become a martyr to dyspepsia. A man or woman may certainly have dyspepsia without being a capsicum eater, and a man may have his food flavoured with capsicum for years without becoming a confirmed dyspeptic, but when capsicum is taken largely and regularly the result is as certain as in the case of the opium or ganjah smoker. "The evil result of capsicum eating is only recently becoming recognised, and investigations have already shown the pernicious character of the habit. Further investigation will probably prove that many of the ailments of the tropics are actually caused by indulgence in 'hot peppers.'" In moderation, of course, capsicum is useful as a condiment, but the habitual or excessive use of it is stated to be sure to result in impaired health and shortening of life.

The Licking of Gummed Labels is strongly condemned in the report of the Departmental Committee appointed to inquire into and report upon certain miscellaneous dangerous trades. Referring to the practice, as prevailing in various trades, the opinion is expressed that since the work is usually done by young persons and children at an age when growth is active and the system requires all its digestive secretions, the daily loss of saliva to the system cannot but be prejudicial to health. Analysis of certain labels has shown that they contain copper and lead, the presence of which constitutes a danger, but nothing but gum has been found in the adhesive matter. It is believed, however, that animal substances are occasionally substituted for gum, and it is pointed out that serious risk to health might be incurred by licking such materials, as the mouth might become the seat of irritable ulcers, and, from the surface of those sores, infective material might be carried to the glands underneath the jaw, and thus a constitutional illness might follow. Evidence was forthcoming showing that serious gastric disturbances had resulted from the long-continued licking of gummed labels, and it is noted that a kindred practice—that of licking postage stamps—has given rise to what is known as the "stamp-licker's tongue"; also that the application of stamp paper to an open wound has been credited with causing blood poisoning. There is, of course, no reason why the saliva should be put to such a use as the moistening of labels and stamps, and it is decidedly more cleanly to damp them by mechanical methods.

The Tendency of Tablet Medication appears to be slow in manifesting itself to the members of the medical profession, but a very clear exposition of it is given in a letter communicated to last week's *British Medical Journal*. The writer thinks it is high time that medical practitioners aroused themselves to the fact that, in prescribing drugs in tablet form, they are acting not only contrary to their own interests, but also encouraging the public in the ever-increasing tendency to self-medication. The evil is intensified, he points out, by the growing practice—fostered by chemists, who are blind to their own interests—of supplying the tablets to the public in original bottles, labelled with the name and dose of the remedy. "The chemist in many cases is too diffident or too lazy to remove the label, and they (the tablets) are dispensed in the original bottle, and even when—in order to check this evil—a broken number of tablets have been prescribed, the chemist has induced the patient to take the original 'conveniently-sized' bottle, on the plea that it will be so much cheaper." Now that he has been awakened to the abuse that exists, the writer of the letter intends to cease prescribing tablets, unless the manufacturers alter their methods of doing business. They should, he thinks, cater less for the convenience of the public and more for the interests of the medical profession, by supplying their preparations in bulk only.

A New Illuminating Gas has been introduced at Hunmanby, a village between Scarborough and Bridlington, which will in future be lighted with "electroid" gas, an illuminant which the Scarborough District Lighting Company (Limited) claims will revolutionise the lighting of villages, urban districts, and country mansions. Electroid gas, according to the *Times*, consists of acetylene, with the admixture of inert matter and a proportion of oxygen *(sic)*. Its manufacture is said to be simple, and the gas can be delivered through any ordinary gas main pipes at the ordinary pressure. It can be measured by means of gas meters, and charged for in the same way as is the custom where ordinary coal gas is used. It is said to give a light of great purity and brilliancy. The Scarborough District Lighting Company proposes to light a considerable number of villages throughout Yorkshire with the new gas.

A Distinguished Chemist, who had taken a most laudable and prominent part in the Dreyfus affair, has died just as the pardon of Dreyfus had been decided upon and officially announced. The allusion is, of course, to Mr. Scheurer-Kestner, an Alsatian, who as the *Times* correspondent points out, has given proof of his fidelity to his country, notably when he resigned his seat in the National Assembly in order to protest against the inevitable annexation to Germany of Alsace-Lorraine. He was re-elected, however, in the elections of July 2, and afterwards became Senator. He was a Vice-President of the Senate when he became convinced of the monstrous character of the condemnation of Captain Dreyfus in 1894. With indomitable will and inflexible uprightness he sought to inspire a similar conviction in others, but he was thwarted by the action of General Billot. He also had to contend with M. Méline and M. Cavaignac. Not being at that moment in a position to produce all the forged documents accumulated for the condemnation of Dreyfus, he found himself disarmed before the storm let loose against him. But he did not for a moment flinch, he accepted stoically the loss of the Vice-Presidency, and he went steadily on defending the cause which he had taken up.

Wireless Telegraphy continues to be the subject of successful experiments, excellent results having been obtained last week in the transmission of wireless telegrams between Dover and Boulogne. The current was considerably intensified by the placing at the masthead on Dover Town Hall a very large

cage of close wire netting, cone-shaped at both ends, the metal netting having the effect of collecting the electrical force. Messages were interchanged between Wimereux, near Boulogne, the South Foreland Lighthouse, and the East Goodwin lightship, which is twelve miles out in the Channel, with another four miles of high hills intervening between sea and the point where the transmitter is deposited at Dover. All the messages were transmitted with remarkable clearness. A very curious effect noticed in Dover was that the aerial messages could be heard very distinctly over the telephone wires at night. Numerous congratulatory messages were exchanged by wireless telegraphy between members of the British and French Associations on either side of the Channel.

THE CENTENARY OF THE ELECTRIC CURRENT has been celebrated at Dover by the delivery of a lecture by Professor Fleming, who directed the attention of his audience to the main conclusions arrived at since Volta's famous discovery in 1799. Having referred to Volta's researches in contact electrification, the lecturer proceeded to explain the phenomena of electro-static energy, magnetic flux, continuous and alternating currents, induction, and transformation. It was, he pointed out, the brilliant researches of Hertz which proved that where alternating currents of very high frequency are set up in an open circuit the energy may be conveyed entirely away from the circuit into the surrounding space in the form of electric waves. At a certain intensity of strain the air insulation breaks down, and the air becomes a conductor. This quality of passing quite suddenly from a non-conductive to a conductive state under the action of a critical electric pressure is a very peculiar and important characteristic of gaseous substances. Referring next to Marconi's results, Professor Fleming said it had been known for some years that tubes full of powdered metals are very curiously sensitive to electric sparks. The non-conducting mass at every spark becomes a conductor, but can be brought back to its original condition by a tap. Signor Marconi discovered that a long vertical wire attached to the sensitive powder tube has the property of increasing enormously the distance at which it can feel the effect of the electric spark, and it is as the outcome of that discovery that electro-magnetic wave telegraphy has been developed on such a large scale within the last few years. The chief principle which underlies this industrial application of the research is that the sensitive powder tube, when passing into the conductive condition, can be made to complete another voltaic circuit, and so operate any ordinary form of telegraphic instrument.

THE TRANSFERENCE OF ELECTRICAL ENERGY by wave motion was also referred to by Professor Fleming, who said that Hertz had proved that electrical energy could pass from a rod in which a very rapid oscillatory current was set up, and could travel with the speed of light outwards in all directions. After it had left the radiator and before it had arrived at the receiver it existed as free radiant or wave energy in the ether. Both optical and electrical phenomena had compelled the assumption of that imponderable material as the vehicle for energy in certain forms. After referring to Clerk Maxwell's researches, Professor Fleming concluded his lecture by observing that from the starting point of Volta's discoveries a century's development had brought us to this point—that the actions we call an electric current, if alternated rapidly enough in direction, would end by producing a ray of light. We are, however, as yet in the region of conjecture, when an attempt is made to formulate a specification of the exact nature of the motional and configuration changes which must be at the root of observed effects. It may be said to be the aim of physical inquiry at the present time to devise a theory of the ether, such that from the simplest possible assumptions can be deduced the facts of electricity, magnetism, and optics.

EXTRACTS FROM CONSULAR REPORTS.

THE ENORMOUS COMPETITION in the chemical and pharmaceutical trade, German manufacturers complain, has reduced the profits of this branch, which requires so great an expenditure of labour and capital, to an unprofitable minimum. Exceptions to this rule are the new patent medicines, which being protected by patent, can command a higher price than the cost of the chemical substances of which they are composed. That branch of the industry which employs itself in spirit preparations has not been able, in spite of various legislative privileges, to mitigate the injury to their trade caused by the rigorous "Brantweinsteuer" Law. In the matter of exports Consul-General Schwabach is of the opinion the lost ground will never be regained. Great Britain obtains the greatest benefit from this law, for since 1888 the whole of the tax on spirit exports has been reimbursed. In the United Kingdom, the Consul states, the business in tinctures and such preparations has rapidly developed, principally at the cost of the German industry, which has been paralysed by the tax regulations.

THE TRADE IN BORAX AND BORIC ACID in Germany has experienced many changes during the past year. The Union of German Borax Manufacturers in May of last year lowered their price from 50 to 47 marks per 100 kilos. On January 1 this year the price was raised to 50 marks, and it is possible that a further rise in price may take place, as, according to a recent report, negotiations are on foot to form a ring. The new syndicate will include British, French, and South American firms. South America is expected to supply the raw material, but the refining is to be done exclusively in Europe. The various groups forming the "ring" are each bound over not to disturb the market for the other, so that there may be nothing to hinder the formation of the monopoly. Such a large international union, Consul-General Schwabach thinks, will doubtless dictate the price, and keep the market in its own hands, at any rate until new fields of production arise, which may not be inclined to join the "ring."

WITH REGARD TO OXALIC ACID, the Anglo-German firms, which were acting together in the trade, were ceaselessly employed during the whole of last year to supply the demand. Prices, however, could not be kept up, as so many new firms started which did not belong to the syndicate. The demand still continues, according to a recent report, but the prospects of the trade are not brilliant; over-production will, it is thought, undoubtedly be the result of the establishment of new factories, and the price will sink still lower. The export of oxalic acid from Germany was more than in the previous year, 52,726 cwts. being exported, compared with 47,591 cwts. Of this the United Kingdom took 8,333 cwts.

THE TRADE IN AMMONIUM SULPHATE, in Germany, was more flourishing in 1898 than the previous year. With the exception of March, April, and May (when the trade suffered from the Spanish-American war), the prices steadily rose until, at the end of the year, they attained a height which they had not reached since 1895. It is remarkable (the British Consul observes) when one considers the near relationship of Chile saltpetre to this substance, that the price constantly rose, while that of Chile saltpetre went steadily down. There can be no doubt that the consumption of ammonium sulphate greatly increased during the past year, and it seems probable that it will be still more freely used for agricultural purposes. The production in Germany last year amounted approximately to 100,000 tons, of which 46,000 tons tons were produced in the Bochum district, Eschweiler, and the Saar, 40,000 in Upper and Lower Silesia, and 14,000 tons in the gasworks. The import of ammonium sulphate into Germany amounted to 30,253 tons, compared with 33,113 tons in the previous year. Of this 20,000 tons came from Great Britain and 7,000 tons from Austria-Hungary.

THE UNREMUNERATIVE PRICES OF SULPHATE are reported to have caused the coke works in Germany to employ themselves less than formerly in the winning of bye-products. It is to be expected, however, that steps will be taken for a better regulation of the prices of this article. The English trade in sulphate is watched with great attention by the German manufacturers, the more so as it has been reported that large coke works are projected in England for the purpose of the winning of bye-products.

THE BRITISH ASSOCIATION.

THE SECTIONAL ADDRESSES.

The Chemical Section.

In this Section the President—Mr. Horace T. Brown, LL.D., F.R.S.—took as his subject the fixation of carbon by plants. He began by pointing out that we have become so accustomed to the idea that the higher plants derive the whole of their carbon from atmospheric sources that we are apt to forget how very indirect is the nature of much of the experimental evidence on which this belief is founded. There can, of course, be no doubt that the primary source of the organic carbon of the soil, and of the plants growing on it, is the atmosphere; but of late years there has been such an accumulation of evidence tending to show that the higher plants are capable of being nourished by the direct application of a great variety of ready-formed organic compounds, that we are justified in demanding further proof that the stores of organic substances in the soil must necessarily be oxidised down to the lowest possible point before their carbon is once more in a fit state to be assimilated. Various new facts brought out by Acton, J. Laurent, and Mazé, justify the demand for more direct evidence than is at present available before we accept the view that the majority of chlorophyllous plants take in the whole of their carbon from the atmosphere. In the cycle of change which the organic matter of the soil is constantly undergoing under the influence of micro-organisms, it seems by no means improbable that intermediate substances may be formed which in some measure directly contribute to the nutrition of the higher plants, and sight must not be lost of the possible effect, in the same direction, of the symbiotic union of certain fungi with the root extremities of many plants, the Mycorhizæ, whose functions are still so imperfectly understood. Then, again, it must be remembered that we have another possible extra-atmospheric source of carbon dioxide in the transpiration water of the plant, which is derived from a soil whose gases may contain 5 per cent. or more of carbon dioxide. From the amount of water transpired in a given time, and an application of the law of partial pressures, it may be readily shown that the supply of carbon dioxide to the aërial organs of a plant from this source is by no means negligible.

Before these problems can be attacked for a particular plant with any hope of success it is clear that we must have some means of establishing

AN ACCURATE DEBTOR AND CREDITOR ACCOUNT

as between the plant and the surrounding atmosphere, and this account must extend over a sufficiently long period, and allow of an accurate balance being struck, with the amount of carbon found in the plant at the end of the experiment. Up to within a few years ago there were no means of even approximately determining the actual rate at which the assimilatory process goes on in a plant other than that afforded by its increase in weight in a given time. Such experiments, necessarily extending over weeks or months, can, at the best, only give certain average results, and consequently afford no measure of the activity of assimilation under fixed conditions of insolation. In the year 1884 Sachs, who had for some time been at work on the formation of starch in leaves under the action of sunlight, found that the accumulation of freshly-assimilated material in a leaf may, under favourable conditions, go on so rapidly as to give rise to a very appreciable increase of weight in the leaf lamina within the short space of a few hours. By observing at different times of the day the varying dry weight of equal areas of large leaves, Sachs obtained an approximate measure of the rate of the assimilatory process which he could express in terms of actual number of grammes of substance assimilated by a unit area of leaf in unit of time. In this manner he was able to show, for instance, that a sunflower leaf, whilst still attached to the plant, increases in weight when exposed to bright sunshine at the hourly rate of about one gramme per square mètre of leaf area. In the case of similar leaves detached from the plant, and of course under conditions in which the products of assimilation were entirely accumulated in the leaf, he found an increase in weight of rather more than 1½ gramme per square metre per hour.

When a leaf from *Catalpa bignonioides* is subjected to a modified form of Sachs' method, it may, under favourable conditions, show an increase in dry weight equal to about one gramme per square metre per hour. Since this increase in weight is due almost entirely to the formation of carbohydrates, we can calculate with a close approximation to accuracy the corresponding amount of carbon dioxide. This will, of course, depend, within certain narrow limits, on

THE NATURE OF THE CARBOHYDRATE

formed. The formation of a gramme of starch requires 1·628 grammes of carbon dioxide, whilst an equal amount of a $C_6H_{12}O_6$ or a $C_{12}H_{22}O_{11}$ sugar require 1·466 and 1·543 grammes respectively. From the knowledge we possess of the nature of the carbohydrates of the leaf, we are quite sure that the mean of these values—that is, 1·545 grammes—must be very near the truth. This amount corresponds to 784 C.c. of carbon dioxide at normal temperature and pressure, which must represent the volume extracted by the square metre of leaf surface in one hour from air containing only three parts of carbon dioxide in 10,000, supposing the method of leaf weighing to give correct results. This intake is equivalent to the total amount of carbon dioxide in a column of air of a cross section equal to that of the leaf, and of a height of 26 decimetres.

The extraordinary power which an assimilating leaf possesses of abstracting carbon dioxide from the air is best shown by comparing it with an equal area of freely-exposed solution of caustic alkali. In a moderately still air a square metre of surface of a freely-exposed solution of caustic soda will absorb about 1,200 C.c. of carbon dioxide per hour, and this can only be increased to about 1,500 C.c. even if the dish is exposed to the full influence of a strong wind out in the open. When the surface of the liquid is constantly renewed during the experiment by means of a mechanical stirrer, the rate of absorption is not sensibly affected, providing the agitation does not appreciably increase the surface area, and considerable variations in the strength of the alkaline solution are also without any effect. On the other hand, slight variations in the tension of the carbon dioxide of the air have a marked influence on the rate of absorption, and in order to study this point an apparatus has been constructed which allows a current of air to be passed over an absorptive surface of liquid in a stratum of known thickness, and with a known average velocity.

The method of using this apparatus was described, and the results of comparative experiments performed with it were given, with the view of bringing out the fact that a leaf surface which is assimilating at the rate of 1 gramme of carbohydrate per square metre per hour is absorbing atmospheric carbon dioxide more than half as fast as the same surface would do if wetted with a constantly renewed film of a strong solution of caustic alkali. The accumulation of air determinations, effected by means of the apparatus referred to, clearly shows that the ordinary statements in text-books as to the amount of carbon dioxide, and its limits of variation, are altogether misleading.

The actual intake of carbon dioxide is determined by enclosing the entire leaf in specially constructed, air-tight, glazed cases, through which a sufficiently rapid air stream is passed. These cases are so arranged that the leaf can be enclosed whilst still attached to a plant which is growing out in the open under perfectly natural conditions, and some of them are sufficiently large to take the entire leaf of a sunflower. If it is desired to estimate

THE ASSIMILATIVE POWER OF A LEAF

in an atmosphere artificially enriched with carbon dioxide, the air stream before entering the leaf case is passed through a small tower containing fragments of marble, over which there drops a very slow stream of dilute acid, whose rate of flow is so proportioned to the air stream as to give about the desired enrichment with carbon dioxide. The stream of air is then divided, one part going on directly to the leaf case, whilst the other passes through a separate absorption apparatus and meter for the accurate determination of its carbon dioxide content.

With a constant illumination, either in direct sunlight or diffuse light, it is found that the assimilatory process responds to the least variation in the carbon dioxide, and, within certain limits, not yet clearly defined, the intake of that gas into the leaf follows the same rule as the one which holds good with regard to the absorption of carbon dioxide by a freely-exposed surface of a solution of caustic alkali; that is to say, from air containing small but variable quantities of carbon dioxide the intake is directly proportional to the tension of that gas.

Since an increase of carbon dioxide in the atmosphere surrounding a leaf is followed by increased assimilation even in diffuse daylight, it is clear that, under all ordinary conditions of illumination, the rays of the right degree of refrangibility for producing decomposition of carbon dioxide are largely in excess of the power

of the leaf to utilise them. Under natural conditions this excess of radiant energy of the right wave-length must, from the point of view of the assimilatory process, be wasted, owing to the limitation imposed by the high degree of dilution of atmospheric carbon dioxide. But although the actual manufacture of new material within the leaf lamina is so largely influenced by small variations in the carbon dioxide of the air, we are not justified in concluding that the plant as a whole will necessarily respond to such changes in atmospheric environment, since the complex physiological changes involved in metabolism and growth may have become so intimately correlated that the perfect working of the mechanism of the entire plant may now only be possible in an atmosphere containing about three parts of carbon dioxide in 10,000. A series of experiments is being conducted which will, it is hoped, throw considerable light on this point, but the work is not at present in a sufficiently advanced state to make more than a passing allusion to it.

The penetration of the highly-diluted carbon dioxide of the atmosphere into the interior air-spaces of the leaf on its way to the active centres of assimilation must, in the first instance, be a purely physical process, and no explanation of this can be accepted which does not conform to the physical properties of the gases involved. Since there is no mechanism in the leaf capable of producing an ebb and flow of gases within the air-spaces of the mesophyll in any way comparable with the movements of the tidal air in the lungs of animals; and since also the arrangement of the stomatic openings is such as to effect a rapid equilisation of pressure within and without the leaf, search must be made for the cause of the gaseous exchange, not in any mass movement, but in

SOME FORM OF DIFFUSION.

This may take place in the form of open diffusion through the minute stomatic apertures, which are in communication both with the outer air and the intercellular spaces, or the gaseous exchange may take place through the cuticule and epidermis by a process of gaseous osmosis, similar to that which Graham investigated in connection with certain colloid septa.

The side of a leaf which is devoid of stomatic openings certainly neither allows any carbon dioxide to escape during respiration, nor does it permit the ingress of that gas when the conditions are favourable for assimilation. On the other hand, when stomata exist on both the upper and under sides of a leaf, gaseous exchanges take place through both surfaces, and, as a rule, in some sort of rough proportion to the distribution of the openings. There is, however, under strong illumination, a greater intake of carbon dioxide through the upper surface than would be expected from a mere consideration of the ratio of distribution of the stomata. Nevertheless, the general connection between gaseous exchange and distribution of stomata is so well brought out that it must be regarded as highly probable that these minute openings are the true paths by which the carbon dioxide enters and leaves the leaf.

One of the most interesting problems connected with plant assimilation relates to the efficiency of a green leaf as an absorber and transformer of

THE RADIANT ENERGY

incident upon it. It is already well known that the actual amount of energy stored up in the products of assimilation bears a very small proportion to the total amount reaching the leaf—in other words, the leaf, regarded from a thermo-dynamic point of view, is a machine with a very low "economic coefficient." We require, however, to know much more than this, and to ascertain, amongst other things, how the efficiency of the machine varies under different conditions of insolation, and in atmospheres containing varying amounts of carbon dioxide. For the actual measurement of the total energy incident on the leaf under various conditions, Professor Callendar's recording radiometer gives promise of excellent results, but up to the present time the work done with it is not sufficiently advanced to be described.

In the case of a sunflower leaf exposed to the strong sunlight of a brilliant day in August, the average amount of radiant energy falling on the leaf during the five hours occupied by the experiment was estimated at 600,000 calories per square metre per hour. The average hourly transpiration of water during that time was at the rate of 275 C.c. per square metre, and the assimilated carbohydrate, estimated by the intake of carbon dioxide, was at the rate of 0·8 gramme per square metre per hour. The vaporisation of 275 C.c. of water must have required the expenditure of 166,800 calories, and the endothermic production of 0·8 grammes of carbohydrate (taking the heat of combustion at 4,000 gramme calories) corresponds to the absorption of 3,200 calories. Thus, as the final result under these particular conditions of experiment, it is found that the leaf has absorbed and converted into external work about 28 per cent. of the total radiant energy incident on it, 27·5 per cent. being used up in the vaporisation of water, and only one-half per cent. in the actual work of assimilation.

In strong diffuse light, such as that from a northern sky on a clear summer's day, the leaf has a higher "economic coefficient," using that term in relation to the permanent storage of energy in the assimilatory products. In one instance of this kind, in which the total energy received by the leaf was approximately 60,000 calories per square metre per hour, it was found that 96 C.c. of water was evaporated, and that 0·41 gramme of carbohydrate was formed for the same area and time. This indicates an absorption and utilisation by the leaf of something like 95 per cent. of the incident energy, of which 2·7 per cent. has been made use of for actual work of assimilation, as against 0·5 per cent. in brilliant sunshine.

The brilliant discoveries of recent years on the constitution and

SYNTHESIS OF THE CARBOHYDRATES

have not brought us sensibly nearer to an explanation of the first processes of the reduction of carbon dioxide in the living plant. The hypothesis of Baeyer still occupies the position it did when it was first put forward nearly thirty years ago, although it has, it is true, received a certain amount of support from the observations of Bokorny, who found that formaldehyde can, under certain conditions, contribute to the building up of carbohydrates in the chloroplasts. The changes which go on in the living cell are so rapid, and are of such a complex kind, that there seems little or no hope of ascertaining the nature of the first steps in the process unless we can artificially induce them under much simpler conditions. The analogy which exists between the action of chlorophyll in the living plant and that of a chromatic sensitiser in a photographic plate, was first pointed out by Captain Abney, and more fully elaborated by Timiriazeff, who was inclined to regard chlorophyll as the sensitiser par excellence, since it absorbs and utilises for the assimilatory process the radiations corresponding approximately to the point of maximum energy in the normal spectrum. The view which Timiriazeff has put forward, that there is a mere physical transference of vibrations of the right period from the absorbing chlorophyll to the reacting carbon dioxide and water, is far too simple an explanation of the facts. Chromatic sensitisers have been shown to act by reason of their antecedent decomposition, and not by direct transference of energy, and the same probably holds good with regard to chlorophyll, which is also decomposed by the rays which it absorbs. The first and simplest stages of the assimilatory process must probably be sought in the interaction of the reduced constituents of the chlorophyll and the elements of carbon dioxide and water, the combinations so formed being again split up in another direction by access of energy from without. The failure of all attempts to produce such a reaction under artificial conditions is to be accounted for by the neglect of one very important factor. We are dealing with a reaction of a highly endothermic nature, which is probably also highly reversible, and on this account we cannot expect any sensible accumulation of the products of change unless we employ some means for removing them from the sphere of action as fast as they are found. In the plant this removal is provided for by the living elements of the cell, by the chloroplast, assisted, no doubt, by the whole of the cytoplasm. We have here, in fact, the analogue of the chemical sensitisers of a photographic plate, which act as halogen absorbers, and so permit a sensible accumulation of effect on the silver salts. When some simple chemical means of fixing the initial products of the reduction of carbon dioxide has been found, then, and then only, may investigators look forward hopefully to reproducing in the laboratory the first stages of the great synthetic process of Nature on which the continuance of all life depends.

The Botanical Section.

The presidential address by Sir George King, K.C.I.E., LL.D., M.B., F.R.S., was a sketch of the history of Indian botany. In the course of this he described the machinery by which systematic botany is carried on within the Indian Empire. About ten years ago, he stated, it occurred to the Supreme Government of India that it might be to the interest of science if the four botanical establishments at Calcutta, Seharunpore, Madras, and Poona were

to be formed into a kind of hierarchy under the designation of The Botanical Survey of India, without removing either the officers or the four institutions to which they were attached from the financial or general control of the local administrations within which they are respectively situated, the Supreme Government making a small contribution of money for the purpose of exploring little-known districts, and making itself responsible for the cost of a publication called 'The Records of the Botanical Survey.' The four institutions just mentioned continue, therefore, to be paid for and controlled by the Governments of Bengal, the North-West Provinces, Madras, and Bombay, but their superintendents are placed on the cadre of the Botanical Survey. The published Records of this Survey now extend to twelve numbers, each of which is devoted to an account of the botany of some part of the enormous and continually-expanding area to be explored.

But the work done in India itself by no means represents all the work that is being carried on in connection with the elucidation of the

Flora of the Empire of India.

On the contrary, the bulk of elaborating the materials sent from India in the shape of dried specimens has always been, and must always be, done in a large Herbarium; and until lately no Herbarium in Asia has been sufficiently extensive. The last word on every difficult taxonomic question must still lie in Europe. A very large number of the Herbarium specimens collected in India have found their way to the various centres of botanical activity in Europe, and have been described by botanists of many nationalities. The lion's share of these specimens has naturally come to the two great national Herbaria in the British Museum and at Kew, but especially to the latter. It was in the Kew Herbarium that Sir Joseph Hooker and his collaborateurs prepared the Flora of British India. And it is in the Kew Herbarium that are to be found the types of an overwhelming proportion of the new species described for the first time in that monumental work. The Kew Herbarium is, therefore, to the Indian botanist the most important that exists.

Economic botany has by no means been neglected. It was chiefly on economic grounds that the establishment of a Botanical Garden at Calcutta was pressed upon the Court of Directors of the East India Company. The botanists of the Seharunpore Garden, during the middle of the century, were especially prominent in this branch of botanical activity. Those botanists introduced into the Himalayas more than fifty years ago the best European fruits, and excellent apples grown in Gharwal and Kamaon are to-day purchasable in Calcutta. Peaches, nectarines, grapes, strawberries, of European origin, are plentiful and cheap all over the North-West Himalaya, and are obtainable also in the submontane districts. Potatoes, and all the best European vegetables, were introduced long ago; and at Seharunpore there is still kept up a large vegetable garden from which seeds of most European vegetables are issued for cultivation during the cold season in the gardens of the various regiments of the Queen's troops quartered in Upper India. More or less attention has been given in the past by Government botanists in India generally to the improvement of the cultivation of flax, hemp, rheea, tobacco, henbane, dandelion, vanilla, sarsaparilla, coffee (Arabian and Liberian), cocoa, ipecacuanha, aloes, jalap, indiarubber, Japanese paper-mulberry, cardamoms, tapioca, coca, tea, and cinchona.

Tea cultivation is one of the enterprises in the introduction and development of which botanists took a very leading part. The advisability of introducing the industry was first pressed on the attention of the East India Company by Dr. Govan (of Seharunpore), and in this he was seconded by Sir Joseph Banks as President of the Royal Society. Royle, in 1827, and Falconer slightly later, again urged it as regards the North-West Himalaya. In 1826 David Scott demonstrated to rather unwilling eyes in Calcutta the fact that real tea grows wild in Assam. In 1835 Wallich, Griffith, and McClelland were deputed by Government to visit Assam to report on the indigenous tea. In the year 1838 the first consignment of Indian-grown tea was offered for sale in London. The consignment consisted of twelve chests, containing 20 lbs. each. This first sample of 240 lbs. was favourably reported upon. Last year the exports of tea from India to all countries reached 157 millions of pounds, besides 120 millions of pounds exported from Ceylon!

The introduction of cinchona into India

originated purely with the Government botanists. As everybody knows, quinine, and to a less extent the other alkaloids present in cinchona bark, are practically the only remedies for the commonest, and, in some of its forms, one of the most fatal, of all Indian diseases—viz., malarious fever. The sources of supply of the cinchona barks in their native countries in South America were known to be gradually failing, and the price of quinine had for long been increasing. The advisability of growing cinchona in the mountains of British India was therefore pressed upon Government by Dr. Royle in 1835, and he repeated his suggestions in 1847, 1853, and 1856. Dr. Falconer, in his capacity of Superintendent of the Botanic Garden, Calcutta, made a similar suggestion in 1852; and his successors at Calcutta, Dr. T. Thomson and Dr. T. Anderson, in turn advocated the proposal. In 1858 Government at last took action, and, as the result of the labours of Sir Clements Markham and Sir W. J. Hooker, of Kew, the medicinal cinchonas were finally, in the period between 1861 and 1865, successfully introduced into British India—on the Nilgiris under Mr. McIvor, and on the Sikkim-Himalaya under Dr. T. Anderson. Various experiments on the best mode of utilising the alkaloids contained in red cinchona bark resulted in the production in 1870 by Mr. Broughton, Quinologist on the Nilgiri plantation, of an amorphous preparation containing all the alkaloids of that bark. This preparation was named Amorphous Quinine. Somewhat later (1875) a similar preparation, under the name of Cinchona Febrifuge, was produced at the Sikkim plantation by Mr. C. H. Wood, the Quinologist there; and of these drugs about fifty-one tons had been distributed from the Sikkim plantation up to the end of last year. The preparation of pure quinine from the yellow cinchona barks, so successfully grown in the Sikkim plantation, long remained a serious problem. The manufacture of quinine had hitherto been practically a trade secret. And when the Indian Government had succeeded in providing the raw material from which a cheap quinine might be made for distribution amongst its fever-stricken subjects, the knowledge of the means of extracting this quinine was wanting. Philanthropic platitudes were freely bandied about as to the immensity of the boon which cheap quinine would be to a fever-stricken population numbering so many millions. But there was a singular absence of any practical help in the shape of proposals, or even hints, as to how quinine was to be extracted from the rapidly-increasing stock of crown and yellow bark. The officers in charge of the cinchona plantations in India had, therefore, to do their best to solve the problem for themselves. It was ultimately solved by Mr. C. H. Wood, at one time Government Quinologist in Sikkim, who suggested, and Mr. J. A. Gammie, Deputy-Superintendent of the plantation there, who carried into practice a method of extraction by the use, as solvents of the cinchona alkaloids, of a mixture of fusel-oil and petroleum. The details of this process were published in the *Calcutta Official Gazette*, for the benefit of all whom it might concern. Very soon after the introduction of this method of manufacture the Government factories in Sikkim and the Nilgiris were able to supply the whole of the Government hospitals and dispensaries in India with all the quinine required in them (some 5,000 or 6,000 pounds annually), besides providing an almost equal quantity for the supply of Government officers for charitable purposes. The latest development of the quinine enterprise in India has been the organisation of a scheme for the sale at all the post-offices in the province of Bengal, and in some of those of Madras, of packets each containing five grains of pure quinine, that being a sufficient dose for an ordinary case of fever in a native of India. Those packets are sold at one pice each, the pice being a coin which is equal, at the current rate of exchange, to one farthing sterling!

Splash Preventers.—When water is taken direct from the main, it very frequently issues from the tap with such force as to be extremely inconvenient, not to say risky, to a negative showing an incipient tendency to frill. We have recently seen a description of a simple little filter attachment for a tap, which is intended to obviate this difficulty, and which is stated to permit the effluent water to issue in an unbroken gentle stream, but with its actual volume undiminished. We have not seen the apparatus in action, but it will very probably be efficient Our present purpose in writing is to draw attention to the fact that there is a very simple means readily available for subserving the same purpose. No matter how violently water may issue from a tap through pressure at the main, the violence will be quite destroyed if a short piece of indiarubber tubing be slipped over the end of tap. The bore of the tubing will be necessarily larger than that of the tap, and, the issuing column of water having its sectional area increased, the pressure is necessarily, *pro ratâ*, redueed.—*Brit. Journ. Phot.*

FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

The following communication has been sent to every Local Secretary of the Pharmaceutical Society by the Hon. Secretary of the Federation of Local Pharmaceutical Associations:—

Dear Sir,—I am instructed by the Executive Committee to send you a copy of a resolution adopted, and the rules as amended, at the last annual meeting of the Federation.

It is almost certain that the coming year will witness a vital struggle between registered chemists and unregistered persons who shamelessly usurp the titles and claim the position and functions of those who have obtained registration after examination. In view of the urgent necessity for more perfect organisation in every Parliamentary constituency, the Federation desires to give all the assistance in its power, in conjunction with the officers of the Pharmaceutical Society—that is, the Local Secretaries—in forming new local associations. In districts where chemists are not numerous enough to justify expectation of sustained interest in monthly meetings, it is advisable to form some kind of committee or other organisation of local chemists. These small associations could meet, say, twice a year, to consider, amongst other things, the local secretaryship and the business of the Federation. They would add materially to our fighting strength in protecting the interests of registered chemists, and would be available for immediate action if occasion should require it.

It is very desirable that the Federation should have the advantage of the experience of a representative of every local association, and that every part of Great Britain should be represented.

Will you favour us with replies to the following questions herewith enclosed?—I am, dear Sir, yours truly,

JAMES COCKS, *Hon. Sec.*

Stonehouse, Plymouth, September 15, 1899.

AMENDED RULES OF THE FEDERATION.

1. That this Association shall be called "The Federation of Local Pharmaceutical Associations of Great Britain."

2. That it shall consist of representatives from each subscribing local pharmaceutical or chemists' association, or other organisation, of chemists in England, Scotland, and Wales. That each association consisting of twenty-five members and under shall appoint one delegate, from twenty-five to fifty members two delegates, from fifty to seventy-five members three delegates, above that number four delegates.

3. That the objects of the Federation are:—

(i.) To assist the Council of the Pharmaceutical Society to establish more intimate communication and co-operation between local associations and between the Pharmaceutical Society's Local Secretaries.

(ii.) To advise and assist in the formation of local associations and other organisations of chemists.

(iii.) To assist the Council of the Pharmaceutical Society to secure a sufficient number of efficient Local Secretaries.

(iv.) To promote the interests of the Pharmaceutical Society and of local associations in every possible way.

4. That a chairman, secretary, and executive committee, consisting of the chairman, secretary and three other members, shall be appointed annually.

5. That every association or other organisation consisting of ten members and under shall pay an annual subscription of 5s.; ten members to fifty, 10s. 6d.; above that number, £1 1s.

6. That the annual meeting, subject to the approval of the Executive Committee, be held in the same town, and during the same week, as the annual meetings of the British Pharmaceutical Conference; representatives of five associations shall form a quorum.

7. That all Local Secretaries to the Pharmaceutical Society be admitted to the annual meetings, but that only those representing subscribing associations and committees be empowered to vote in the appointment of officers and Executive Committee.

8. These rules shall not be altered except at the annual meeting, and then only after fourteen days' notice has been given.

It was resolved that:—

"It is desirable that nominations of Local Secretaries of the Pharmaceutical Society should proceed from local associations and local organisations. That the objects of the Federation would be more effectually served if Local Secretaries were appointed by the associations to represent them on the Federation, and that the rules of the Federation be altered wherever it may be necessary to effect a closer co-operation between local associations and the Pharmaceutical Society's Local Secretaries in promoting the interests of these associations and of the Pharmaceutical Society."

QUESTIONS ADDRESSED TO LOCAL SECRETARIES.

1. Is there a local pharmaceutical or chemists' association in your immediate district?
2. If not, would you be willing to accept such assistance as the Federation can offer to endeavour to establish some kind of association or committee in your town or district? (See rules 2 and 5.)
3. Can you give the names of any towns containing five or more chemists where the Pharmaceutical Society has no Local Secretary?
4. Can the Federation rely on your co-operation in an earnest effort to improve the organisation of registered chemists?
5. Have you any suggestions to offer? If so, they will receive the careful consideration of the Executive.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

A special meeting of the members of the North-East Lancashire Chemists' Association was held at the White Bull Hotel, Blackburn, on Tuesday last, to receive the report of the delegates to the recent meeting of the Federation of Local Pharmaceutical Associations. Councillor T. CRITCHLEY presided, and there was a good attendance considering the inclemency of the weather.

Mr. R. LORD GIFFORD, the Hon. Sec., read the following report:—"They say the first inclination of an animal is to protect itself—therefore, the chemist is not an animal. This is the feeling most prominent in my mind reminiscent of Plymouth. Having accepted the responsibility of representing this Association at the annual meeting of the Federation of Local Associations, it is due to you to give some idea of what we did or did not accomplish in the direction of your Committee's desires. I may say at once that we accomplished nothing, or very nearly nothing, so that it will not take very long to describe what we did. On the other hand, to enter into a dissertation on the lessons and information derived from our visit would require greater insight, better judgment, and larger capacity than I am conscious of possessing. At the same time, it is my duty to you, and to pharmacy, to give you the best account I can, depending upon Councillor Shorrock's more eloquent tongue to expand and supplement my endeavours.

"Your Committee specially instructed us to 'endeavour to bring about an active agitation to be organised by the Pharmaceutical Council and persisted in,' and we were definitely instructed to bring this about 'by any measures whatever.' We found, however, that we had an impossible task, and could not do more than make the most of circumstances. In the first place, there was a meeting of local secretaries called for 9 a.m. It got to 'work' at something like 9.30, and we had to be at the Guildhall at 9.45. Is it wonderful we cannot report any historical result from that meeting? We, therefore, turn to our special work at the meeting of the Federation. You will naturally expect us to have brought the collective wisdom of the drug trade for your edification; but the whole of the time was occupied in making and altering rules, so that you may imagine there would not be much in the proccedings to interest or instruct you. We did, however, insist on a moment's consideration being given to what I venture to think was the point your Committee had most in mind, and a resolution was accepted and carried unanimously: 'That it is the urgent business of the Federation to bring about the earliest possible settlement of the question of chemists' titles.' There was now nothing left but to make our best efforts to impress individual members of the Council with the Committee's sense of the urgency of some action being taken and the folly of lying quiet. The members of the Council received us with every courtesy and consideration, as was to be expected, and we only seemed to express their own individual views, so that our condition is one of amazement that they can stand still, accepting a waiting policy, when every fact and circumstance seems to say: 'Fight and fight again!' How to give you information so acquired is a poser. Perhaps it may best be conveyed by discussing in a small way the various ideas which seem to occupy the minds of pharmaceutical chemists, though it does seem to wander from Plymouth. 'Profits have decreased,' says the oracle. 'So have failures. Some men who are jealous for the good of pharmacy as an art are known to have suffered severely in these latter days.' And to the already breaking back of the poor pharmaceutical aspirant must be added 'the teaching of book-keeping or of the

intricacies of ordinary buying and selling.' What does this sort of double talk amount to? It means that the best aspirations in pharmacy must be stifled, that the conscientious man cannot live under present conditions; but it is also an illustration of the sort of plucky stuff chemists are made of, and the fact that we have to repress our better selves, and of necessity cultivate our sordid and animal instincts. That we can go through training and education actually unfitting us for the battle of trade life, and then fight pure traders and capital on open (even unfair) ground is an unconscious tribute to the 'grit' present-day chemists are made of. But is it not a pity and a shame and unjust that we should have to prove our worth under such conditions? The *Pharmaceutical Journal* (see *ante*, p. 285) says:—'The sciences of chemistry electricity, and geology then have grown to be what we know them within about a hundred years, and the study of living beings has been so transformed within the same time as to be wholly different from what it was.' Let me ask the Pharmaceutical Council, in whose charge pharmacy has been for the most progressive third of that period, how much our calling has evolved? Whilst medicine, dentistry, and the whole world besides have been steadily marching on, we have actually gone back. No one can find a parallel to the Pharmaceutical Council of the last thirty years, and the only explanation it can make is to have, now, the courage of its convictions, and set about educating the drug trade and fighting its battle. It must be remembered that we have recognised always that the Council has attended to its educational duty to the State and to pharmacy. Indeed, it is this fact which makes it possible to fight for a reasonable practice of pharmacy to-day. You will ask what is the position your Committee take up? I think it can be given without any 'ifs' or 'buts.' We are quite satisfied that the right course, the statesmanlike course, is for the Council to formulate a Bill embodying all that it claims to be necessary for establishing the practice of pharmacy upon a sound foundation. This ought to be done at once; indeed, it ought to have been done already. This action on the Council's part would be merely formal, but it is essential in the first place to give direction to pharmaceutical thought, and in the second to make it impossible for anything we may gain or accept to be understood as in any way in satisfaction of our legitimate claims. This work is quite imperative, and its necessity cannot be affected by any circumstance whatever. It is right and essential that the Council shows its hand. Then, in your Committee's opinion, the question of title should be fought—in the first place, at once, by a test case, which, at the very least, would demonstrate the law's absurdity; secondly, on the Companies Bill; and, thirdly, wherever and whenever a fight can be had. Finally, what is the goal we are aiming at? The goal of Jacob Bell and the founders of the Pharmaceutical Society was emphatically a profession of pharmacy. Dr. Attfield cried aloud twenty years ago for the same ideal, and warned us of the consequences of the neglect. That is the goal your Commitee aim at. It believes there is nothing between, and it is prepared to stand or fall on our rights to legally-acquired titles and the reasonable consequence of qualifying. It holds strongly the opinion that on this simple and fundamental issue we have the best chance of winning. At the same time we recognise what the Pharmaceutical Society ever seems to forget, that the necessary momentum is essential to the accomplishment of any purpose. The last months of this wonderful century are swiftly gliding by, and in inaction the last hopes of Jacob Bell are dying too. But there is a chance, a distinctly reasonable prospect, of instituting a profession of pharmacy, which is urgently needed in the interests of the public. It only requires that our leaders in these dying months shall prove worthy successors of the never dead Jacob Bell."

Councillor SHORROCK (Darwen), the second delegate, also presented a report. He remarked of the meeting of local secretaries, called by Plymouth on the Wednesday morning, that it seemed to cause amusement and some suspicion, from the fact that it brought several members of the Council to the meeting. He believed they thought the secretaries were about to steal a march upon them, and the meeting certainly gave them to understand that it was not satisfied with the way things were going on; that it had many complaints to make; and that meetings ought to be held from time to time to exchange ideas and suggestions. After some plain talk they had the assurance from members of the Council that they would draw up a resolution to lay before the Council, and give it their greatest support. The Federation, in his opinion, was in a far better condition than it was the year before, when he and Mr. Holt attended the Belfast meeting. The North-East Lancashire Association had roused the country, and local associations were becoming alive to the fact that the Federation would exercise a power in the country before many years were past. They must keep the Secretary of the Federation warm, and supply him with ammunition, and they must also look after the Pharmaceutical Council. The labour of the past year had not been all lost.

Mr. WELLS said he did not feel satisfied with the amount of work done at the Federation meeting. Nothing seemed to have been done except what was brought forward by the North-East Lancashire Association. He was surprised that no member of the Executive had been elected from that district, and he held a decided opinion that the Federation would do no good if it held its meetings at the same time and place as the Pharmaceutical Conference. The most hopeful thing about it was an apparent increase of life about the Federation.

Mr. HOLT said he must express his disappointment with the miserably meagre result they had heard from their two delegates, although he should be sorry to blame those gentlemen for that result. The meeting of local secretaries, from which great things were expected, simply amounted to a farce. It appeared to him that the Pharmaceutical Society took it under its wing and addled the egg. The meeting was strangled at its birth, and never even got a name. With reference to the Federation meetings and results, he could not think of them without disgust. It was plainly to be seen that a number of the delegates had determined to stifle any discussion as to the future policy of the Pharmaceutical Council, for they saw a deliberate plan carried out to occupy all the time of the meeting in altering certain rules, crushing out the more important matter of their future action in the crisis pharmacy was now going through. He found from various sources that the Federation was disliked by the Pharmaceutical Society, and he came to the conclusion that the Society employed some of its usual methods through some of the delegates. It, therefore, behoved them to reconsider their position as one of the federated associations. If chemists cannot have personal qualification, and the privilege such qualification ought to confer, there was an end to the matter. Either they qualified for something or nothing, and the sooner they knew which the better. He thought the Pharmaceutical Society was not justified in accepting candidates and their fees without being able to carry out the other side of the bargain and secure to the men that were accepted, and to them alone, the privilege of that qualification. The Society was ever ready and willing to increase the stringency of the examination, and to increase the fees, but the past twenty years showed how unready it was to act for increasing privileges or keeping intact those they already had. The proposal to register unqualified limited companies was not worth taking off their coats for. When registered they would be recognised, and that the Association was not inclined to do. They heard continually cries for more support for the Pharmaceutical Society, but it was not altogether the men on the Council they supported, but the measures they adopted for the betterment of the position. If, however, they were not told what those measures were, what could they as intelligent men support? They hoped it would not be taken for granted that they would in future be satisfied with the mere assertion of one of the Council that it "had a policy." The attitude of the trade Press towards their Association and similar associations was not at all helpful or encouraging. They had their Journal, which very rarely inserted their reports and letters as they were written, leaving out and mutilating sentences until the meaning they wished to give them was entirely altered.* There was another journal which fairly accurately reported them, but had a habit of inserting nasty little bits of its own between brackets, and criticising them in a clownish sort of way in leaderettes and verses. They did not mind such criticism, but in face of their undoubted difficulties it was their duty to combine and act energetically together.

Messrs. LOMAX (Darwen) and HINDLE (Blackburn) also spoke, the meeting concluding with a vote of thanks to the delegates, proposed by Mr. HOWARTH and seconded by Mr. PICKWORTH.

*[If there be any foundation for the statement made by Mr. Holt he would undoubtedly have reasonable ground for complaint; we therefore invite him to produce any evidence by which he may consider that the serious charge he has made could be substantiated.—ED. *Ph.J.*]

SAINT LUC'S DISINFECTANT.—Commercial zinc chloride, 530; commercial zinc sulphate, 350; water to produce 1,000 fl. pts.; Filter.—*Rev. Med. Pharm.*, **6**, 183.

LETTERS TO THE EDITOR.

Re Soluble Sulphides.

Sir,—Last week, at page 284, under the heading "Analytical Notes for Students," a correspondent stated that Attfield's 'Manual' gave copper ammonio-sulphate as a test for soluble sulphides, affording a black precipitate; and he proceeded to show that a mixed ferrous and ferric salt would also give a black precipitate, hence, that the test might prove a pitfall. But in every edition of Attfield's 'Manual' for the past thirty years the copper ammonio-sulphate has only been alluded to, not in the unqualified manner just stated, but, as "the most convenient reagent for detecting a sulphide in solution of ammonia," a solution which obviously cannot contain a mixed ferrous and ferric salt. The correspondent should not have left out the qualifying words "in solution of ammonia." If any pitfall exists, is not it one fashioned by himself, and into which only he himself has been precipitated?

September 17, 1899. ANOTHER CORRESPONDENT (202/8).

The Government Laboratory Report.

Sir,—Our attention having been drawn to the paragraph in your issue of August 19, page 188, with reference to the Government Analyst's report on drugs supplied to the Army Medical Department, we—as contractors to the Army—wrote to the War Office asking for an explanation. In reply, the Director of Army Contracts states—"I am directed by the Secretary of State for War to acquaint you that the Government Analyst tests samples of drugs and pharmaceutical preparations for the Army Medical Department which are not necessarily supplied by your firm." He also wishes to add that it was not alleged that the ether referred to in the report was supplied by us.

DAVY, HILL AND SON, YATES AND HICKS.

London, September 18, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Licences (E. P. D.—34/5).—You must have a separate licence for each shop, both for the sale of stamped medicines and methylated spirit.

Glove Cleaner (S. H.—34/6).—Castile soap in fine powder is used as a glove cleaner, or a mixture of fuller's earth and alum may be employed. Apply with a stiff brush.

Trommer's Test (J. H. S.—33/13).—On adding to urine 1 or 2 drops of copper sulphate solution, followed by 4 or 5 C.c. of sodium carbonate solution, reduction takes place if glucose be present.

Use of Title (G. E. H.—34/4).—It is not legal for an unqualified person to style himself "manufacturing chemist," but unless he carries on a retail business as a chemist and druggist the offence would be regarded as a purely technical one.

Marking Ink for Use without Heat (H. J. H.—33/34).—Dieterich's formula for this is aniline, 26; potassium chlorate, 13; distilled water, 8. Heat on the water bath until the chlorate has dissolved, then add hydrochloric acid, 12. Continue heating until action ceases, then add copper chloride, 2, dissolved in distilled water, 6; again add hydrochloric acid, 10; and heat until the solution becomes of a bright reddish purple colour. Set aside for a few days to settle, decant, and add enough powdered acacia to make it flow easily from the pen. Use a quill pen, and avoid heating the writing. Allow it to dry for a couple of days before washing.

Egg Julep for the Hair (W. J. D.—34/8).—Dissolve soft soap, 1 oz., in rose water, 10 oz., then gradually rub down the whites of two eggs with rose water, 10 oz., and glycerin, 4 oz. Mix the two solutions, add essence of opoponax or other perfume, 4 oz., and make up to 2 pints with rose water.

Antiseptic Gauzes (W. J. D.—34/7).—You do not specify what kinds of gauze you wish to prepare. Numerous formulæ were published in the *Pharmaceutical Journal* for November 27, 1897; April 23, 1898; and July 30, 1898. Also see Braithwaite's 'Pharmaceutical Formulary,' pp. 219-220, where the formulæ of the French 'Codex' are given.

Essence of Wallflower (C. G.—34/1).—Alcoholic solution of hyacinthin, 10 per cent., 1 fluid drachm; essence of tuberose, 2½ fl. oz.; essence of orange, 2 fl. oz.; essence of jasmin, 10 fl. oz.; essential oil of almonds, 7 minims; heliotropin, 10 grains; vanillin, 10 grains; oil of neroli, 4 minims; coumarin, 10 grains; concrete oil of orris, 16 grains; caryophyllin, 5 minims. Rectified spirit to produce 20 fluid ounces.

Oil of Worms (J. H. S.—33/33).—Oil of earthworms, *oleum lumbricorum*, was official in the Edinburgh Pharmacopœia of 1744, and was made from earthworms (washed), 6 oz.; olive oil, 30 fl. oz.; white wine, 10 fl. oz. Boil gently together until the wine has evaporated, then strain. Previous to this, the oil was made by submitting earthworms to distillation in a retort. Nowadays, the more cleanly, and probably equally efficacious, oleum viride is substituted. This is generally prepared by boiling fresh elder leaves in rape oil until all moisture is evaporated, and then straining.

Cover to Unqualified Person (D. R. M.—34/9).—You ask on behalf of "a friend" what is "really necessary" to enable an unqualified person who buys a chemist's business, and engages a duly qualified person "as a cover," to protect himself against the operation of the Pharmacy Act. Your friend has probably not realised the sublime impertinence of his question, and you are apparently unconscious of the fact that you are asking us to explain how unqualified persons can deprive you of your present means of livelihood. The answer is that, whether or not the unqualified owner of the business employs a duly qualified person, he is equally liable under the Pharmacy Act.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Barrie, Botham, Brawn, Cocks, Crossley, Davies, Doe, Ferrall, Fletcher, Gorton, Hare, Hill, Hogg, Hope, Lindley, Lunan, McGonigal, Maries, Matthews, Mitchell, Morris, Pater, Reynolds, Walden, White.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

COCAINE HYDROCHLORIDE. It has on several occasions been pointed out in the Journal that Maclagan's test gives the best indication as to the purity of cocaine hydrochloride. This view is confirmed by Messrs. Zimmer and Co. (*Pharm. Zeit.*, **66**, 1899), who also contradict the assertion of Günther that pure cocaine hydrochloride should give no precipitate with ammonia in the dilution required in Maclagan's reaction. In fact, a pure salt should yield a crystalline precipitate in half a minute, showing the absence of poisonous isatropyl cocaine. Therefore, a salt that does not give a crystalline precipitate within five minutes should be rejected as being too impure, since the time required to obtain a precipitate serves as an index of impurity. Moreover, Messrs. Zimmer state that they have never met with Günther's isomeric ethyl benzoyl ecgonine, m.p. 111° C., in cocaine products, and they consider that its existence in the alkaloids of the coca leaf must be regarded as doubtful. In proof of its non-existence in cocaine hydrochloride, which answers Maclagan's test and, according to Günther, should contain the alkaloid with a higher melting point and less solubility than cocaine, 100 grammes were recrystallised from absolute alcohol, and the base, separated from the insoluble and soluble portion, fractionated several times from petroleum spirit. In all fractions, the alkaloid obtained had a melting point approximating to that of pure cocaine, thus showing the absence of Günther's base, which is stated to melt at 111° C. Experiments made with mixtures of isatropyl cocaine and cocaine hydrochlorides show that the presence of the former has an important influence in preventing the separation of crystalline cocaine in Maclagan's test. In the presence of 0·25 per cent. of isatropyl cocaine hydrochloride, for example, stirring for five minutes was required to obtain a flocculent precipitate, and thirty minutes with 5 per cent., whilst with an admixture of 1 per cent. of isatropyl cocaine there was no separation. In all cases the liquid was not clear, but opalescent. In conclusion, the opinion of other investigators—Paul and Cownley, Böhringer, Merck—is endorsed that cocaine hydrochloride which does not answer Maclagan's test, is impure, and should not be employed for medicinal purposes.

EUDESMOL. H. G. Smith has read a paper before the Royal Society of New South Wales, in which he deals with the chemistry of eudesmol, a crystalline stearoptene previously discovered by himself and R. T. Baker in eucalyptus oil. It is found in the oil of many species of *Eucalyptus*, and should, it is stated, be present at certain times of the year in all eucalyptus oils which are eventually rich in eucalyptol. The formula assigned to eudesmol—$C_{10}H_{16}O$—shows that the compound is isomeric with ordinary camphor, but it has the oxygen atom combined in a different manner. It does not appear to be ketonic, and it cannot be reduced by sodium in alcohol or by other methods. It is optically inactive, forms a dinitro-compound and a dibromide, but does not form a nitrosochloride. Eudesmol melts at 79°-80° when perwhen perfectly pure, but has a tendency to form products having a lower melting point. On oxidation with dilute nitric acid, camphoronic acid is formed, but no camphoric acid. A large amount of evidence was brought forward to show that eudesmol is intermediate in the formation of eucalyptol, and that eucalyptol is derived directly from the fraction containing eudesmol if the oil be kept in the crude condition for some time under ascertained conditions. Oxygen is necessary to this alteration. It is suggested that the oxygen atom enters the eucalyptol molecule during the formation of eudesmol, and that by the natural alteration of the high boiling fraction of oils containing eudesmol (*E. macrorhyncha*, for instance) eucalyptol is formed. The oil of *Eucalyptus camphora* was found to be rich in eudesmol at the time of year when distilled. It was shown that the oils from certain groups of eucalypts are dextrorotatory when their maximum eucalyptol content is reached, and that they do not at that time contain phellandrene, although at certain times of the year phellandrene may be present. Since camphoronic acid is probably trimethyl tricarballylic acid, and as eucalyptol is derived from eudesmol which in turn forms camphoronic acid, the question is raised whether Brühl's formula for eucalyptol is correct. It is suggested that the oxygen atom in eudesmol is quadrivalent, and that the peculiarity of eucalyptol may be thus accounted for. From the formula suggested for eudesmol camphoronic acid, as trimethyl tricarballylic acid, can be constructed.

EUCALYPTUS OILS. R. T. Baker and H. G. Smith have continued their researches on the essential oils of the "stringy bark" eucalypti, which include *E. baileyana*, F. v. M.; *E. eugenioides*, Lieb.; *E. fastigiata*, Deane and Maiden; *E. macrorhyncha*, F. v. M.; and *E. obliqua*, L'Her. E. EUGENIOIDES, or White Stringy Bark.—The crude oil contains 28·4 per cent. of eucalyptol, and the second fraction 34·8 per cent., but no phellandrene; no eudesmol or other constituent of special interest was noted. The percentage of oil was 0·6–0·7 per cent. E. CAPITELLATA, or Brown Stringy Bark.—The second portion of oil yielded 38·4 per cent. of eucalyptol, a mere trace of phellandrene, and very little, if any, eudesmol. E. MACRORHYNCHA, or Red Stringy Bark.—The authors consider this to be the most important commercial tree of the whole genus. The percentage yield of oil is about 0·28–0·31, and of eucalyptol in the oil, 50 per cent.; it contains only a trace of phellandrene. It contains also, in large quantity, a stearoptene, especially when the oil has been distilled in November; a crystalline body called eudesmol, which represents the fraction boiling between 269° and 289° C., and forms about 27 per cent. of the original oil. This appears to interfere with the estimation of eucalyptol by the phosphoric acid process in the crude oils. The oil of *Eucalyptus macrorhyncha* answers all the tests of the B.P., except sp. gr., which is 0·905 at 18° C. The authors point out that if the sp. gr. is enforced it will exclude the use of this oil, which is an excellent and agreeable oil, containing half its weight of eucalyptol. Eudesmol is left as a crystalline substance when the oil evaporates, but it will not crystallise out when the oil is subjected to a temperature of 10° below zero. The crystals are acicular, and polarise light extinguishing parallel to the principal axis, and so are probably rhombic. They have a melting point of 74°–75° C. The boiling point is 270°–272° C., so that it usually remains with the residue in the retort. Its therapeutic properties are being investigated. E. PIPERITA.—It was in this oil that eudesmol was first observed, forming a crystalline deposit on the cork of the bottle containing it. The yield of oil is 0·78 per cent. The oil rectified below 190° C. is free from eudesmol; the fraction between 170° and 190° C. contains phellandrene and only 25 per cent. of eucalyptol. E. PUNCTATA.—This tree yields an average of 0·79 per cent. of oil, which contains from 50 to 60 per cent. of eucalyptol in the crude oil. It does not contain phellandrene but traces of cuminic aldehyde. It appears to contain both dextro- and lævo-rotatory terpenes, which vary in proportion, apparently according to the age of the leaves. The onstituents of the eucalyptus oils do not appear to vary much in the same species, but the proportions vary according to the time of year at which the leaves are collected.

STANDARDISED PREPARATIONS— WITH SOME NOTES UPON EXTRACTUM CINCHONA LIQUIDUM.

BY EDMUND WHITE, B.SC.

Among the numerous changes introduced into the assay processes of the official standardised preparations by the 1898 Pharmacopœia is the purification of the alkaloidal material extracted for the standardisation of liquid extract of cinchona. Comparing the appearance of the residues upon whose weight the 1885 and 1898 standards are based, one finds that the former is dark and amorphous, while the latter is nearly colourless and distinctly crystalline.

Some experiments carried out by Mr. E. Gaul in my laboratory show also that, owing to the extra purification now enjoined, one may get less than half the weight of residue. The evaporated percolates for three different batches of liquid extract were examined in the following manner :—10 C.c. of percolate were treated with benzolated amylic alcohol and potassium hydroxide, as described in the Pharmacopœia. The washed alcoholic layers were united and divided into two equal parts. One part was evaporated to dryness on a water-bath, as required by the 1885 B.P. assay process. The other part was subjected to the further purification required by the 1898 B.P., viz.: (1) removal of the alkaloids as hydrochlorides from the benzolated amylic alcohol by agitation with dilute hydrochloric acid ; (2) transference of the alkaloids, liberated by addition of ammonia, to chloroform ; (3) evaporation of the chloroformic solution and drying the residue at 110° C. The benzolated amylic alcohol after agitation with the dilute hydrochloric acid was also evaporated, dried, and weighed. The following results were obtained :—

WEIGHT OF RESIDUE IN GRAMMES FROM 5 C.C. EVAPORATED PERCOLATE.

		Expt. 1.	Expt. 2.	Expt. 3.
A	Wt. of residue according to assay process B.P., 1885	0·440	0·451	0·191
B	Wt. of residue according to assay process, B.P., 1898	0·202	0·200	0·086
C	Wt. of residue from benz. amylic alcohol, after removal of alkaloids by HCl.	0·248	—	0·100

The sum of the weights of residues B and C should, according to the process described above, nearly equal the weight of A, for B represents the purified alkaloid and C the non-alkaloidal impurities, both of which are weighed together in A. In order to see if the residues C contained any appreciable quantity of alkaloid they were dissolved in water and 5 C.c. of N/1 H_2SO_4 added. In each case 49·9 to 50 C.c. N/10 NaHO were required to bring the mixture back to neutrality. From these experiments it follows that the extract standardised according to the 1885 Pharmacopœia would contain actually less than $2\frac{1}{2}$ per cent. of pure alkaloids. The ratio of alkaloid and non-alkaloidal matter extracted and weighed in the residue which formed the basis of standardisation would undoubtedly vary in the case of different samples of bark, but the objection to the process becomes really stronger because we should have to admit the possibility of variation as well as deficiency in strength. The assay process now employed is undoubtedly a great advance upon its predecessor ; at the same time there is no doubt that for thirteen years we had been supplying an extract credited with a potency which it could not have possessed. This aspect of the question induces me to make a few observations upon the subject of standardised preparations generally. What is the advantage of giving liquid extract of cinchona rather than an equivalent quantity of quinine ? Our process of standardisation implies that the alkaloids are the only constituents to be determined quantitatively, and quinine is admitted to be the most valuable of all the cinchona alkaloids. We take a deal of trouble to determine as nearly as possible the proportion of alkaloids in the cinchona percolate, and then we offer to the patient, under the name of liquid extract, this dirty quinine solution containing colouring and other matters which happen to be extracted along with the quinine. On economical grounds the employment of cinchona alkaloids in the form of liquid extract should apparently be regarded as a most extravagant method. The trade price for quinine sulphate at the present time is 24s. per lb., and in the wholesale price lists we find the liquid extract quoted at 5s. 6d. per lb. Since the extract contains but 5 per cent. of total alkaloids it follows that we are paying 110s. for every pound of mixed alkaloids consumed in this form. That is to say, for the privilege of taking quinine and the other less valuable cinchona alkaloids associated with various inert impurities which serve to make the remedy more nauseous than it need be, one pays more than four times the price of quinine sulphate itself. The prolonged evaporation to which the percolate is subjected in making the liquid extract effectually disposes of any claim for consideration on behalf of the aromatic properties of cinchona bark. The aroma of the finer qualities of cinchona bark may be a distinctly useful adjunct to its other properties when the bark is used for preparing tinctures or wines which are used as mild appetising bitters. The liquid extract is, however, quite unsuitable for this purpose, and when a moderate or considerable dose of cinchona alkaloids is required I can only describe the administration of the liquid extract as a messy and expensive method of obtaining that end.

With regard to standardised galenical preparations generally, it seems to me that the period of time during which most of the potent vegetable drugs should be employed in this form is distinctly limited. For if any process of standardisation is to provide us with preparations of constant and known potency, it follows that we must be in possession of information which enables us to state (1) what proximate principles are contained in a drug, and (2) their relative value as remedial agents. If our knowledge is not sufficiently advanced to do this, the value of the standardised preparation as a real standard may easily be overrated. Standardised galenicals can only be regarded in many cases as temporary expedients suitable for the transitional period when we are passing from an incomplete to a definite knowledge of the constituents of a given drug. The logical consequence of their employment ought to be their substitution by the pure substances which have formed the basis of standardisation. We may for the purpose of this argument divide drugs into three classes :—

(1) Drugs for which we cannot yet devise standardised preparations.

(2) Drugs from which may be prepared standardised preparations until they pass into Class (3).

(3) Those drugs about which our knowledge is sufficiently definite to enable their pure proximate principles to be employed to the partial or complete exclusion of crude galenicals.

In Class (1) I should place, for example, squill, digitalis and senna. Our inability to deal with drugs of this class is due to absence of the necessary chemical and pharmacological knowledge concerning them. As a rule, progress must first be made from the chemical side in order to furnish pure materials for pharmacological investigations. Before the latter are complete, the drug may be regarded as belonging to the second class, where it may remain until information is sufficiently advanced for the drug to pass entirely into the third class, or partially, as in the case of cinchona discussed above. In my opinion most, if not all, the drugs whose preparations are standardised in the 1898 British Pharmacopœia, should be regarded as properly belonging to Class (3). Why, for instance, in neuralgia should we smear our heads with liniment of belladonna, which leaves a sticky brown layer of resin on the skin? The action of belladonna upon the terminations of the sensory nerves is attributed

to atropine, and pure atropine has been used in most of the pharmacological investigations, upon which the medicinal use of belladonna is founded. Yet the effects obtainable with atropine have been bodily translated to belladonna, and partly owing to long use and partly to tradition, this alcoholic solution of the inert extractives of belladonna containing 0·375 per cent. of belladonna alkaloids is widely used under the name of belladonna liniment. It does not seem to occur to one that an alcoholic solution of atropine would give the same results without the mess.

I am quite aware that in following this line of argument I am touching an old controversy with regard to the relative medicinal action of crude vegetable drugs and the active principles contained in them. What I wish particularly to point out is the fallacy of regarding standardised preparations as the limit of pharmaceutical perfection. I maintain that when, as in the case of extracts of cinchona and nux vomica, our knowledge of the active principles is so clear and definite the excuse for using such galenical preparations ceases. There may be other cases, notably opium, where our knowledge is more obscure, and it may be held with some show of reason that the morphine, or morphine and codeine, do not represent the whole action of opium. But we can only regard standardised preparations of opium as temporary expedients. For if they are administered for their morphine effect and because they are known to contain a certain percentage of that body, then I contend that the use of the clean and pure alkaloid woul be more rational. On the other hand if the galenical preparations of opium are given in order to get an effect not obtainable from morphine, then the standardisation is only of use in so far that it has fixed the percentage of the preponderating poisonous principle and enables us to form an idea of the toxic dose. But if the desired medicinal effect is to be referred to some other constituent—not morphine—then our standardisation, which refers to morphine only, will yield us no guidance as to what effect we may expect to get beyond that referable to the known morphine content. Therefore I maintain that standardised preparations are only temporary expedients—useful in their day—but whose period of usefulness depends upon the progress made in our knowledge of the composition and action of drugs and their active principles. So soon as this knowledge becomes sufficiently definite to enable us to create processes of assay to yield standard preparations, using the term in its extended sense, then the time has arrived for the employment of the active principles to the exclusion of galenical preparations except in the certain exceptional cases such as the aromatic bitter preparations of cinchona for example. The administration of the remedy would become easier, more exact and cleanly, and I believe in nearly all cases less costly. As pharmacists we can do much to encourage this change, which I maintain ought to be carried out in many existing cases, some of which I have mentioned. In another communication I hope to propose at length a list of standardised preparations which might either partially or entirely be replaced by preparations of the active principles upon which the standardisation of the galenical preparations is based.

Pills for Toothache.—(1) Spermaceti, 1; chloral hydrate, 2; carbolic acid, 1; cotton wool, *q.s.* Melt the spermaceti and dissolve therein the chloral and carbolic acid, saturate small pellets of wool with this and allow to cool. (2) Hard paraffin, 98; carbolic acid, 2. (3) Hard paraffin, 12; Burgundy pitch, 14; parsley oil, 4; creosote, 4. Divide these masses into small pieces and place in the tooth. (4) Clove oil, 1; cassia oil, 1; black pepper, 4; sodium chloride, 4; gum acacia, 4. Mass into pills. (5) Salol, 10; liquid paraffin, 10; terebene, 10; beeswax, 65; alkannin, *q.s.* Divide into pills.—*Oest. Zeits. für Pharm.*, **53**, 378.

PERCENTAGE SOLUTIONS OF THE PHARMACOPŒIA.

BY F. A. UPSHER SMITH,

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The different interpretations that are put on the term "percentage solution" frequently mislead the student, and, as will be seen, may possibly set a trap for the pharmacist.

It may be well to allude first, though this has often been done before, to the various interpretations referred to. (1) A percentage solution, strictly speaking, contains x parts by weight in 100 parts by weight, or x parts by volume in 100 parts by volume. In practice weight is generally used, because it is necessary to weigh in the case of solids, while definite small quantities of liquids are more accurately obtained by weight than by volume. It is obvious that where a percentage solution is desirable the utmost exactitude is required. (2) A so-called percentage solution is made by dissolving x parts by weight and making up to 100 parts by volume—*e.g.*, 1 gramme in 100 cubic centimetres. This method of expressing strengths is adopted largely for solutions in the Pharmacopœia, and though that work does not call such as these "percentage solutions," it is by no means rare for that construction to be put on the expression. (3) Another example of a so-called percentage solution is obtained by dissolving x grains by weight, and making up to 110 minims.* In the Pharmacopœia this is a favourite method of expressing strengths, and is frequently mistaken for a form of 1 per cent. solution. As pointed out in the *Pharmaceutical Journal*, [4] **8**, 84, this is neither strictly a percentage solution, containing x parts by weight in 100 parts by weight, nor is it a solution containing an integral part by weight in 100 parts by volume. Perhaps a simile will make this point clear. If a sixpence were contained in a bag together with 99 pennies the bag would not contain 1 per cent. by weight or volume of silver coin, though 1 per cent. of the coins were made of silver.

It would be well if, for the present, the phrase "percentage solution" could be laid aside in speaking of strengths, because its precise meaning is seldom adhered to, and when that *is* done the product contains an unsuitable dosage of the ingredient. A strictly one per cent. solution, when dispensed in a minim measure, cannot, as a rule, be administered in precise fractions of a grain. For example, the dose of sodium arsenate is 1/40th to 1/10th grain; the B.P. solution contains 1 grain of the anhydrous salt in 110 minims, the dose being 2 to 8 minims. It would be expected that the doses of the salt and solution would correspond. But they do not; a simple calculation shows that 2 minims of the solution contain 1/55th grain, and 8 minims 4/55th grain of the anhydrous salt. The trend towards uniformity of dosage that is evident in the new Pharmacopœia seems therefore to be capable of development. If, for instance, this Liquor Sodii Arseniatis were made to contain 1 grain of the anhydrous salt in 100 minims (=24 grains in 5 fluid ounces), a dose of 2½ to 10 minims would correspond to 1/40th to 1/10th grain of the anhydrous salt. Examples might be multiplied—*e.g.*, Liquor Potassii Permanganatis contains in 4 fluid drachms (the maximum dose) 24/11 or 22/11 grains of the salt, whilst the maximum dose of the salt is 3 grains. Measurable quantities of the solution should correspond to consistent and simple doses of the salt.

The Liquor Hydrargyri Perchloridi of the B.P. is a model of what is wanted in potent solutions, and shows what is here advocated to be neither unnecessary nor new. It contains 10 grains of the salt in 1 pint; the maximum dose of the solution is 1 fluid drachm, equivalent to 1/16th grain, which is the maximum dose, of the salt.

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* This curious volume is taken to represent the volume at 62° F. of 100 grains of water. As the B.P. indicates, this is more correctly 109·7143 minims. The student will observe that—

437·5 grains = 480 minims

Therefore 100 ,, = $\frac{480 \times 100}{437{\cdot}5}$ = 109·714 minims.

It is hard to find a substantial reason to recommend the present strength of 1 grain in 110 minims. Grain measures are not popular, and they might well be dispensed with in this connection. If the adoption of the metric system in England be followed by a revolution in present dispensing methods, whereby liquids, as well as solids, are weighed, then the true percentage solutions will come to the front and replace other strengths, but at present, and so long as liquids are dispensed with measure, they are not convenient.

Uniformity in strengths and doses tends not only to simplify the learner's task, but also, and this is of far-reaching importance, to prevent mistakes. Experience of medical men and pharmacists in their daily work, as well as of students preparing for examination, shows plainly that in mental calculations these 1 grain in 110 minim solutions are often erroneously reckoned as 1 per cent. An example only recently emphasised this point. It was required to prepare 100 powders, each containing 1/100th grain of nitroglycerin. According to the usual custom an equivalent quantity of the Liquor Trinitrini B.P. was sought, and calculated as follows:—"Nitroglycerin required = $1/100 \times 100 = 1$ grain. Hence 100 grains of the 1 per cent. solution, when mixed in the ordinary way with milk sugar, will yield 100 powders, each containing 1/100th grain of nitroglycerin."

The fallacy of this method of reckoning will be apparent on inspecting the correct method of calculation. One grain of nitroglycerin is contained in 110 minims of solution. Now, 110 minims = 110/480 fluid ounce

$$= \frac{110 \times 0{\cdot}840}{480} \text{ ounce (Avoir.)} = \frac{110 \times 0{\cdot}840 \times 437{\cdot}5}{480}$$

= 84·219 grains. Hence, 84·219 grains of the solution contain 1 grain of nitroglycerin. Knowing the exact strength of the B.P. solution it would be best, of course, to take 110 minims straight away.

Consequently the powders, if made according to the original calculation, would be too strong by one-fifth, every five doses being equivalent to six doses containing 1/100th grain each.

In this connection it may be well to point out to the student one of the commonest pitfalls in pharmaceutical calculations. Except when dealing with pure water it is always necessary to consider the specific gravity of a liquid. Consequently it is necessary to thoroughly understand what is meant by specific gravity, and the methods of determining the same practically. It will be advisable to remember the formula

$$\frac{\text{Weight of liquid}}{\text{Specific gravity}} = \text{volume of liquid.}$$

This formula, when transposed by the ordinary algebraical method, will enable any expression to be found, the other two being given. For those who are unfamiliar with algebra, happily a diminishing number, these altered formulæ are given:—

$$\frac{\text{wt.}}{\text{vol.}} = \text{sp. gr., and sp. gr.} \times \text{vol.} = \text{wt.}$$

SUMMARY.

(1) True percentage solutions, containing x parts by weight in 100 parts by weight are not desirable so long as liquids are measured. (2) Solutions containing x grains in 110 minims are unnecessary and clumsy, because they serve no useful purpose, and do not admit of consistent and simple dosage of potent drugs. (3) Solutions containing x grains in 100 minims, or the official dose of the drug in the official dose of the liquid, are the simplest, and enable the prescriber to give doses of solutions with little or no calculation, consistent with the doses of the crude drugs. (4) A proper understanding is necessary as to what truly is a percentage solution, considering the confusion that exists, especially among students. In true percentage solutions we must speak of x grains in 100 grains, x minims in 100 minims, etc., where both terms are of the same kind. (5) To show the differences between the various methods enumerated, consider how much solution of nitroglycerin is required to make 100 powders, each containing 1/100th grain of nitroglycerin. (*a*) Of a solution containing 1 grain in 110 minims take 110 minims or 84·219 grains; (*b*) of a true 1 per cent. solution take 100 grains; (*c*) of a solution containing 1 grain in 100 minims take 100 minims.

THE PHARMACEUTICAL SERVICE IN THE GERMAN ARMY AND NAVY.

In the German army the military hospitals are supplied with the necessary medicines by special dispensaries connected with every garrison hospital ("Garnisonlazareth"). There are two kinds of such dispensaries, the "Lazarethapotheke" and the "Arznei-anstalt." Only simple remedies are furnished by the latter, while in the former every medicine prescribed by the doctors is dispensed and simple preparations are made. All dispensaries are provided with the necessary drugs by the medicinal division of the sanitary magazine ("Sanitaetsdepot").

The regular service in the "Lazarethapotheken" is carried out by pharmacists, who, having passed the higher examination before reaching the age at which they would be compelled to serve in the army, obtain a reduction of the term of service by entering the army as volunteers. They are then employed in the pharmaceutical service ("einjaehrig-freiwillige Militaerpotheker") in lieu of serving in the ranks. Having served their time (one year) and passed a special military examination, they are passed into the body of reserve as "Unterapotheker," and after two years, are advanced to the position of "Oberapotheker." Beyond the fully-qualified pharmacists, hospital assistants ("Lazarethgehülfen") and male nurses ("Krankenwaerter" are employed in the dispensaries, for their own instruction and to carry out manual work.

Generally, the "Lazarethapotheke" is under the direction of a military medical officer, and the service is controlled by the chief medical officer of the hospital. At the headquarters of the commander-in-chief of each army corps the hospital dispensary is directed by a garrison pharmacist ("Garnisonapotheker"), the number of which will amount to twenty-four next year.

The "Oberapotheker" of the reserve, as well as the "Garnisonapotheker," has an undetermined rank of officer ("allgemeiner Offiziersrang") as "obere Militaerbeamte." Applicants for appointment as "Garnisonapotheker" must have served their year as voluntary pharmacists or in the ranks. They must have a higher scientific qualification in chemistry than the ordinary qualified apotheker, especially in regard to the chemistry of foods, and they must hold the certificate of "Nahrungsmittel-Chemiker," obtainable only after higher education and prolonged study of three years at least. It is also the duty of the "Garnisonapotheker" to make water tests, and to do other analytical work, to instruct the volunteers, and to assist the "Sanitaetsdepot" in all matters connected with the buying and examining of drugs and preparations wanted by those magazines.

The special food chemists of the army and chiefs of the special laboratories at the headquarters of the "Generalkommandos" are the twenty-three staff pharmacists of the army corps ("Korps-Stabsapotheker"). These staff pharmacists, like the "Oberapotheker" and "Garnisonapotheker," are "obere Militaerbeamte," and they have also the general undetermined rank of officer. The "Korps-Stabsapotheker" must have served as a volunteer and possess the same higher scientific qualifications as the garrison pharmacists. Many of the present acting staff pharmacists have graduated as Ph.D. They are associated as branch assistants with the chief medical officers of the army corps ("Korps-generalarzt") and are not permitted to do any independent professional work. They have charge of the muster rolls of the army pharmacists, revise the hospital dispensaries, and are the directors of the chemical divisions of the research laboratories established at the

headquarters of the "Generalkommandos." They do all the analytical work for hygienic, forensic, and economical purposes connected with the military service.

In the ministry of war an "Oberstabsapotheker" is attached to the department to assist in mere administrative service.

The volunteer and garrison pharmacists are bound to wear their military uniform during the hours of service, the staff pharmacists only in the outdoor service. The "Garnisonapotheker" have an annual pay of 2,080 up to 3,280 marks, the "Korps-Stabsapotheker" of 2,780 up to 4,980 marks.

In active service, pharmacists of the body of reserve are appointed as "Feldapotheker" and attached to the hospitals ("Feldlazarethe, Sanitaetsdetachements, Kriegslazarethe"). Pharmacists also are employed in the depots, the reserve hospitals, and the hospitals of the fortresses.

In the German navy but two pharmacists ("Marine-Stationsapotheker" are appointed at Kiel and Wilhelmshaven. In general, their duty and rank corresponds with that of the army garrison and staff pharmacists. They are bound to manage the hospital dispensary, to fit out the dispensaries of the men-of-war, to instruct the navy surgeons in food analysis, and to do all analytical work required by the navy and dockyard authorities. There are no volunteer pharmacists admitted to the navy service. The ship dispensaries are conducted by the surgeons. In the "Stationsapotheken" there is one assistant pharmacist and several other assistants, "Lazarethgehülfen." The annual salary of the naval "Stations-apotheker" is just the same as that of the military staff pharmacist.

The German pharmaceutical body is not very well satisfied with this state of things, and many efforts have been made to have it improved. Only a few months ago the German Apotheker-Verein addressed a petition to the Government, asking that the volunteer pharmacist should be required to pass a six months' service with the troops under arms before entering the hospital dispensary, that the rank and pay of the "Korps-Stabsapotheker and the "Garnisonapotheker" should be advanced, and that all military pharmacists should have the right of being saluted by the rank and file.

SOLID HYDROGEN.*

BY PROFESSOR JAMES DEWAR, F.R.S.

In the autumn of 1898, after the production of liquid hydrogen was possible on a scale of one or two hundred C.c., its solidification was attempted under reduced pressure. At this time, to make the isolation of the hydrogen as effective as possible, the hydrogen was placed in a small vacuum test-tube, placed in a larger vessel of the same kind. Excess of the hydrogen partly filled the circular space between the two vacuum vessels. In this way the evaporation was mainly thrown on the liquid hydrogen in the annular space between the tubes. In this arrangement the outside surface of the smaller tube was kept at the same temperature as the inside, so that the liquid hydrogen for the time was effectually guarded from influx of heat. With such a combination the liquid hydrogen was evaporated under some 10 mm. pressure, yet no solidification took place. Seeing experiments of this kind required a large supply of the liquid, other problems were attacked, and any attempts in the direction of producing the solid for the time abandoned. During the course of the present year many varieties of electric resistance thermometers have been under observation, and with some of these the reduction of temperature brought about by exhaustion was investigated. Thermometers constructed of platinum and platinum-rhodium (alloy) were only lowered 1½°C. by exhaustion of the liquid hydrogen, and they all gave a boiling point of —245°C., whereas the reduction in temperature by evaporation *in vacuo* ought to be 5°C., and the true boiling point from —252° to 253°C. In the course of these experiments it was noted that almost invariably there was a slight leak of air, which became apparent by its being frozen into an air snow in the interior of the vessel, where it met the cold vapour of hydrogen coming off. When conducting wires covered with silk have to pass through india-rubber corks it is very difficult at these excessively low temperatures to prevent leaks, when corks get as hard as a stone, and cements crack in all directions. The effect of this slight air leak on the liquid hydrogen when the pressure got reduced below 60 mm. was very remarkable, as it suddenly solidified into a white froth-like mass like frozen foam. My first impressions were that this body was a sponge of solid air containing the liquid hydrogen, just like ordinary air, which is a magma of solid nitrogen containing liquid oxygen. The fact, however, that this white solid froth evaporated completely at the low pressure without leaving any substantial amount of solid air led to the conclusion that the body after all must be solid hydrogen. This surmise was confirmed by observing that if the pressure, and therefore the temperature, of the hydrogen was allowed to rise, the solid melted when the pressure reached about 55 mm. The failure of the early experiment must then have been due to supercooling of the liquid, which is prevented in this case by contact with metallic wires and traces of solid air. To settle the matter definitely, the following experiment was arranged. A flask, C, of about a litre capacity, to which a long glass tube bent twice at right angles was sealed, and to which a small mercury manometer can be sealed, was filled with pure dry hydrogen and sealed off. The lower portion, A B, of this tube was calibrated. It was surrounded with liquid hydrogen placed in a vacuum vessel arranged for exhaustion. As soon as the pressure got well reduced below that of the atmosphere, perfectly clear liquid hydrogen began to collect in the tube A B, and could be observed accumulating until, about 30 to 40 mm. pressure, the liquid hydrogen surrounding the outside of the tube suddenly passed into a solid white foam-like mass, almost filling the whole space. As it was not possible to see the condition of the hydrogen in the interior of the tube A B when it was covered with a large quantity of this solid, the whole apparatus was turned upside down in order to see whether any liquid would run down A B into the flask C. Liquid did not flow down the tube, so the liquid hydrogen with which the tube was partly filled must have solidified. By placing a strong light on the side of the vacuum test-tube opposite the eye, and maintaining the exhaustion to about 25 mm., gradually the solid became less opaque, and the material in A B was seen to be a transparent ice in the lower part, but the surface looked frothy. This fact prevented the solid density from being determined, but the maximum fluid density has been approximately ascertained. This was found to be 0·086, the liquid at its boiling point having the density 0·07. The solid hydrogen melts when the pressure of the saturated vapour reaches about 55 mm. In order to determine the temperature, two constant volume hydrogen thermometers were used. One at 0° C. contained hydrogen under a pressure of 269·8 mm., and the other under a pressure of 127 mm. The mean temperature of the solid was found to be 16° absolute under a pressure of 35 mm. All the attempts made to get an accurate electric resistance thermometer for such low temperature observations have been so far unsatisfactory. Now that pure helium is definitely proved to be more volatile than hydrogen, this body, after passing through a spiral glass tube immersed in liquid hydrogen to separate all other gases, must be compared with the hydrogen thermometer. For the present the boiling point, which is 21° absolute at 760 mm., compared with the boiling point at 35 mm., or 16° absolute, enables the following approximate formula for the vapour tension of liquid hydrogen below one atmosphere pressure to be derived:—

$$\log p - 6{\cdot}7341 - 83{\cdot}28/T \text{ mm.},$$

where T = absolute temperature, and the pressure is in mm. This formula gives us for 55 mm. a temperature of 16·7° absolute. The melting point of hydrogen must therefore be about 16° or 17° absolute. It has to be noted that the pressure in the constant volume hydrogen thermometer, used to determine the temperature

* Read before the British Association at Dover.

of solid hydrogen boiling under 35 mm., had been so far reduced that the measurements were made under from one-half to one-fourth the saturation pressure for the temperature. When the same thermometers were used to determine the boiling point of hydrogen at atmospheric pressure, the internal gas pressure was only reduced to one-thirteenth the saturation pressure for the temperatures. The absolute accuracy of the boiling points under diminished pressure must be examined in some future paper. The practical limit of temperature we can command by the evaporation of solid hydrogen is from 14° to 15° absolute. In passing it may be noted that the critical temperature of hydrogen being 30° to 32° absolute, the melting point is about half the critical temperature. The melting point of nitrogen is also about half its critical temperature. The foam-like appearance of the solid when produced in an ordinary vacuum is due to the small density of the liquid, and the fact that rapid ebullition is substantially taking place in the whole mass of liquid. The last doubt as to the possibility of solid hydrogen having a metallic character has been removed, and for the future hydrogen must be classed among the non-metallic elements.

SOME NOTES ON CHONDRUS.*

BY HENRY KRAEMER.

In this paper I desire to treat of some of the morphological characters of this plant, its collection, as carried out on the Massachusetts coast, and some reasons for the modification of the definition of the U.S.P. concerning the drug. *Chondrus* belongs to w' at we ordinarily consider to be a low order of plants—viz., one of the algæ, a subdivision of the cryptogams. The number of algæ, like that of fungi, is continually increasing, either because more forms are being observed or more forms are being made with the progress of time.

The algæ are divided according to whether they live in fresh water or salt water, and according to the colour they possess. By the latter division we have blue-green algæ, brown algæ, and red algæ. In only one of these divisions do we have algæ in which the green colour is manifest, in all the others it is hidden by means of other colouring substances, to which are given various names. The blue-greens are generally found in moist soil near fresh water, and seldom do they occur in salt water. The green algæ represent a rather ubiquitous group that may be said to be found anywhere where the conditions for CO_2 assimilation exist. The brown algæ represented by *Fucus, Laminaria, Sargassum*, etc., reach their greatest perfection in the colder waters, as north of Cape Cod and the English Channel. The red algæ attain their greatest perfection in the deeper waters. The outer morphology of the algæ appears to be rather simple. They may consist of a single row of cells placed end to end and forming thread-like masses, as *Lyngbya* (called mermaid hair), or cord-like masses, as in *Chorda*. In some cases the thread-like filaments may branch as in *Griffithsia*. The same may be said of some of the algæ which are made up of a large number of cells placed side by side, as *Weramium, Dasya*. In some cases the thallus is flattened, as in *Chondrus, Laminaria, Rhodymenia*. In some cases the parts of the plant are differentiated to such an extent that there is developed what looks like root ("hold-fast"), stem ("stipe"), and leaf ("blade"), as in *Laminaria*. In some cases there are incrustations of calcium carbonate produced, as in *Melobesia, Corallina*.

In regard to manner of reproduction in the algæ we have a number of distinct kinds of sexual and non-sexual reproduction. It is not fitting that I take up these different forms at this time. In the sexual mode of reproduction we have essentially three kinds: (1) The conjugation of two cells that look essentially alike, (2) the conjugation of two cells that may be distinguished one from the other, and to which the terms male and female are applied, and (3) the remarkable condition such as we find in the red algæ, as in *Chondrus, Gigartina*, and some others in particular, and which will be briefly described presently.

In its general outer morphology *Chondrus crispus* (L.) Stackh., consists of more or less purplish coloured fronds, which are from two to four inches long, dichotomous, flat, the segments being linear-cimeate. It is attached to the rocks by a slender hold-fast, and has not infrequently been found growing upon various forms of marine life. On making a transverse section, we observe a more or less differentiated epidermis, which may be distinguished from the remaining thick-walled cells. The fruit is known as a cystocarp, a term applied to the zygote or zygospore of the Florideæ. The development of the zygospores in *Chondrus* is a rather interesting one as described by Schmitz.* Briefly stated, it is as follows:—From one of the cells in the tissues of the thallus there is produced a three-celled branch which bends and almost touches the "Tragzelle." The end cell of the three becomes what is known as the carpogone cell, and developes a trichogyne, which protrudes from the thallus tissue. The Tragzelle becomes the "Auxillarzelle."

The nucleus of the spermatia unites with the nucleus of the carposporic or egg cell, and subsequently a division wall is formed between the trichogyne and egg cell. The egg cell then unites with the auxiliary cell, and from the latter there arise numerous thread-like processes which unite with some of the cells of the thallus. It is from this latter union that there is then developed a complex of four cells, which gives rise to the naked carpospores. In other words, we have here what may be termed, in view of this condition, a triple conjugation, and may we not ask what is fertilisation? Is a certain quantity of matter required before an egg may develop its progeny, or does it mean that a certain amount of stimulation is necessary?

This brings me to say a word on the industrial side of the seaweeds.

In the Old World the collecting and working up of seaweeds yields financial returns upon which a large number of people of a great many of the smaller towns are wholly dependent.

In this country all along the coast one observes that seaweeds are to some extent collected and utilised as a fertiliser, but besides this use of seaweeds there is an industry of great importance to the inhabitants of a number of smaller towns between Plymouth and Cohasset on the Massachusetts coast. It is the collection of Irish moss.

The situation at Scituate is particularly good for this industry. You find here an inlet with a fine beach, on either side of which extend rocky promontories, on the submerged rocks of which the Irish moss is found.

The beach extends probably 20ft. above high tide, at the top of which the frame houses are placed; back of this there is a gradual decline to the brackish salt marshes.

The moss is collected during the time from the latter part of May to September. June and July are the months when the greatest amount of collecting is done. They frequently work during these two months from four in the morning till eight at night.

The women used to be the great helping hands in gathering moss, but fortunately for them the moss is only found on the rocks that are from 15ft. to 20ft. below the tide, and the only way that moss can be collected to-day is by the use of long spruce poles to which is attached a heavy iron rake.

The men go out in their sail boats or dories (row boats) at half-tide, and come in at half-flood. With their long rakes they scrape the moss off the rocks. The amount collected varies with the season, but the quantity usually gathered is about 50lb.

The men return with boats and cast anchor until the tide is high, when they row out and bring their dories to the highest point on the beach, thus saving considerable energy.

They then carry the moss from the boats to points higher on the

* Presented at the annual meeting of the Pennsylvania Pharmaceutical Association, held at the Philadelphia College of Pharmacy, June, 1899.

* "Untersuchung über die Befruchtung der Florideen," in *Sitzungsberichten ned Königl. Akad, der Wissenschaft zu Berlin*, 1883.

beach in boxes about 2ft. square, and made of lathes. These are practically suitable trays, so that two men can handle them.

The moss is spread out on the beach and exposed to the weather for a week or so. The action of the sun and dew is to bleach the moss. The product is turned over every few days, and at the end of a week is like No. 1.

It is then put into half hogsheads and covered with canvas. On clear days they roll the half hogsheads containing the moss to the brackish marshes and fill the hogsheads containing the moss with salt water. The canvas is again put on and the half hogsheads rolled up on the beach and the moss uniformly spread out on the beach to dry and be further bleached. The salt water seems to preserve the moss, as well as assist in the bleaching action of the sun.

This is then raked over, the women assisting, until dry, and the treatment repeated four or five times until the moss is of a yellowish or white colour. The more favourable the weather has been and the more successful the treatment the whiter is the product.

When fully prepared, the moss is put into barns, and in the fall is packed in barrels, each of which holds about 100lb. It is estimated that about 10,000lb. are gathered at Scituate, and that they realise about five cents per lb.

When making some studies on *Chondrus* I was at the Marine Biological Station at Wood's Holl, and was told that *Gigartina mamillosa* grew only further north. A little later I journeyed north to the fields where *Chondrus* was gathered, and I was much impressed with the fact that all of the Irish moss that I saw collected was really *Chondrus crispus* (L.), Stackh. chiefly, if not entirely. I subsequently obtained specimens of *Gigartina* from Nahant, Mass. On turning to Dr. Farlow's 'The Marine Algæ of New England,' I find that he says that *Gigartina mamillosa Ag.* resembles and grows usually with *Chondrus crispus* (L.), Stackh., but that it is common from Boston northward. I have examined the collections of those who gather Irish moss on the Massachusetts coast, as well as that in the shops, and am inclined to believe that the *Chondrus* sold is chiefly, is not entirely, *Chondrus crispus* (L.) Stackh.

EFFECTS OF PRESERVATIVES ON SOLUTION OF HYDROGEN DIOXIDE.*

Probably no one article in the Pharmacopœia has been the subject of more investigation than hydrogen dioxide, but in none of the analyses published, and there have been many, have any definite data been given as to just what effect preservatives have upon the solution.

From the researches of Thenard, Schoenbein, Kingzett, and others, we know that hydrogen dioxide keeps best in a slightly acid solution, the amount prescribed by the United States Pharmacopœia being no more in 100 C.c. of the hydrogen dioxide than will be neutralised by 10 C.c. of a N/10 caustic alkali solution equivalent to about 0·049 per cent. sulphuric acid, or 0·0465 per cent. hydrochloric acid. This is a very small amount, but from actual experience has been found sufficient to prevent appreciable decomposition of a properly prepared 3 per cent. solution for from five to six months.

Experiments have indicated that certain preservatives could be used to apparently increase the stability of the solutions, and, with a view of ascertaining definite results a series of tests, extending over a year, were undertaken. At regular intervals each sample was carefully examined and notes taken, a summary of which is appended.

A standard 3 per cent. solution of hydrogen dioxide was used. The strength was determined by titrating 2 C.c. with a decinormal solution of potassium permanganate, while the acidity was found by titrating 50 C.c. with a decinormal solution of sodium hydroxide. The samples were allowed to stand in the laboratory, exposed to light and heat, in amber-coloured bottles, during the period named for each sample.

The results observed when alcohol and ether were used as preservatives are shown in Table I. The odd numbered bottles were left open one month after beginning the experiments to note whether any effect was produced by exposure and to allow the preservative agent to evaporate. The slight evaporation of water which occurred in these samples was allowed for.

It will be seen by referring to Table I. that sample No. 1 after one year lost 67·84 per cent. of its strength in the open bottle, and 59·08 per cent. in the closed bottle, while the acidity remained the same during the entire period.

TABLE I.

Standard Solution.	During 1st month bottle remained	Loss in 1 year. Per cent.	C.c. N/10 NaOH required to neutralise 50. C.c.	
No.			Nov. 30, 1897.	Nov. 30, 1898.
1.....	Open.	67·84	5·2	5·2
2.....	Closed.	59·08	,,	5·2
3 + 1 per cent. Alcohol	Open.	56·35	,,	64·2
4 1 ,, ,,	Closed.	57·27	,,	69·2
5 2 ,, ,,	Open.	54·88	,,	78·0
6 2 ,, ,,	Closed.	55·35	,,	73·0
7 1 per cent Ether..	Open.	64·05	,,	5·6
8 1 ,, ,,	Closed.	58·11	,,	44·0
9 2 ,, ,,	Open.	77·90	,,	5·8
10 2 ,, ,,	Closed.	51·16	,,	50·4

Samples 3 and 4, containing 1 per cent. alcohol, lost in the open bottle 56·35 per cent. and in the closed bottle 57·27 per cent., but the quantity of decinormal caustic soda solution required increased from 5·2 to 64·2 C.c., indicating an increase of over 1,200 per cent. in acidity.

In all the other samples in this table an enormous increase in acidity appears except in Nos. 7 and 9, in which ether was the preservative used and the bottle left uncorked for the first month. The ether, being very volatile, much more so than the other preservatives, evaporated rapidly, and was practically gone before the bottle was corked, leaving the solution free from a preservative and nearly the same as standard.

Table II. shows the results with boro-glyceride and nitrous ether for a period of five months. It will be observed that decrease in strength is correspondingly less than for one year, but as in the other table the increase in acidity is very great, ranging from 300 to 600 per cent.

TABLE II.

All in closed bottles.	Loss in 5 months per cent.	C.c. N/10 NaOH required to neutralise 50 C.c.	
No.		July 13, 1898.	Dec. 10, 1898.
11 Standard solution without preservatives	9·17	4·9	4·9
12 + ½ per cent. Boroglyceride	21·64	7·2	25·2
13 1 ,, ,, ...	34·27	9·4	54·9
14 ½ ,, Nitrous Ether	9·83	5·3	13·9
15 1 ,, ,, ,, ...	10·93	5·6	18·1
16 2 ,, ,, ,, ...	11·40	5·8	19·6
17 Standard 27½ Vol. 8·5 per cent. Sol. without preservatives.....	30·52	19·5	19·6
18 + 1 per cent. Boroglyceride	67·90	28·5	62·0
19 1 ,, Alcohol	42·79	19·5	78·5
20 1 ,, Nitrous Ether	20·20	20·4	47·5
21 1 ,, Acetic Acid	24·33	43·9	39·5

Table III. A, B and C were solutions bought in the market and known to contain preservatives.

D and E were standard solutions known not to contain preservatives.

B, C and E were a year old when tested, while A and D were fresh solutions.

It is to be noted how much B and C have gained in acidity over A, and that they are still increasing is shown by the increase in the four months they have been standing since their first test.

C

* From *The American Druggist.*

E has been kept an equal length of time, but no increase in acidity was found.

TABLE III.

All in closed bottles.	Loss in 4 months per cent.	C.c. N/10 NaOH required to neutralise 50 C.c.	
		Jan. 14, 1899.	May 17, 1899.
A Fresh solution, containing preservative	2·74	4·8	5·5
B Sol. over a year old „ „	7·17	48·6	59·3
C „ „ „ „	6·13	71·0	72·0
D Fresh solution, free from preservative	— 6·97	3·8	3·8
E Old „ „ „	—10·0	4·9	4·9

It was evident that the oxygen of the preserved solution was used in transforming the preservative into acid.

These results indicate the necessity for forbidding the use of preservatives in the solution of hydrogen dioxide.

FROM A BOOK OF FORMULAS TO A BOOK OF STANDARDS.*

BY S. W. WILLIAMS.

In the perfection of official pharmaceutical products, manufacturers are setting such a swift pace, at the end of the century, as to make the task of bringing the Pharmacopœia up to date a very difficult one. From a chemists and druggists' formulary, coupled with a condensed catalogue of materia medica, the volume has been gradually changing toward a book of tests and standards, and conditions are such as to require continued and rapid advance in the same direction.

The chapter on reagents, totally absent in the revision of 1870, numbered thirteen pages in the Pharmacopœia of 1880, and fifty-one in the revision of 1890. Formulas for numerous chemical products which constituted an important feature of the book of 1870, were largely dropped in 1880, the descriptive materia medica much extended, and assay processes introduced for cinchona and opium. Belladonna leaves, for example, for which no description had been given in 1870, were accorded a four-line description in 1880. Directions for preparing atropine, which required a full page in the former, were dropped in the latter book, the description and tests being enlarged and improved. The same progressive metamorphosis obtained in 1890; for example, a full page which had been devoted to the preparation of phosphoric acid, was saved for more important matter, and an assay process for nux vomica was introduced.

The same process of evolution has been apparent in the British Pharmacopœia. Take citric acid, for instance; in 1885 twenty-four lines were devoted to its preparation and seventeen lines to its characters and tests. In the B.P., 1899, no method of preparation is given, while thirty-two lines are devoted to characters and tests. Most of the preparations of belladonna, cinchona, ipecac, opium and nux vomica are now standardised. The chapter on articles employed in chemical testing, which occupied twenty-one pages in 1885, has been doubled in the B.P., 1898. Thus, in both pharmacopœias formulas have been giving place to "characters and tests." Processes for standardisation and assay have been adopted as fast as was deemed consistent with a wise conservatism. There is the best of reason for all this, and a great advance is naturally expected along the same lines in the coming revision of the U.S.P. From 1870 to 1880 pharmacists decided that it did not pay them to make most of the chemical products for which formulas were given, and the revision of 1880 reflected this decision. The Pharmacopœia of 1890 accommodated itself as best it could to the further advance in ready-made pharmaceuticals.

For some time it has been a mooted question whether or not it pays the pharmacist to prepare his own fluid extracts, and, now that so many are being standardised, it is pretty safe to say that, all things considered, it does not. Even when we come to tinctures, the physician would doubtless feel safer in prescribing a diluted fluid extract of, say, cannabis indica or digitalis, which had been fairly well standardised physiologically, than a tincture officially prepared direct from the drug, the activity of which had not been determined. It would seem preferable to buy tincture of strophanthus, standardised by the most approved method, than to run the risk of disappointing the physician and endangering the patient by dispensing an article of uncertain strength.

Physicians naturally expect the best and most uniform preparations obtainable, and that they should have them admits of no argument. But can the Pharmacopœia possibly provide the retail pharmacist with either a practical method of production or valuation in the case of potent galenical preparations which can only be standardised physiologically? In many instances when the pharmacist finds it best to buy ready-made preparations, he can turn to the Pharmacopœia and find methods for determining the quality of his purchase. In other words, he is largely in control of and can assume direct responsibility for the quality of the pharmacopœial products he dispenses.

To multiply the facilities and extend the field of the pharmacist as an expert in determining the strength and purity of remedial agents is probably the greatest work of the Pharmacopœia; but the relation of the book to manufacturing pharmacy is of very great importance. It would seem desirable that the Pharmacopœia should, in so far as possible, establish standards for the guidance of manufacturers, even should the required methods not be adapted to the retail pharmacy. Uniformity can in no other way be better secured, if, indeed, it can be arrived at at all. And until there are such authoritative standards there is the best of reason why the physician should specify the particular make of medicines with which he is most familiar. That, for one reason or another, he will always do this to some extent, is quite probable; but that it should be necessary, in order to secure uniformity in essentials, is most unfortunate. It seems, therefore, that the best methods of standardisation and valuation, which are found to be practically attainable by the manufacturer, with the superior facilities at his command, should be adopted as official, whether or not they are beyond the scope of the retail pharmacy.

It is not to be expected that the dispensing pharmacist can have conveniently at hand a fine assortment of roosters, frogs, Guinea pigs, dogs, etc., and, even were it possible, it is only right that the number of living beings employed for physiological tests should afford the largest possible results. With the manufacturer, comparatively few will answer for hundreds of gallons of standardised products, whereas if we contemplate the pharmacist taking up any work of the kind, the prospect is bewildering. Even in chemical standardisation necessarily difficult or complicated processes should not be discarded because the pharmacist has not the time or facilities to apply them. It is distinctly to the advantage of the dispenser that the Pharmacopœia should go to any reasonable length to adopt practical standards to which manufacturers must adhere for their official products. Standards practically attainable by the manufacturer and admitting of verification by professional analysts are very desirable, all reasonable latitude being given for meeting them on the one hand and confirming them on the other—the one aim being correct and uniform results.

In so far as such standardisation can be accomplished, just in so far will the word "official" mean enough to do away with the necessity for specification on prescriptions calling for pharmacopœial preparations. Everything possible should be done to make it unnecessary for the retail druggist to stock more than one or two lines of regular official preparations.

While the dropping of aconitine in the 1880 U.S.P. was, indeed, a tribute to the relative superiority of the galenical preparations of aconite as then produced, in considering most galenical preparations of potent drugs which can be standardised, we must admit that standardisation is their salvation. Without it physicians will naturally go over to active principles to insure uniformity, and

* From the American *Druggists' Circular*.

when they do so the temptation is often strong to dispense them themselves. It is clearly not in the interests of the dispenser that methods of standardisation and valuation be limited to the scope of his time or facilities. When he can convince the prescriber that the galenical preparations he carries are as uniform as possible and U.S.P. standard, he can with considerable force argue for a discontinuance of the custom of specification, and not before.

It may be said that the Pharmacopœia will no sooner catch up with the manufacturers than they will speed away again for another ten years' handicap; but this is no argument against the best possible adjustment in 1900.

In considering the importance of the Pharmacopœia getting even once in ten years, the question quite naturally arises as to whether it would not be possible for a research laboratory, operating under the direction of the committee of revision, to keep abreast of the times and issue at stated intervals such "official" information as the committee deemed of too great importance to wait their sanction until the next revision.

As it is now, one manufacturer adopts what he considers a proper standard for his preparations of some potent drug; even if he publishes his methods in detail his competitors may honestly disagree with him or object to the apparent lack of independence involved in copying. They are quite likely to introduce standards of their own. They must be different to be original, and other reasons for the differences can readily be presented. The doctor who becomes accustomed to A's preparations is afraid to use B's, and the prescriber who has obtained satisfactory results from C's is naturally loth to change to D's, and so on through the alphabet. The druggist is compelled to carry numerous makes of the same preparations, involving a sacrifice of money, space and convenience.

The hardware man tells us, when we attempt to replace a lost nut or screw: "Here's one just like it in size and appearance, but it hasn't got the standard thread; we will have to send to the one who made the machine." And it is much the same in the case in question; the doctor wants the same "thread" he has had before, to fit the experience he has gained with a certain make. The comparison, however, is unjust to the pharmaceutical manufacturer, because, except in a few instances, he has no standard to go by, whereas the maker of machinery has, and wilfully and for a purpose deviates from it. Manufacturers cannot be expected to agree upon unofficial standards. Pharmacopœial standardisation must lead the way to reasonable uniformity.

THE CULTIVATION OF VANILLA IN MEXICO.*

BY M. SAINTE-CROIX DE LA RONCIERE.

Six varieties of vanilla are found in Mexico, known colloquially as "le mansa" (*Vanilla planifolia*), "le cimarrona" (*V. sylvestris*), "le mestiza" (*V. sativa*), "le pompona" (*V. rotundifolia*), "le puerco" and "le mono." The first two of these are alone cultivated. Le pompona, or the "banana vanilla," as it is called, possesses a fine odour, and is used by tobacco growers in Havana for perfuming cigars. Le puerco and le mono, which grow wild, have not yet been much used in commerce. Vanilla is best cultivated in a rich soil, such as is found in tangled forests, in hot regions, and particularly on the banks of rivers. In places such as these moisture is retained in the soil, a very necessary point where but little rain falls from February to June. Gravel and clay soils are respectively too dry in the dry season, and too damp during the heavy rains. The vanilla tree thrives best at a temperature between 25° and 28° C., neither too hot nor too damp, and far removed from sea breezes. A shady place is indispensable, at a height of 300 to 400 metres. The fact that the tree does not wither when cut at a certain distance above ground, has given rise to the erroneous notion that it derives its nourishment from the tree up which it climbs. That this is not so is seen in the case of vanilla plants that are trained along a wall.

The plant begins to flower the second year, but three or four years elapse before a good harvest is gathered. The parts of the flower are so arranged that self-pollination is impossible; consequently this is brought about by the agency of humming-birds, bees, or other insects. It is a good plan to keep bees in the neighbourhood of the plantation. These agencies being somewhat uncertain, the planter must make himself familiar with the structure of the flower, so that he himself can bring about pollination, in order to ensure a crop.

The flowers appear in March, April, or May, in clusters of 20 to 50; if one-half of these are fertilised, an ample crop is obtained. The fruit develops in about a month, but it takes another eight months to ripen. In the districts of Tuxpan, Misantla, and Papantla the harvest is gathered in January, February, and March.

The pods are gathered when the extremities begin to turn yellow, and when they produce a crackling noise on being lightly pressed between the fingers. It is important to gather the pods at the right moment; if too ripe they do not dry readily, possess little or no aroma, acquire a reddish colour, and do not keep, as they should do, for years. After the process of curing the pods are sorted by Mexican planters into five qualities:—(1) "Fina" or "legal," with pods at least 6½ inches long, thin at the end, sound, black, and not split. This class is again subdivided according to the length, into "tiercada," "primera," "chica," "primera grande," "marca menor," and "marca mayor"; (2) "Chica," like the "fina," but less than 6½ inches in length, and only half as valuable; (3) "Zacate," with recurved pods; according to the condition this variety is sorted into: "pescozada," "vana," "crueruda," and "apocoyonada"; (4) "Cimarrona," or wild vanilla, in more or less good condition. Three "cimarronas" are worth one "fina"; (5) "Rezate," consisting of the smallest pods, split lengthwise and badly prepared. Six of these are worth one "fina."

A plantation in working order, three years old, costs from 45 to 60 dollars per 100 plants (pieds). The cost of preparation is 4 to 5 dollars per 1,000. A hundred vanilla trees, three years old, together produce, on the average, in the wild state, and without artificial pollination, from 50 to 65 pods; in the fourth year from 165 to 225 pods; in the fifth year 325 to 500. After that the number produced diminishes annually until the tenth year, when the plants must be replaced. The plantation, therefore, gives the best harvests from the fourth to the sixth year. In good years each plant under cultivation yields 14 or 16 pods. Vanilla is ordinarily sold on the Mexican market by the thousand. Ripe, unprepared vanilla fetches 5 or 6 dollars a thousand, but when prepared the price ranges from 40 or 50 dollars at Michoancan to 50 or 75 dollars at Mislantla, Papantla, and Tuxpan. Statistics show that the port of Tuxpan exports more vanilla than all other ports in the world. Hence, it may be looked upon as the natural home of this valuable orchid. As the market price of vanilla in New York is 8 to 10 dollars per pound, it bears a considerable profit. Indeed, in good years, planters have owned to making a profit at the rate of 300 per cent.

* Abstracted from the *Revue des Cultures Coloniales*, **5**, 3.

Formalina.—Whilst everybody was busy at the Tuberculosis Congress at Berlin, endeavouring to find a way and means of curing consumption, the most destructive of known diseases, Cervallo, of Palermo, had already discovered a remedy which healed 65 out of 100 cases, and partly cured the other 35. The remedy is called formalina, and is used as a hypodermic injection. The happy discoverer will surely agree that serious science has still reason to doubt the efficacy of his discovery.—*Oest. Zeits. fur Pharm.*, **53.**

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.*

Saccharum Lactis.—The Pharmacopœia now fixes the limit of ash at 0·25 per cent. This is to guard against the possible presence of magnesium and calcium salts which have sometimes been found to the extent of 1 or 2 per cent. in commercial samples of milk sugar. The objection to these mineral salts is that they produce or aid coagulation of milk to which milk sugar containing them may be added for the purpose of preparing infants' food. The occasional presence of calcium or magnesium compounds in sugar of milk is probably due to the use of magnesia or lime added to the milk whey during crystallisation to neutralise the acid previously used to curdle the milk.

Soda Tartarata.—The official test for purity is carried out in a manner similar to that described under Potassii Tartras.

$KNaC_4H_4O_6$, $4H_2O$, M. Wt. 280·15 yields by incineration $KNaCO_3$, *i.e.*, sufficient alkaline carbonate to neutralise one molecular weight of sulphuric acid.

∴ 280·05 grammes of pure soda tartarata ≡ 2,000 C.c. N/1 vol. sol. H_2SO_4.

$$\therefore \text{1 gramme of pure soda tartarata} \equiv \frac{2{,}000}{280{\cdot}15} \text{ C.c. N/1 vol. sol. } H_2SO_4.$$

$$= 7{\cdot}14 \text{ C.c.}$$

The Pharmacopœia states that at least 7 C.c. of the vol. sol. of sulphuric acid should be required, and this corresponds to a purity of a little over 98 per cent., for

$$7{\cdot}14 : 7 :: 100 : 98{\cdot}04.$$

Sodii Arsenas.—This salt is directed to be kept in the anhydrous state because the crystallised salt is not constant in composition. When freshly crystallised it has the composition $Na_2HAsO_4,12H_2O$, but by keeping under ordinary conditions it effloresces and loses water, until the composition $Na_2HAsO_4,7H_2O$ is attained. The actual percentage of arsenic therefore depends upon the extent to which efflorescence has occurred, but by drying at a little under 150° C. the whole of the water of crystallisation is expelled, and the anhydrous salt Na_2HAsO_4, which is constant in composition, is obtained. The quantitative determination of purity is based upon the precipitation of lead arsenate in presence of acetic acid. The addition of free acetic acid is made in order to prevent the precipitation of basic lead salt which would of course alter the quantitative relation of lead acetate and sodium arsenate as expressed in the following equation upon which the determination is founded. The necessity for adding acetic acid is really due to the fact that although the official sodium arsenate is acid in constitution, *i.e.*, it still contains one of the three replaceable hydrogen atoms of the arsenic acid it yields an alkaline solution (*vide* B.P. tests). It is supposed that a partial hydrolysis of the salt occurs in aqueous solution with formation of the sodium di-hydrogen arsenate and sodium hydroxide.

$$Na_2HAsO_4 + H_2O = NaH_2AsO_4 + NaOH.$$

The reaction between lead acetate and di-sodium hydrogen arsenate results in the liberation of some free acetic acid, because the lead arsenate precipitated is the normal salt, but at the commencement of the reaction the proportion of the acetic acid so formed is not sufficient to prevent the formation of basic lead salt—hence the addition of glacial acetic acid.

In order to carry out the official test, the sodium arsenate solution should be made as described. Now dissolve the 2·03 grammes of lead acetate in 50 C.c. of recently boiled distilled water. Add 49 C.c. of this solution to the sodium arsenate, warm slightly, agitate and set aside for a few minutes. Then filter a little of the mixture and to the clear filtrate add the remaining C.c. of lead solution. A distinct precipitate should form, showing that some sodium arsenate is still left in solution, and the filtrate from this will, if the salt be quite pure, again give a slight precipitate on the addition of more lead solution. The calculation is based upon the following equation :—

$$\left.\begin{array}{l} 2[Na_2HAsO_4] \\ + \\ 3[Pb(C_2H_3O_2)_2 3H_2O] \end{array}\right\} = \left\{\begin{array}{l} 2[Pb_3(AsO_4)_2] \\ + \\ 4NaC_2H_3O_2 \\ + \\ 2HC_2H_3O_2 \\ + \\ 9H_2O \end{array}\right.$$

M. Wt. sodium arsenate 184·78.

M. Wt. crystallised lead acetate 376·15.

∴ (184·78 × 2) grammes pure sodium arsenate will precipitate (376·15 × 3) grammes of lead acetate.

$$\therefore \text{1 gramme sodium arsenate will require } \frac{376{\cdot}15 \times 3}{184{\cdot}78 \times 2} \text{ grammes of lead acetate}$$

$$= 3{\cdot}05 \text{ grammes.}$$

The figure given in the official text is 2·03. This must, however, be an error, since it would only require the salt to be 66 per cent. pure. Probably 3·03 was intended.

Sodii Benzoas.—The precipitate given by ferric chloride with a solution of this salt is ferric benzoate. Its colour is very distinctive, and this test forms the chief qualitative reaction for the detection of benzoates. The volumetric test is based upon the incineration of benzoate to carbonate and titration of the residue.

$$C_6H_5COONa \equiv \tfrac{1}{2}Na_2CO_3 \equiv \tfrac{1}{2}H_2SO_4$$

M. Wt. 143·01

∴ the ash of 143·01 grammes pure sodium benzoate neutralises

$$\frac{1{,}000}{143{\cdot}01} \text{ C.c. N/1 vol. sol. } H_2SO_4$$

$$= 6{\cdot}99 \text{ C.c.}$$

Sodii Bicarbonas.—According to the equation

$$2NaHCO_3 + H_2SO_4 = Na_2SO_4 + 2CO_2 + 2H_2O$$

83·43 grammes of pure sodium bicarbonate will neutralise 1,000 C.c. N/1 vol. sol. of sulphuric acid.

$$\therefore \text{1 gramme } NaHCO_3 \text{ is} \equiv \frac{1{,}000}{83{\cdot}43} \text{ C.c. N/1 } H_2SO_4$$

$$= 11{\cdot}986 \text{ C.c.}$$

Allowing for the small quantity of adherent moisture the official requirements indicate a practically pure salt. The only official test which calls for remark is the ferric chloride test for thiocyanates. It is necessary first to convert the bicarbonate into chloride by the addition of a slight excess of hydrochloric acid, otherwise a red precipitate of ferric oxyhydrate, is obtained which would obscure the red coloration. Note that ferric carbonate, which one might expect to be formed, is so unstable that it decomposes with formation of oxyhydrate and liberation of carbon dioxide. The thiocyanate, if present, would be derived from impure ammonium bicarbonate used in the manufacture of the sodium salt. The commercial ammonium salts are obtained from the products of the destructive distillation of coal in the manufacture of illuminating gas. A certain proportion of the sulphur and nitrogen of the coal always comes over as sulphocyanic compounds, and through insufficient purification may be found in the ammonium salts prepared from the gas liquors.

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J* during 1897-8.

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SOME STILL UNDETERMINED QUESTIONS.

ARGUMENT is scarcely requisite to establish the fact that the intention of the Pharmacy Act, 1868, was to limit the business of chemists and druggists; to confine its exercise to persons ascertained by examination to possess a competent practical knowledge of that business. The principle of the Act was that in future the right to carry on a chemist's business and, in that connection, to make use of the title chemist and druggist, was to be acquired only by legal qualification. That prospective statutory limitation was adopted by Parliament solely out of regard for the public interest, and probably without showing as much consideration for the interests of the persons who were to become qualified under the operation of the Act as might have been beneficial in every sense. For ensuring the efficacy of the Act as a measure of public protection it followed, of necessity, that persons who did not pass the required examination could not lawfully carry on the business. Logically, and for the same reason, the inference might have been drawn that a like disability should attach to persons who could not pass the examination. That common-sense view of the matter appears to be equally applicable to a rejected candidate for qualification under the Act and to a person otherwise incapable of passing the qualifying examination, such as a composite person consisting of several individuals. Moreover, since the function for which qualification is required is an individual one, the qualification of the individuals forming a company appears to be a condition indispensable for lawfully carrying on the business of a chemist and druggist in that way. But the decision of the question raised as to the significance of the word "person" in the Pharmacy Act having led to the directly opposite result of affording opportunity for the exercise of the chemist and druggist's business by persons who are not legally qualified, the circumstances which led to that decision merit careful reconsideration at the present time, when the consequences of the decision are likely to receive attention from the Legislature, and the action that may be taken will in any case be of vital importance to registered chemists and druggists.

The assumption frequently made that the House of Lords' decision on the company question went so far as to declare that companies can lawfully carry on the business of chemists and druggists is not by any means justified by the terms of the judgment delivered by any one of the three judges. All three of them agreed that the whole question was as to the meaning to be put upon the word "person." The conclusion they arrived at was based upon construction of the language of the Act and its general provisions rather than upon consideration of what would be proper for securing the object of the Act or for giving effect to its principle. But the conclusion that it was impossible to infer that the object of the Act required a larger construction to be put on the word "person" was not based only upon consideration of the fact that the word "person" was generally used in the Act in undeniable reference to an individual—*i.e.*, a person who could undergo examination and perform other individual acts; but it was arrived at rather as a necessary consequence of the fact that the Act itself contained a special provision that the business of a chemist and druggist might be carried on by unqualified persons, a provision that further defined the means by which the interests of the public were to be provided for, in such a case, by the employment of a legally qualified assistant to conduct the business. Even the evident necessity of individual qualification for the performance of certain functions helped to confirm the conclusion that the exercise of the business by unqualified proprietors was not necessarily inconsistent with the object and policy of the Act. Thus the main argument in support of the principle of the Act—viz., that its object would be defeated unless a corporation as well as an individual were included under the word "person"—was held not to be maintainable in face of the consideration that the "person" actually selling could be struck at if unqualified.

But the decision on those grounds that a company should be regarded as outside the scope of the Pharmacy Act was based entirely upon construction of the language of the Act and the general purport of its provisions so far as that was evident from the language used. It left undecided the more important questions—Whether the consequences of the decision would be consistent with that protection of the public which was intended by the Pharmacy Act? Whether it was consistent with the object of the Companies Acts that their provisions should be made use of for the purpose of evading another Act? and Whether the reasonable claims of registered and legally qualified persons were not unjustly prejudiced by associations of unqualified persons carrying on business as chemists and druggists? as well as the question Whether, from either point of view, an individual, legally unqualified to carry on the business of a chemist and druggist, should be able to do so—and thus evade the Pharmacy Act—by nominal association with six other unqualified persons and by registration under the Companies Acts? These questions did not come before the House of Lords; but they are the questions which will now have to be considered, when the Companies Bill comes before Parliament, and in reference to them the recent observations of the LORD CHANCELLOR appear to be of considerable significance. From the opinion expressed by his Lordship, that a company ought not to be permitted to do what an unqualified individual is prohibited from doing, together with the unanimous conclusion of the Committee to which this matter was referred, viz., that a stop should be put to companies doing that which an individual may not do without legal qualification, much encouragement may be gathered as to the future prospect of an equitable settlement of the question which has been so long in abeyance. Registered chemists must, however, bear in mind that this question will now have to be dealt with under the head of company law amendment, and that it must not be complicated by the association of other questions that would come more appropriately within the wider scope of pharmacy law amendment.

ANNOTATIONS.

THE SCHOOL OF PHARMACY reopens on Monday next, October 2, and readers are reminded—for the last time—that the prizes for the past session will be distributed by the President of the Pharmaceutical Society at three p.m. on that day. Subsequently, an address to the students will be delivered by Profes or D. J. Leech, of Owens College, Manchester. The Hanbury Medal will be presented to Professor Ladenburg, of Breslau, the same afternoon. It is hoped that a large number of members of the Society and students will make it convenient to be present at the meeting.

AUSTRALIAN SASSAFRAS BARK appears to be the subject of some confusion in regard to its botanical source, and Mr. R. T. Baker, the Curator of the Technological Museum, Sydney, refers to the matter in a letter recently received from him (see p. 330). He also forwards a paper containing a description of *Cinnamomum oliveri*, Bailey (see 'Proc. Linnean Society, N. S. W.,' 1897, Part II., July 28, pp. 275–284, and pl. xii.), which he considers to be the botanical source of the bark hitherto known in a few museums in this country as that of *Beilschmiedia obtusifolia*. He points out that the bark of *Cinnamomum oliveri* is often sold under that name. Mr. Baker further states that he has sent to the Museums of the Pharmaceutical Society of London, specimens of the barks of *Doryphora sassafras*, *Atherosperma moschata* (Victorian sassafras), *Cinnamomum oliveri* (black sassafras), and *Beilschmiedia obtusifolia* (non-aromatic). On making enquiry of the Curator, we learn that these barks have not yet arrived, but he offers the following remarks on the subject: "The 'sassafras' bark offered in Mincing Lane in June last, 14 bags of which were shipped from Sydney, was, I believe, identified at Kew as that of *Beilschmiedia obtusifolia*, by comparison with a specimen existing in the Museum there. I had the opportunity (through the courtesy of the Curator, Mr. J. R. Jackson) of seeing both the Museum and the commercial specimen, and so far as it was possible to judge, by means of taste, smell, and a lens, the determination seemed to me to be a correct one. This is apparently the same bark on which the description in the 'Proposed Indian and Colonial Addendum' is founded. *Ph. Journ.* [4], **7**, p. 612. Moreover, it is the bark exhibited under that name in the Queensland Court in the Colonial and Indian Exhibition in London, in 1886. In the 'Catalogue of the Exhibits of the Queensland Court,' p. 66, it is thus described: *Beilschmiedia obtusifolia*, Benth. and Hook., Sassafras tree. A tall tree with fragrant bark and foliage. . . . . This contains a tannin similar or identical with cinchona tannin; the amount 7½ per cent. One ton of the dry bark yields 770 oz. of oil, K. T. Staiger." It is therefore evident that the Queensland botanist is responsible for the error—if, as Mr. Baker states, the bark of *Beilschmiedia obtusifolia* is non-aromatic. Mr. Baker's opinions on the subject are given in the 'Proceedings of the Linnean Society of New South Wales,' for July, 1897. Mr. F. M. Bailey, the Queensland botanist, at first considered the plant, now called by him *Cinnamomum oliveri*, to be the *Beilschmiedia obtusifolia* of Bentham and Hooker, but Professor D. Oliver, of Kew, suggested that it was a *Cinnamomum*, and Mr. Bailey subsequently described it as a new species, and named it after Professor Oliver. Whether the bark recently offered in the London market be that of *Cinnamomum oliveri* or *Doryphora sassafras* must be left undecided until Mr. Baker's authentic specimens arrive; it certainly is not that of *Atherosperma moschatum*, nor of *Beilschmiedia obtusifolia*, if that is non-aromatic.

A CERTIFICATE OF ANALYSIS, signed by Dr. Stevenson, has been rejected by a London police magistrate because the analysis had not been done by Dr. Stevenson himself. The prosecution was for selling ice-cream containing injurious organisms, and Dr. Stevenson, in cross-examination, admitted that the analysis had been performed by his bacteriological assistant. The solicitor for the defence then contended that the summons must fail, since the Sale of Food and Drugs Act distinctly states that the analysis shall be made by the public analyst for the district. That view commended itself to the magistrate, who said that, unless the question had been asked, he should have assumed that the analysis was made by Dr. Stevenson, and he would have accepted the certificate without suspicion. As it was, he dismissed the summons. The decision in this case, it may be pointed out, differs from that of the Manchester stipendiary magistrate, who ruled in a recent case (see *ante* p. 284*d*) that samples sent for analysis to a county analyst were not bound to be analysed by the analyst, but might be examined by his assistants. The point is an important one, and more will doubtless be heard about the matter.

THE BRITISH PHARMACOPŒIA should, in the opinion of the Secretary of the Grocers' Federation, be studied by all shopkeepers who sell drugs by retail. Writing on the subject of adulteration, Mr. Giles pointed out that in several places recently inspectors have been prosecuting shopkeepers for selling sweet nitre which was alleged to be deficient in nitrous ether, and that a co-operative society in Yorkshire had to pay a fine for that offence. For the defence, in many cases, it was stated that the evaporation of the ether is considerable, owing to the frequent opening of the bottle in which the article is contained. That, he grants, may be the case, "but if it is so, surely those who handle the article ought to take care that that which they sell is up to the proper standard." In connection with this matter also, he remarks, the question is raised of the sale of drugs by retail by persons other than duly qualified chemists. "If a shopkeeper handles drugs he ought to make himself familiar with the requirements of the British Pharmacopœia, a new edition of which was published last year. It is the recognised authority on the composition of drugs, and everyone who sells these goods should be acquainted with the latest requirements of this authority. A good many grocers sell such goods as cream of tartar, etc., which come under the Pharmacopœia, and they should take care that they stock only those which are guaranteed to be up to the required standard."

THE IDENTIFICATION OF POWDERED DRUGS is a subject which is occupying much attention in America at the present time, and, at the recent meeting of the American Pharmaceutical Association, several important papers on that subject were communicated. According to the *American Druggist*, Professor Henry Kraemer proposed to establish colour standards of powdered drugs. He has found that, with a type plate of twenty characteristic colours, it is possible to do much in the direction of securing uniformity of description. He acknowledged, however, that there is a great inherent difficulty in judging the actual colour of any particular powdered drug, since the character of the light employed, the colour of surrounding objects, the time occupied by the examination, and the fixity of attention with which the specimen is regarded, may all materially influence the observer's opinion. Professor Kraemer also disclaimed any quantitative value for the colour standards he suggests, since it would be much easier for an adulterator to prepare a mixture approximating to the colour of a particular standard, than it would be for a retailer to obtain in the market a drug of undoubted purity, which would exactly reproduce the colours of the standard. But apart from that, it is thought that the establishment of colour standards would do much to simplify the description of powdered drugs. Professor Albert Schneider also contributed a paper on the identification of powdered drugs, in which he insisted that histological structure must be the main, if not the sole, thing depended upon if accuracy of results is desired. That view, however, was dissented from by W. C. Alpers, in a paper on odour standards. A second paper by Professor Schneider embodied suggestions on the examination of drugs.

The Late Lord Watson, who was spoken of in the *Times* obituary notice as having been in the estimate of his brethren and of the Bar "the profoundest lawyer on the Bench," was one of the Lords of Appeal in Ordinary who assisted in the decision of the company question, in 1880, and it is interesting at the present moment to recall the fact that he then expressed himself as "almost inclined to hold that considerations of policy rather preponderate in favour of the appellant's argument," *i.e.*, that the word "person" should include a company or corporation. His ultimate concurrence with the opposite construction of the statute by the other two Law Lords who heard the appeal was a consequence of the impossibility of ascertaining from the ambiguous and confused language of the Pharmacy Act, whether it was the intention of the Legislature, or of the framer of Sections 1 and 15, "to give individuals registered under the Act the exclusive privilege of selling poisonous drugs by retail, and so impose penalties upon a corporation keeping open shop for that purpose."

The Adoption of Uniform Systems of Graduation, definite limits of accuracy, and standard methods for using all forms of measuring instruments, employed in chemical laboratories have been under consideration by a committee appointed by the American Chemical Society, with the result that the following recommendations have been published:—(1) That the American Chemical Society, in a manner consistent with its constitution and bye-laws, ask the U.S. Office of Weights and Measures to adopt regulations for the verification of volumetric apparatus which shall be similar in purpose and scope to the regulations of the Kaiserliche Normal-Aichungs-Commission, after due consideration of the criticisms to which the latter have been subjected. (2) That the U.S. Office of Weights and Measures be asked to give special consideration to the question of a standard temperature or temperatures to be adopted for the graduation of volumetric apparatus, and to obtain as far as practicable an expression of opinion from American chemists on this point. (3) That the U.S. Office of Weights and Measures be asked to submit its regulations to the American Chemical Society, or a duly appointed committee thereof, for suggestions before final adoption by that office. (4) That the international kilogram be adopted as the standard mass. (5) That the litre as defined by the International Committee on Weights and Measures be adopted; viz., the volume of the mass of a kilogram of pure water at the temperature of maximum density and under a pressure of 760 Mm. of mercury. (6) That all density determinations be referred to water at its maximum density and under a pressure of 760 Mm. of mercury. (7) That all temperatures be expressed in terms of the hydrogen thermometer of the International Bureau of Weights and Measures. (8) That if any question arise as to the interpretation of the above definitions the decision and standards of the U.S. Office of Standard Weights and Measures shall be accepted by the Society as final.

Aqua Vitæ, in its especially French form, is commonly supposed to be the alcoholic distillate obtained from the wine of the Cognac district; but according to the *Daily Telegraph* the grape appears to be played out as a factor in the production of French cognac, and can, in fact, be dispensed with altogether. Quoting from a lecture delivered on the subject at the Health Congress by Sir Charles Cameron and Professor William Smith, the statement is made that while the fertility of the vineyards is decreasing, the manufacture of eau de vie steadily grows. Corn and potatoes, with an admixture of chemicals, take the place of grapes. But this new kind of brandy does not fulfil the hopes based on the old-fashioned liquor ordered for patients by medical men. Professor Smith quoted statistics which showed that previous to the outbreak of phylloxera among French vines, in 1876, more than twelve million hectolitres of wine—a hectolitre is a little over twenty-two gallons—were annually produced, but that last year the production dropped to below one million. Yet, while at the earlier period less than two millions and a half hectolitres of cognac were produced, of which under two millions found their way to England, at the later period—from one-thirteenth of the output of wine—over two and one-third millions of French brandy were exported to this country. It seems that the Spaniards, being an old-fashioned and rather slow-going people, have not adopted these new methods of manufacturing brandy, and Sir Charles Cameron therefore thinks that medical men should prescribe Spanish brandy for their patients when they can get it.

A Grave Dispensing Mistake at Eastbourne, involving the death of a medical practitioner, revives the question of dispensing in doctors' surgeries on which Major Rasch, M.P., so pertinently interrogated Ministers last session. The facts of the case as presented to the public in the daily press are somewhat meagre as to detail, but, broadly speaking, they are as follow:—Mr. J. Dick, who had recently commenced practice in Eastbourne, prescribed for one of his patients a mixture intended to contain iron, and to be flavoured with chloroform water. The patient on taking a small, and, fortunately, much diluted, dose became very ill, and declared that she had been poisoned by the medicine. Mr. Dick, on being told this at his next visit, very naturally repelled the suggestion with some warmth, and to restore the confidence of the patient he impulsively took two generous doses of the mixture in her presence. This childlike faith in a suspected mixture had a very sad *dénouement*, for the poor fellow on reaching home presented all the distressing symptoms of strychnine poisoning, and died shortly afterwards, in spite of the prompt application of the stomach-pump and the continuous services of two medical attendants. At the inquest a Dr. Colgate is reported to have testified that the mixture after analysis revealed the presence of a considerable quantity of strychnine and demonstrated the absence of aqua chloroformi. Furthermore, it transpired that the bottles in the doctor's surgery were identical in shape and size and colour, so that the strychnine solution bottle differed in no respect from the neighbouring receptacles of less harmful substances. Yet the verdict was a plain riderless conclusion of "death by misadventure."

Without Inquiring into the question "Who dispensed the fatal mixture?" (and it might have been an unqualified servant of the victim) the public is surely entitled at least to ask why the regulations for the keeping, dispensing, and selling of poisons which are imposed by law upon registered chemists should not equally apply to the surgeries of medical practitioners? If it be a necessary measure of protection in the case of qualified chemists, it can scarcely be considered unimportant and unnecessary in the case of medical dispensaries where medicine is often dispensed hastily, and under other conditions likely to lead to mistake. It is evident from cases such as this, which we are given to understand are not so rare as one might expect, that the public incur considerable risk owing to the absence of any statutory guarantee that the medicines made up in private surgeries or dispensaries are compounded by duly qualified persons, or that the more potent remedies of the Pharmacopœia are kept in a proper manner. Accidents will happen, as the saying runs, under the best of regulations, but it is not logical to urge that it is, therefore, futile to trouble about rules and restrictions. At any rate, such argument is not convincing. Rather, should it be the duty of the Government to see that dispensing accidents should be reduced to a minimum by the exclusive employment of legally qualified persons, and the enforcement all round of the poison regulations already referred to.

THE BRITISH ASSOCIATION.

Mathematical and Physical Science Section.

Professor J. H. Poynting, D.Sc., F.R.S., presided over this section, and at the commencement of his address expressed the satisfaction felt by all physicists at the establishment of a National Physical Laboratory. He then went on to deal with

The Investigation of Nature,

and expressed the belief that in some directions there has been real progress in the range of investigation and the nature of the knowledge gained thereby, and that physicists are tending towards a general agreement as to the nature of the laws in which they embody their discoveries, of the explanations which they seek to give, and of the hypotheses they make in their researches for explanations. He next dealt with the range of the physicist's study and his methods of investigation, contrasting the old conception of laws as self-sufficing governors of Nature with present ideas. He pointed out that even now the early stages in the history of thought can be traced by survivals in our language due to the ascription of moral qualities to matter. Thus, gases are still sometimes said to obey or to disobey Boyle's Law as if it were an enactment for their guidance, and as if it set forth an ideal, the perfect gas, for their imitation. Language was still used which seemed to imply that real gases are wanting in perfection, in that they fail to observe the exact letter of the law. If that view were accepted it would have to be said that hydrogen came nearest to perfection, but then it would have to be regarded as righteous over-much, a sort of Pharisee among gases which overshoots the mark in its endeavour to obey the law. Oxygen and nitrogen might be regarded as good enough in the affairs of every-day life, but carbon dioxide and chlorine and the like would be looked upon as poor sinners which yield to temptation and liquefy whenever circumstances press at all hardly upon them. There was a similar ascription of moral qualities when bodies were judged according to their fulfilment of the purpose for which they are used; when they are described as good or bad radiators, good or bad insulators, as if it were a duty on their part to radiate well, or insulate well, and as if there were failures on the part of Nature to come up to the proper standard. The reaction of language on thought was so subtle and far-reaching that he was inclined to urge the abolition of all such picturesque terms. Let physicists remember that there is no such thing as a failure to obey a physical law. A broken law was merely a false description. He then proceeded to show that concurrently with the change in physicists' conception of physical law has come a change in their conception of physical explanation. The aim of explanation now is to reduce the number of laws as far as possible by showing that laws, at first separated, may be merged into one; to reduce the number of chapters in the book of science by showing that some are truly mere sub-sections of chapters already written. Professor Poynting then went on to trace the origin of the mechanical theories of physical phenomena to the dislike manifested by the human mind to the inexplicable discontinuities occurring during changes of form of energy.

Among the numerous subjects considered by this section was the desirability of establishing a standard for

Platinum Thermometry,

the discussion being opened by Prof. H. L. Callendar, F.R.S., who submitted the following proposals in consideration of the importance of adopting a practical thermometric standard for the accurate verification and comparison of scientific measurements of temperature:—(1) That a particular sample of platinum wire be selected, and platinum resistance thermometers constructed to serve as standards of the platinum scale of temperature. (2) That the scale of temperature deduced from the standard platinum scale by means of a parabolic formula, which has been proved to give a very close approximation to the true or thermo-dynamic scale, be recommended for adoption as a practical standard of reference, and be called the British Association scale of temperature. The gas thermometer would still remain the ultimate or theoretical standard, and the exact relation of the British Association scale to the absolute scale would be the subject of future investigation. (3) That the value of the difference-co-efficient in the parabolic formula be determined by reference to the boiling point of sulphur. (4) That the temperature of the normal boiling point of sulphur under a pressure of 760 millimetres of mercury reduced to 0° C., and latitude 45°, be taken for purposes of the British Association scale as 444·53 C., as determined by Callendar and Griffiths with a constant pressure air thermometer. (5) That a sub-committee be appointed to direct and supervise such measures as may be thought desirable for carrying out these proposals into effect.

In the course of the discussion on Prof. Callendar's proposals an opinion seemed to prevail that while the platinum instrument might be good, it had its faults, and was apt to play tricks; therefore it was a question whether the time was ripe for the adoption of his suggestions. He, however, pointed out, in reply, that he did not propose to establish any absolute standard of thermometry, but merely to establish a standard of reference for platinum thermometry.

Freezing Points of Solutions.

On Friday, September 15, Mr. W. C. D. Whetham presented the report of the Committee on Electrolysis and Electro-Chemistry. The report stated that the conductivity of a number of salts in very dilute aqueous solution at the freezing point of water had been determined by Mr. Whetham, while Mr. Griffiths had concurrently made observations of the freezing point for corresponding solutions. The observations of conductivity extended to solutions of sulphuric acid, potassium chloride, sodium chloride, barium chloride, copper sulphate, potassium permanganate, potassium bicarbonate, and potassium ferricyanide. The range of dilution was from below the hundred-thousandth to about the twentieth part of a gramme equivalent per thousand grammes of solution. The water used was specially distilled three times, the last time from a platinum still, and collected in platinum vessels. Its specific resistence was rather smaller than that of the water obtained by Kohlrausch by distillation *in vacuo*. The results obtained showed that the water used was good enough to enable trustworthy values to be obtained even at the lowest limits of dilution.

The next day, Saturday, the 16th inst., an interesting account was given by Professer J. J. Thomson, F.R.S., of recent researches on the

Existence of Masses Smaller than Atoms.

He showed that several lines of investigation lead to a determination of the ratio of the mass of an atom to the elcctric charge conveyed by it—namely, ordinary electrolysis; experiments on the velocity of charged particles; and experiments on the velocity of cathode discharges. These experiments indicated that the charge carried by an atom in cathode discharges and similar phenomena is apparently 1,000 times greater than in ordinary electrolysis, consequently either the atoms become dissociated and only a portion of their mass carries the negative charges of cathode rays, or else the atom can receive a greater charge than is assigned to it in explaining electrolytic phenomena. To discriminate between these two assumptions a method was employed to determine separately the charge carried by a known number of atoms in a case for which the charge per unit mass had the greater value. The method used was described as follows:—A flat metal plate, negatively electrified, is brought near to a very large perforated metal plate through which ultra-violet radiation can pass, the whole apparatus being enclosed in gas at a pressure of about 1-100 millimètre of mercury. The radiation causes a discharge of electrified particles from the negative plate, which move in parallel straight lines to the perforated plate which receives their charge. If now a magnetic field be set up between the plates, its direction being parallel to the plane of the plates, the paths of the particles become curved; in fact, cycloids, and the particles may not reach the perforated plate if the latter is far enough away from the negative plate. There will, therefore, be a diminution in the rate of discharge, which is the phenomenon actually observed; its amount corresponds with theory if the large value of the charge per unit mass is assumed. The charge conveyed per second is the product of three quantities—the number of "atoms," the charge on each, and the average velocity of the atoms. The charge conveyed per second may be observed and the average velocity determined by a method devised by Professor Rutherford. If the number of atoms is determined, the charge on each may be immediately found. These electrified atoms behave as nuclei on which water drops will condense when a cloud forms in the air; it is only necessary, therefore, to know the total amount of vapour condensed and the size of each drop in order to determine the number of drops, which is the same as the number of atoms. The amount of vapour condensed is obtained by suddenly and definitely expanding air of known humidity from a

given higher to a given lower pressure, and the size of the nuclei is obtained from the rate of their fall, since, like rain-drops, they can only attain a definite velocity. To ascertain whether the mass is collected at a point or diffused through space, the mass is allowed to impinge against a surface which is transparent to the energy carried—such as Röngten radiation or cathode rays—but which does not allow material of infinite size to pass through it. In all the experiments the atoms possessed negative charges; when positive charges are carried the results of experiments agree with those on electrolysis. The amount of charge carried by an atom depends on the gas and on the nature of the electrodes. From this it would appear that electrification seems to consist in the removal from an atom of a small corpuscle, the latter consisting of a very small portion of the mass with a negative charge, while the remainder of the atom possesses a positive charge.

Botanical Section.

On Tuesday, the 19th inst., a paper was read in this section by Mr. A. C. Seward, F.R.S., of Cambridge, at one time examiner in botany to the Pharmaceutical Society, on

A New Genus of Palæozoic Plants.

He commenced his paper by stating that the description of this genus, which represents a new type of Cycadofilices, is founded on a single specimen in the Binney collection of coal-measure plants. The specimen consists of a small piece of stem, unfortunately without the cortical tissues, with the structure of the primary and secondary wood very clearly preserved. Occupying the axial region is a strand of primary xylem, 1·9 Cm. in diameter and consisting of large isodiametric or slightly elongated tracheids with multiseriate bordered pits on their walls, associated with parenchymatous tissue; the primary stele is of exarch structure, the narrow and spirally thickened protoxylem elements occurring at its margin. Surrounding the primary stele there is a broad cylinder of secondary wood exhibiting anatomical features characteristic of cyadean stems. From the periphery of the primary strand leaf-traces are given off consisting of long tracheids intermixed with parenchyma. The most interesting features in the anatomy of this stem are:—(1) The manner of origin and behaviour of the leaf-traces; (2) the exarch structure of the primary system; and (3) the structure of the large primary tracheids.

Mr. Seward also read a paper by himself and Miss J. Gowan on "The Maiden-Hair Tree (*Ginkgo biloba*, L.)," in which *Ginkgo* was compared with various fossil types from Palæozoic, Mesozoic, and Tertiary horizons; and the geographical distribution of *Ginkgo* during the Mesozoic and Tertiary epochs.

The Germinative Power of Seeds.

Some interesting experiments made by Sir W. Thiselton-Dyer and Professor Dewar to ascertain the influence of the temperature of liquid hydrogen on the germinative power of seeds were described. The experiments showed that life goes on at a temperature so low that ordinary chemical action practically ceases. Commercial samples of the seeds of the vegetable marrow, mustard, barley, and the pea were immersed in liquid hydrogen for more than six hours, the lowest temperature attained being 453° F. below the temperature of melting ice. Subsequent examination revealed no visible change in the appearance of the seeds, they being as fresh and bright as they were before immersion, and on being planted all germinated.

Chemical Section.

In this section a number of interesting papers were read, amongst which was one by Colonel J. Waterhouse, honorary secretary of the Royal Photographic Society, on the

Action of Light upon Metallic Silver.

He showed that when cut masks are laid on the surface of silver leaf or foil, or on a Daguerreotype plate, and exposed to the sun's rays, a visible image ultimately appears on the metallic surface. The effect is produced more rapidly if the metallic surface has been exposed to mercury vapour or immersed in an acid solution of a ferrous salt mixed with silver nitrate. Copper is sensitive in the same way, and it is probable that other metals are also sensitive to the action of light.

Dr. A. Fernbach contributed a paper on the

Influence of Acids and of some Salts on the Saccharification of Starch by Malt Diastase,

in which he states that the slightest trace of free acid distinctly retards the action of diastase on gelatinised as well as on soluble starch, but the starch employed and the solution of diastase must be absolutely free from salts on which acids may act. In the presence of secondary phosphates which are unfavourable to diastatic action, the addition of acid is favourable so long as the stage of primary phosphate is not passed.

Dr. G. Harris Morris also contributed a note on the combined action of diastase and yeast on starch granules. He found that when starch granules are attacked in the ungelatinised form by diastase alone they are more vigorously attacked when yeast is present, alcohol accompanying the maltose that is the only product of the diastatic action.

Anthropological Section.

Our readers across the border will perhaps be interested to know that Mr. J. Gray, in a paper on

Recent Ethnographical Work in Scotland,

paid a high tribute to a Scottish pharmacist, Mr. Tocher, the secretary of the Buchan Field Club, to whose organising ability, assisted by the generous and gratuitous co-operation of the school teachers, he attributed the completion of a pigmentation survey of the whole of the school children of East Aberdeenshire, returns being received between October, 1895, and November, 1897, from over ninety schools, comprising nearly 14,000 children. The pigmentation of the school children (with that of adults added for comparison) was shown in a table of average results, and a comparison with the Continental districts whence, according to tradition and history, the United Kingdom has derived a large element in its population—viz., Schleswig-Holstein, Lüneberg, and Mecklenburg-Schwerin, the reputed original seats of the Angles and Saxons—was shown in another table. These tables showed that the three North German districts were clearly much more blonde than East Aberdeenshire; Germany as Virchow's survey had shown, got more brunette and less blonde from north to south, but on its extreme southern frontier—Upper Bavaria—a district is found approximating in pigmentation to East Aberdeenshire.

PROCEEDINGS UNDER THE PHARMACY ACTS.

Case under Section 17.

Pharmaceutical Society *v.* Ashburton Drug Company, Ltd.

At the Ashburton Petty Sessions, on September 26, before Mr. F. H. Firth, Chairman, Hon. R. Dawson, Rev. W. M. Burch, Mr. J. Bickford, and Mr. S. Berry, county magistrates, the Ashburton Drug Co., Limited, was charged with selling poison, to wit, oxalic acid, which poison was not labelled with the name and address of the seller, as provided by Section 17 of the Pharmacy Act, 1868.

Mr. T. W. Windeatt, solicitor, of Totnes, appeared for the prosecution, and Mr. Jenkins Richards, managing director of the company, appeared to answer the charge.

Mr. Windeatt, having read the Section, stated that the proceedings were taken at the instance of the Pharmaceutical Society in the interest of the public, and pointed out how necessary it was that poisons should be properly labelled, so that in case of accidental or criminal administration the police authorities could trace from whence the poison was procured.

It having been reported to the Society that poisons were being improperly sold by the company, a Mr. Vanstone was instructed to go to the shop in East Street, Ashburton, and he there purchased twopennyworth of oxalic acid, which bore the following label:—"Oxalic Acid—Poison. Coleberd and Co., Limited, the Cash Chemists, London and South-Western Drug Stores, Fore Street, Sidmouth." The packet was subsequently handed by Vanstone to Mr. Moon, one of the clerks to the Registrar of the Society, who would produce it to the Court.

As soon as the summons was served, and with a view to save expense, a communication was addressed to the company, and an admission was received to the effect that if anything was sold to Vanstone from the shop of the company, labelled oxalic acid, that was the article supplied. It was, therefore, unnecessary to produce any evidence as to analysis.

After quoting a portion of the judgment of Lord Selborne in the case of the London and Provincial Supply Association, Limited, showing that the 17th Section applied to companies as well as to individuals, Mr. Windeatt hoped the Bench would inflict such a

fine as would deter other Companies from selling poisons in such a flagrantly improper manner as had been done in this case.

J. Vanstone, examined by Mr. Windeatt, stated that acting under instructions he went on July 8 to the shop of the Defendant Company, and purchased twopennyworth of oxalic acid. He was served by an assistant who did not ask him any questions as to what it was required for. He identified the packet produced as the one he purchased.

Harry Moon stated that he gave the last witness instructions to make the purchase of the oxalic acid, and that it had not been out of his possession since it was handed to him by Vanstone.

In reply to questions from the Bench, Mr. Moon stated that there had been no undue delay in taking proceedings. The purchase being made on July 8, no action could be taken until the Council met in August. The summons was issued on August 17. He was quite sure that Coleberd and Co., Limited, and the Ashburton Drug Co., Limited, were not identical, as he had searched the registers at Somerset House. The latter was practically a one-man company.

Mr. Jenkins Richards said he could not dispute that the poison was purchased at the shop of the company. He did not sell it. It must have been sold by the assistant, who had put on an old label which had probably been sent from the Sidmouth branch of his predecessors, Coleberd and Co., Ltd. He submitted that there had only been a technical breach of the law.

The magistrates were unanimously of opinion that a gross infringement of the Act of Parliament had been committed, and inflicted a fine of three pounds ten shillings, three pounds of which was to be handed to the Pharmaceutical Society for costs.

ANALYTICAL NOTES.

DETERMINATION OF CANTHARIDIN.—Twenty-five Gm. of cantharides in fine powder are macerated with 2 C.c. of HCl and 100 C.c. of chloroform for twenty-four hours, with occasional agitation, then filtered on a covered filter, and 62 C.c. of the filtrate evaporated. The residue obtained, washed with 5 C.c. of petrolcum ether, is transferred to a small tared filter, washed twice with 10 C.c. of the same solvent, dried at 60° C. and weighed. Good cantharides should yield, according to Gehe, 0·12 Gm. equivalent to 0·8 per cent. of cantharidin by this method.—*Pharm. Cent.*, **40**, 230.

THE TESTING OF ROSEMARY AND TURPENTINE OILS. — For testing turpentine the author uses bromine water saturated at 15° C., or, for more exact work, a solution of potassium bromide, 37·234 Gm.; potassium bromate, 10·449 Gm., and concentrated sulphuric acid, 25 C.c., in one litre. The results are arrived at by shaking well one C.c. of turpentine in a 100 C.c. cylindrical measure graduated to 1 C.c., with the bromine solution in the cold, till the bromine colour is permanent. 1 C.c. fresh American or French turpentine requires 62·64 C.c., German, 56·58 C.c. of the 3 per cent. bromine solution. The author distinguishes between the rectified and raw turpentine oils by the rise of temperature of the two oils when mixed with hydrochloric acid (1·19 sp. g.), and the different colours of the acid solution. The results are arrived at by shaking the oil with an equal volume of fuming hydrochloric acid, or with an equal volume of hydrochloric acid (1·12 sp. g.), mixed with two-thirds its volume of concentrated sulphuric acid for 15 seconds, and taking the temperature before and after. The rise in temperature with the rectified oil should not be more than 88°, and the acid portion, when separated, should be of a pale yellow colour, while the separated oil must be colourless. Rosemary oil gives with bromine and with hydrochloric acid the same reactions as turpentine; perfectly fresh French rosemary (1 C.c.) requires 49 C.c. of 3 per cent. bromine water, new Italian oil, 44 C.c. Rosemary oil, adulterated with 20 per cent. turpentine, requires 55 C.c. bromine solution. Mixed with hydrochloric acid, the temperature rises 11° C. to 17° C. If the oil is old, the separated acid is reddish brown, while the separated oil is pale yellow. Rosemary oil which has been rectified over lime, gives, when shaken with hydrochloric acid, a rise of temperature of not more than 6° C., and both acid solution and oil should remain colourless. Older oils absorb less bromine, give higher temperatures with acid, and deeper colours than fresh oils. —*Pharm. Zeit.*, **43**, 578.

LETTERS TO THE EDITOR.

The Source of Sassafras Bark.

Sir,—Under separate cover I am posting you a copy of a paper of mine "On the Cinnamomums of N. S. Wales," read some time back before our Linnean Society. My object in sending it is that I notice that there appears to be some confusion in the botanical nomenclature of the barks that are sold in London under the name of "Sassafras," and this paper may be of use to you for future reference in this matter. I am posting also by this mail, for the Pharmaceutical Society's Museums, samples of the following barks: 1, "Sassafras," *Doryphora sassafras*; 2, "Victorian Sassafras," *Atherosperma moschata;* 3, "Black Sassafras," *Cinnamomum oliveri;* 4, *Beilshmiedia obtusifoba* (non-aromatic). These barks are very characteristic of the respective species and are not easily confounded.

Sydney, August 7, 1899. RICH. T. BAKER.

Federation of Local Pharmaceutical Associations.

Sir,—As late secretary of the Federation, I feel that I cannot let the opportunity slide of remarking on the report of the meeting of the North-East Lancashire Association in your last week's issue. I was unfortunately unable to attend the Plymouth meeting, and although personally I regret that a programme for the coming session was not drawn up, I have every confidence that the meeting, consisting as it did of responsible gentlemen, has come to a sound conclusion, and one that should not be questioned by an individual who was not present to learn their reasons for so doing. I sincerely believe that the Plymouth meeting was the most important one ever held by the Federation, as the change of rules, which Blackburn so much complains of, has fixed its position; and if conducted on progressive lines, which we are led to hope it will be from the recent communication it has sent out, it will be a force to be considered in future pharmaceutical politics. I think it fortunate that you are in a position to publish the report of the Blackburn meeting in the same issue you do the recent communication sent out by the Secretary of the Federation, as side by side they make interesting reading. But, may I ask about the part played by the North-East Lancashire Chemists' Association at the recent meeting? Everyone interested is aware that the recommendations regarding the change of rules, etc., issued by that Association filled the greater part of the agenda, and that the Blackburn programme is still before the country for consideration; also, I understand, the time of the meeting was occupied by one of the Blackburn delegates over a paltry matter that was not considered worthy of publication; and yet Blackburn complains! Now you will see, sir, and so will everyone who may read this letter, that if the alteration of rules was a deliberate plan for crushing out the more important discussion on the present pharmaceutical crisis (as Mr. Holt is reported to have said) Blackburn was at the bottom of it. I take this opportunity of saying that I entirely approve of the change of rules and the appointment of an Executive Committee for action in cases of emergency and for general purposes; also that I fail to see why a secretary living in Devonshire will not be as useful as one residing in Lancashire, or, in fact, in any other county.

Liverpool, September 25, 1899. R. C. COWLEY.

The Necessity of the Present Situation.

Sir,—When we, as a craft, are face to face with a grave crisis—surrounded by difficulties and smarting under an injustice which affects the entire body politic and places us in a false position before the public—is it not "passing strange" that there should be found amongst us those, who, instead of working shoulder to shoulder in the cause of equity and justice, are raising false issues and hankering after the impracticable?—at a time, too, when the Government of the day appears inclined to consider our grievances, to listen to feasible suggestions and to provide a remedy for the anomalous position in which we are at present placed, involving work which would require all our energies, prudence and strength to be united for its accomplishment. Now, sir, I am not animated by any personal motives, neither have I any private interests to serve; but, as an old member of an honourable and self-sacrificing craft, I should like—for the sake of the future of pharmacy—to see that spirit of unanimity and toleration (so essential in every good and just cause) exhibited, by upholding the dignity of our calling, and by placing it upon a broad and liberal basis, untainted by the

narrowness of mere self-interest. Minor differences must be set aside, and the whole influence of a united craft should be brought to bear upon those in power, to prove to them that we are well able to manage our own affairs, are keenly alive to our own requirements, and not forgetful of the claims of the public but have their interests at heart. Nothing can be done without compromise in some form or another in all the walks of life, but it can be accomplished without any sacrifice of principle. With us it is a moral question and it lies within ourselves. Shall we, or shall we not, give up some of our fads and crochets and work together for the common weal? We must decide for ourselves one way or another, or others will decide against us, Pharmacy is, and has long been, in troubled waters, and unless we pull together as men in earnest and insist upon maintaining our rights we shall be tossed about, and eventually stranded, without hope or sympathy; and if we allow ourselves to come to this—well, it will serve us right for our selfish folly. Here arises the question, What are our rights? Not protection against cutting; that is the moral side, and has nothing to do with Acts of Parliament. On the professional side we have been educated and trained to do certain things, well defined by Acts of Parliament, in the interests and well-being of the public. Those Acts have given us exclusively certain titles by which we are known to the public, such as pharmaceutical chemist, chemist and druggist, pharmacist, and so forth, and we must maintain that no unqualified individual—or combination of unqualified individuals—has the least right or claim to use these titles, or, in other words, to filch them from us. We have long held, and must still hold with the greatest tenacity, that no corporation or company of unqualified individuals has, or ever had, any right to hold itself out to the public as competent to do work which the members of that company were never trained or legally qualified to do. It is simple nonsense to talk about "vested interests" in this case. If there are any interests involved through outsiders having put money into such concerns, they have been fraudulently acquired, in so far as the practice of pharmacy is concerned and, as a matter of course, outsiders should pay the penalty in which their greed has involved them. Much has been said—I think injudiciously on both sides—about doctors dispensing and chemists prescribing. These are questions which should not distract us now. They may be left to work out their own remedy, which they undoubtedly will do in process of time, without Acts of Parliament or legal interference of any kind. There appears to be no reason why doctors, chemists, dentists, and midwives, too, if they will, should not join in one common aim and desire, and work together harmoniously to protect and hold fast in possession the hard-earned titles which belong to them, not by courtesy, but by right.

Rotherfield, September 26, 1899. G. G. Hornsby.

The Eastbourne Poisoning Case.

Sir,—The lamentable case of the engineer hoist with his own petard is again exemplified in the case of poor Dr. Dicks at Eastbourne. I cannot just now lay my hand on a table of the frequency with which certain drugs are prescribed, but nux vomica and its preparations stand high on the list. One is tempted to think that it is often employed as being the only tonic bitter ever heard of, especially by medical men who dispense their own medicine. Within quite a short time I have noted two deaths from strychnine supplied by doctors who were unable to account for its presence in the medicine. It is also too freely used in many of the wholesale formulæ supplied *ad lib.* to the public, and no questions asked, "But that is another story."

London, September 27, 1899. E. Warrell.

Ether-Soap.

Sir,—Having had occasion during the last few months to make several batches of an ethereal solution of soap according to a surgeon's formula, I was interested in reading Mr. White's note in last week's Journal; and as our method and formula differ somewhat from those given on page 296, an account thereof may be of interest. The formula is:—Oleic acid, 30 C.c.; KOH *q.s.* to neutralise; alcohol, 10 C.c.; ether, 30 C.c. It is made as follows:—The acid is placed in an ordinary mortar, an aqueous solution (3 in 2) of potassium hydroxide gradually added, until a mass, slightly stiffer than soft soap is produced, mixture of alkali and acid being promoted by stirring. Further addition of KOH solution is proceeded with cautiously until neutralisation is effected, small portions of the mass being withdrawn from time to time, dissolved in spirit; and phenol-phthalein used as indicator. In this method there is no necessity to use the indicator until the consistence mentioned is attained, as it serves as an indication that the point of neutralisation is not far off. The alcohol is added to the soap, the resulting mixture transferred to a bottle containing the ether, set aside, with occasional agitation, for a few hours when a clear solution is obtained. Having made a batch as Mr. White suggests, I prefer the above, as the product is equally good, and there is a smaller expenditure of time and trouble. My observations do not altogether coincide in some minor points with those of Mr. White. There is practically no deposit in the solution, even on standing. Although there is an appreciable rise in temperature during neutralisation, I am not disposed to speak of it as considerable; further, neither I nor my colleague (Mr. Kelf, Ph.C.) consider there is any discernible improvement of the lathering produced by a slightly alkaline solution as compared with that produced when a neutral solution is used. I believe this 'Ether-soap" is in use in a third hospital, if so, it may be interesting to have its experience. F. A. Hocking, B.Sc. (Lond.).

Evelina Hospital, Southwark, September 27, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Chemical Society (H. H.—34/19).—The address is Burlington House, Piccadilly, London, W.

Minor Examination (R. R.—34/14).—You will find all the particulars in the *Pharmaceutical Journal* for September 9 last.

Sale of Morphine (G. W. B.—34/12).—The most satisfactory way of answering your question would appear to be to try the experiment.

Cocaine Solution (G. W. B.—202/34).—If a solution of cocaine salicylate had been required the fact would, presumably, have been specified.

Qualitative Analysis (R. L. M.—34/11).—The latest edition of Fresenius's book is what you require. Bloxam's 'Chemistry' (Churchill, 18s. 6d.) is a standard work on theoretical chemistry.

Pharmaceutical Football League (A. G. G.—202/32).—We are not aware that there is one. Write to the Secretary of the School of Pharmacy Football Club, 17, Bloomsbury Square, London.

Use of "Bromide" in Developers (H. B. R.—34/13).—The precise action of bromides in the developer is not yet understood. The primary purpose for which it is used is to prevent the reduction of the silver haloid of the plate except where it has been acted upon by light—that is to say, to keep the plate clean and free from fog. Used in a considerable quantity it has a powerful action in slowing the action of the developer and in modifying the gradation of the resulting negatives, hence its employment in cases of over-exposure. The quantity of silver in the plate is in no relation whatever to the necessity or otherwise for using bromide in the developer. Indeed it may be said that slow plates which, as a rule, contain less silver than rapid ones are also less in need of bromide in the developer, but that arises from the fact that in a rapid plate the silver haloid is naturally in a more unstable condition than in a slow one. Another point to notice, and it is an obvious one, is that the more energetic the developer the more likely it is to reduce the silver of the plate independently of the action of light. Hence in a developer containing a large proportion of the accelerating alkali the presence of bromide is more likely to be necessary to keep the plate clean and prevent fog. Bromide is always necessary with caustic alkalies, but most plates will develop quite cleanly without it when the carbonates are employed.

DISPENSING PROBLEMS AND NOTES.

PHENAZONE WITH SODIUM SALICYLATE.

The day after the following mixture was dispensed crystals began to form:—

℞	Sodii Salicyl.	ʒiij
	Phenazoni	ʒi
	Tr. Aconiti	mxv
	Mag. Sulph.	ʒi
	Aq. Chlorof. ad	ʒviij
M.	Ft. mist.	

The sodium salicylate was physiologically pure and the phenazone answered the B.P. tests—J. H. S. (33/13).

It appeared probable, in this case, that the crystalline precipitate would be found to consist of phenazone salicylate or salipyrine, the phenazone and salicylic acid combining in the presence of the magnesium sulphate, which acts probably as a condensing agent. To clear up the point, the following experiments were carried out:—

(1) The mixture was dispensed as written. The reaction was slightly acid, and crystals began to fall after six or eight hours, continuing until an amount of deposit equal to the whole of the phenazone resulted.

(2) To see if the same phenomenon would be produced in an alkaline mixture, the prescription was made again and rendered distinctly alkaline to litmus by adding enough solution of caustic soda, and then filtered clear of traces of magnesium hydrate by running through cotton wool; on standing, crystals fell as plentifully as at first.

(3) A solution of sodium salicylate, 45 grs., and phenazone, 15 grs., with water to 2 ozs., was tried. This was slightly acid to litmus. No precipitate came down on standing twenty-four hours.

(4) A solution as last was made and kept at the heat of a water bath for half-an-hour, after which time the solution was alkaline, but no precipitate fell in twenty-four hours.

(5) A solution of magnesium sulphate, ʒ2, and sodium salicylate, 45 grs., with water to 2 oz., gave no precipitate, and was slightly acid to litmus.

(6) A solution of magnesium sulphate, ʒ2, and phenazone, 15 grs., with water to 2 ozs., was alkaline, and a faint precipitate similar in appearance to magnesium hydrate fell, but no crystals came down in twenty-four hours.

From these experiments it was clear that magnesium sulphate, phenazone and sodium salicylate, were all necessary to the production of the crystals.

The crystals from the first experiment were collected, washed with water, dried and crystallised from alcohol. When heated they melted, gave off the odour of phenol, turned black, and when further heated to redness left practically no residue other than a trace of magnesium oxide. To prove the presence of phenazone some of the crystals were boiled with water and potassium hydroxide to convert the salicylic radical to the potassium salt and liberate phenazone. The solution was shaken with chloroform three separate times, the chloroformic solution drawn off and again shaken with a trace of dilute hydrochloric acid and a little water. This acid solution, on addition of ferric chloride, gave the characteristic colour given with phenazone almost discharged with excess of dilute sulphuric acid. To the original acid solution of phenazone dilute sulphuric acid was added, and a few crystals of sodium nitrite, when a sea-green colour again proved the presence of phenazone.

The salicylic radical was proved in the alkaline solution by acidifying with hydrochloric acid and adding Fe_2Cl_6, which gave a violet colour, and confirmed by boiling a little of the alkaline potassium salicylate with methyl alcohol and excess of sulphuric acid, which gave an odour of oil of wintergreen (methyl salicylate).

The crystals from the first experiment could not, in appearance, taste, and general reactions, be distinguished from salipyrine.

LIBERATION OF IODINE.

The following mixture was distinctly alkaline when dispensed, et iodine was liberated:—

R	Pot. Iodid.	ʒj
	Spirit. Ammon. Ar.	ʒvj
	Æther. Sulph.	ʒij
	Aq. ad	℥vj
M.	Ft. mist.	

The mixture was made up in various ways, but without getting a satisfactory result. The addition of potassium bicarbonate or of ammonia solution did not prevent the liberation of iodine, unless a fairly large quantity was used.—D. G. (33/19).

In this case the mixture must have been dispensed with a bad ether, or one which had been exposed to light and a high temperature on the shop-shelves. Three mixtures were dispensed.

(*a*) With pure ether; (*b*) with anæsthetic ether (methylated); (*c*) with an equivalent of spirits of ether. In each cast the iodide was first dissolved in the water, and the ether (or spirit) added after being mixed with the aromatic spirit of ammonia.

In no case was there the slightest liberation of iodine, and the ethers on testing with the bichromate test gave not the faintest tint of blue. With an ether slightly changed and with only small traces of hydrogen peroxide or ozone present, mixing it with the aromatic spirit of ammonia would prevent the coloration, and the excess of ammonia, to say nothing of the terpenes in the spirit, would take up a relatively large amount of free iodine as it was liberated from the potassium iodide.

Theoretically, the terpenes present in old sal volatile should contain hydrogen peroxide, but practically that could only take place in the absence of ammonia, for all essential oils which absorb hydrogen peroxide or generate it must become acid in the process.

The ether used by D. G. must have been in a bad state, and hydrogen peroxide formed as a decomposition product would appear to have been the cause of the liberation of iodine.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

Correction.

EGG ALBUMIN.—In the article on "Egg Albumin" published in last week's issue, p. 301, the third line from the bottom of the first column should read "per 100 cubic centimetres of egg white," and not "per cubic centimetre," as printed.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Abram, Blythe, Druce, Durrant, Ellinor, Ferrall, Fryer, Gilmour, Gray, Hannah, Hartness, Haslegrave, Key, Longstaff, Marchant, Marshall, Matthews, Moon, Morgan, Murray, Plumley, Prince, Reade, Rowlands, Rudd, Thorne.

THE EVOLUTION OF PHARMACY.*

BY D. J. LEECH, M.D., D.SC., F.R.C.P.

Professor of Pharmacology and Therapeutics, Owens College, Victoria University.

Let me in the first place express my sense of the compliment paid me by the President and the Council of the Pharmaceutical Society, in asking me to give the address at the opening of the Fifty-eighth Session of this important School of Pharmacy. The high value I attach to the work of the Society of which I have the pleasure of being an honorary member, and the respect in which I hold its President, would have made it difficult to refuse the invitation even had my connection with pharmacy been only that which all physicians have. But at the Owens College I have had for many years to direct the teaching of medical students in pharmacy and materia medica, as well as to lecture on pharmacology and therapeutics, and when, at my suggestion, the Council of the College determined to make provision for the education of pharmaceutical students, I had to organise and supervise the new department. Hence I take a special interest in pharmacy and pharmaceutical education, and in pharmaceutical students also. Then, too, as a member of the Pharmacopœia Committee of the General Medical Council, I have come much into relation with the work of the Pharmaceutical Society bearing on the production of the Pharmacopœia, work, let me say in passing, for which not only the Medical Council, but the country at large, is greatly indebted to the Society.

On all these grounds I felt I must overcome a certain amount of inertia which affects me at the end of the summer season, and accept the invitation I had received, and so I am here to-day to welcome, advise, and congratulate the students of this School, and to make some remarks on pharmacy and pharmaceutical education.

Nearly a century ago, when the well-known surgeon Abernethy went to give the lecture with which he commenced his course, he looked round on the large number of students assembled and said in a sorrowful tone, "God help you all! What will become of you?" He could not see how work could be found for so many; and there are some who have a similar feeling now with regard to pharmaceutical students, who have misgivings with regard to the future of pharmacy, and fear that the work of the pharmacist will disappoint those who enter upon it. Now if I believed this, I should find it difficult to stand here to-day and congratulate those who are commencing their instruction at this School, or those who have completed their work here even though they have obtained distinction. But I do not believe it, and I think I can give reasons for my disbelief.

The pessimistic views with regard to the future of the medical profession which Abernethy entertained, and which many others too have held both before and since, have not proved well founded. The number entering on medicine has increased largely, but notwithstanding that the medical profession has been constantly occupied in trying to decrease professional work by preventing disease, and has been pretty successful in doing this, there does not appear to have been any lack of work, and there is no reason for believing that the medical profession, as a whole, ever stood better than at present.

The reason for this is that there has been a gradual development in medicine. By a process of evolution it has parted with some old functions, but new avenues for work and usefulness have been opened out. Above all, the standard of education has been raised, and the profession is being better fitted for that work which it is most in the interests of the public it should perform.

Now when we look at the history of pharmacy, we see that here, too, evolution has taken place, and I am satisfied that, provided the educational advances which have been entered upon are continued, the work of the pharmacist will become in the future increasingly pleasant, increasingly useful to the public, and, I trust and believe, increasingly profitable.

*Address, delivered at the opening of the fifty-eighth session of the School of Pharmacy of the Pharmaceutical Society, on October 2, 1899.

The Evolution of Pharmacy.

I propose in the first place to point out a few of the main features of this evolution, for although you gentlemen are more interested in the present state and future prospects of pharmacy than in its past history, it is through this history that we are able to understand the present and to form some ideas of the probabilities of the future.

A relative of mine who travelled much in the Hinterland of our West African possessions, told me that he was several times treated for serious illnesses by the natives with whom he was living. The chief, or the wife of the chief, or some wise man or woman reputed to have a knowledge of medicine, gathered a herb or herbs, and having prepared an infusion or decoction, administered the medicine to him, and he says that on several occasions he found very definite effects and great benefit from the drugs thus given him.

Here we have medicine and pharmacy in the simplest stage, and there is reason to believe that a similar stage was passed through amongst the primitive peoples of olden times. As civilisation advanced amongst ancient communities, the number of substances reputed to possess a curative influence increased. With this increase pharmacy became more complex, and Egyptian Papyri give us a good idea of the medicine and pharmacy of an ancient civilised community.

The "Papyrus Ebers," written about 1500 B.C., contains several hundred prescriptions with directions for the use of the medicines. The ingredients of the prescriptions consist largely of some form of food or condiment, as, for example, honey, dates, figs, and coriander. But potent medicines of mineral and vegetable origin are also included, as copper salts, juniper berries, and aloes. In addition, many gruesome substances are included, as the blood, brain, and fat of many animals. The prescriptions contain from one to eighteen constituents; in some cases decoctions and infusions are described. Very commonly directions are given for the solid ingredients to be mixed and taken in beer, milk, or wine. Sometimes a kind of confection is prescribed with honey; at others the constituents are made into cakes. Plasters, ointments, and collyria are ordered, and inhalations also, which were made by pouring fluid on hot stones.

There is no definite evidence that pharmacy was separated from medicine in Egypt, though there must have been in these times dealers in drugs. There is reason to believe, too, that many people kept drugs, and prepared their own medicines.

In Greece, in the time of Hippocrates, there were special classes who collected and sold drugs—the Rhizotomists and Pharmacopolists. The former gathered roots and herbs, and expressed the juices of plants for medicinal purposes. The Pharmacopolists dealt in drugs; they were to be found in public places, vaunting their wares and their knowledge, dealing in cosmetics and curiosities as well as drugs. In addition there was another class, cultivators of medicinal plants, about whom little is known. The physicians seem to have prepared their own medicines. In the establishment of separate classes collecting and dealing in drugs, we have the first step to the separation of medicine from pharmacy, which was rendered necessary by the increased number of drugs and the altered conditions of social life.

In later times the Greek and Roman physicians continued to prepare their own compounds. Galen, who lived in the second century of the present era, certainly seems to have done so, but Pliny says that some of them were unable to compound their own prescriptions and bought ready-made medicines. Dealers in drugs and medicines, both in the East and West, in Alexandria and Rome, seem to have abounded, but they all appear to have conjoined other functions with the preparation and sale of medicinal compounds.

The Pharmacopolists dressed wounds and appear to have trespassed in other ways on the functions of medical men. They earned, however, a bad reputation. Then there were "Unguentarii" and "Pigmentarii," who sold salves and pigments, but also dealt in drugs and other things. The "Seplasiarii" were shopkeepers who kept drugs, toilet accessories, and cosmetics chiefly, and there were some apparently who conjoined the sale of a great variety of articles, including wine, with that of drugs. In later times still the dealers in spices, "Aromatarii" and the "Confectionarii," seem to have been more specially engaged in dealing in medicines.

As time went on there was no doubt an increasing tendency on the part of physicians to employ outside help in the preparation of medicines, but the change in this direction became more marked when the Eastern physicians took up the work which fell from the failing hands of those of the Western world. The Arabian physicians added largely to the list of medicines used, and devoted much attention to the preparation and combination of medicaments, and owing to this, pharmacy was constituted as a separate work. According to Haeser, the true apothecary appeared first amongst the Arabians.

It is difficult to trace the rise of the apothecary in the Western world. Medicine sank to a low ebb in Europe after the fall of Rome, and when a revival took place the influence of the Arabian physicians on both medicine and pharmacy was very plainly seen. The custom of committing pharmacy into special hands spread from the East into Europe. Saladin, of Ascalon, physician to the Prince of Tarento, wrote a book about the middle of the twelfth century, for the use of the "Aromatarii," one of the names by which the compounders of medicine seem to have been known at this time; and in the thirteenth century the Emperor Fredrick the Second made regulations insuring the competence of the "Confectionarii," who acted as pharmacists at Salerno. Certainly in the thirteenth century we find in many parts of Europe the apothecary preparing the medicines which the physicians ordered.

Mr. Thompson, in his interesting 'Mystery and Romance of Alchemy and Pharmacy,' says that the earliest record of the apothecary in England seems to be of one Richard Fitznigel, who acted in that capacity to Henry the Second.

In 1345 we find in Rymer's 'Fœdera' a grant of sixpence a day to one "Coursus de Gangeland, Apothecarius," Londoniæ, for his care of King Edward the Third.

In Chaucer's time, a century later, the apothecaries are represented as vying with one another in preparing the medicines of the physicians. The doctor of physic, who is sketched in the Canterbury Tales, has his apothecaries.

> Full ready had he his apothecaries,
> To send his drugges and his lectuaries.
> For each of them made other for to win,
> Their friendship n'as not newe to begin.

The apothecaries held an intermediate position between the simple traders in drugs and the physicians. It is probable that some of them were at first assistants to physicians, and even at an early period they seem to have taken part in the treatment of disease. The majority dealt not only in drugs, but in other commodities, like the Pharmacopolists of Greek and Roman times. Indeed, as late as the sixteenth century we find them at times alluded to as Pharmacopolists.

The practice of medicine was to some extent regulated during the sixteenth century by Acts of Parliament, but pharmacy was in a deplorable condition until the early part of the seventeenth century. The apothecaries were in a subservient position, and their proper work, that of selling drugs and medicinal compounds, was much interfered with, for there were other classes who dealt in drugs and medicines. The grocers also sold them, and in the sixteenth century we find distillers and sellers of waters and oils and dealers in simples known as druggists, who supplied many forms of medicine. Another class connected with pharmacy had also arisen—the chemists. The introduction of chemical processes by the Arabs and the activity in research, largely due to a belief in alchemy, led to the production of many chemical substances having medicinal properties. Those who prepared them were known as chemists, and they, too, provided certain kinds of medicines. George Baker, a London surgeon, writing in 1576, says:—"I do know some excellent chemists, as one Mayster Kemmech dwelling in Lothburie, another Mayster Geoffray in Crouched Friers, men of singular knowledge in that way; another named John Hester, the which is a paynfull traveyler in those matters as I by proofe have seen and used of their medicines to the furtherance of my pacient's healthes, and also of one Thomas Hill."

Not only was the preparation and sale of medicines in many hands, but some physicians still carried on galenical operations, and themselves prepared the special formulæ they most commonly used. Moreover, owing to the method of prescribing in these times, the apothecaries did not get all the work which should have fallen to them. Certain formulæ known as "public medicines" were commonly ordered by the physicians. These, however, it was customary for the careful housewife to keep in stock, so that unless something special was ordered, the physician's prescription could often be compounded in the patient's house. No wonder then that the apothecary is described by Shakespeare as a man

> In tatter'd weeds with overwhelming brows,
> Culling of simples; meagre were his looks,
> Sharp misery had worn him to the bones.

And whilst, owing to competition, his profits were small, his education did not distinguish him much from others. He had, indeed, a certain amount of repute because he knew something of the action of drugs, and had, or was supposed to have, some knowledge of natural history generally.

> And in his needy shop a tortoise hung,
> An alligator stuff'd, and other skins
> Of ill-shaped fishes.

The fact, too, that he was acquainted with the action of poisons, and kept them in store, gave him a certain position which, however, could hardly be regarded as satisfactory.

In 1617 a great change took place. There was a feeling of dissatisfaction amongst the physicians with the condition of pharmacy, and a petition was addressed to King James the First, praying him to incorporate the apothecaries separately. In compliance with this petition a separate charter was granted in 1617 to 114 apothecaries who had been selected by the College of Physicians as the best instructed of the grocer apothecaries. It was set forth that no one should compound medicines in London unless he had served seven years to an apothecary and been examined and approved by the master and wardens of the Company, and a year later the first Pharmacopœia was published by the College of Physicians, which the apothecaries were ordered afterwards to use as their standard and guide in the compounding of medicines.

The constitution of the Apothecaries' Society had in several ways an important influence both on the practice of medicine and pharmacy. By it the apothecaries were made at first, at least, more useful to the physicians, to whom they to a certain extent acted as assistants, for, besides supplying the medicines ordered, they often aided in carrying out treatment; but in consequence of the establishment of this increased connection with treatment, they became in time recognised medical attendants. At this time the only qualified practitioners in medicine were the physicians, and the apothecaries undoubtedly supplied a much-felt want. It commonly happens when a new function is developed an older one fails, and the more the apothecaries attended to treatment the more dealing in drugs and medicines fell, first into the hands of the grocers, druggists, and chemists, but subsequently into those of the chemists and druggists alone. And this devolution of function went still further in the eighteenth century, for, as stated at a meeting of apothecaries in

1794, the establishment of druggists engaged in the sale of medicines, but supporting themselves also with the sale of other articles, had spread throughout the land, and there could scarcely be found a village or hamlet without a village or hamlet druggist.

You can well understand that these changes did not come about without serious controversies between the physicians and apothecaries on the one hand, and the apothecaries and the druggists on the other. The physicians bitterly complained that the apothecaries undertook the treatment of cases for which by their education they were not fitted. The apothecaries retorted that they were fitted to undertake treatment, for their experience concerning medicine was worth more than the learning of physicians. They, furthermore, stated that many of the physicians still made up their own medicines, and thus deprived apothecaries of their due revenue. They complained, too, that the druggists not only dealt in drugs, but compounded medicines without having had any education fitting them for this work, and that they even gave medicines for ailments, and thus competed with them in the matter of treatment, which the apothecaries thought was a very wrong proceeding. Attempts were made to prevent the apothecaries practising, but they were defeated by a judgment in the House of Lords in 1704, and ninety years later a proposal made by a society of apothecaries to limit the compounding of prescriptions and vending of pharmaceutical preparations to the apothecaries by legislative means was found to be impracticable. Indeed, the process of the transfer of pharmacy to the chemists and druggists seems to have gone on rapidly about this time. After the first few years of the present century it passed almost entirely into their hands, and the apothecaries ceased to dispense for the physicians.

It was perhaps to some extent owing to the curious evolution of apothecaries into medical practitioners and dealers in drugs, and chemists into pharmacists, that this country was so long without any regulations relating to the practice of pharmacy, such as have existed in other countries, and that until 1868 the practice of pharmacy was open to all, no restrictions, educational or otherwise, being in force.

I do not propose to enter into the history of the movement which culminated in the passage of an Act in 1868 preventing the dispensing of poisons, and the assumption of the titles of chemist and druggist by unqualified people, and necessitating, therefore, the due education of those devoting themselves to pharmacy. But, as a member of the medical profession, I desire to congratulate the Pharmaceutical Society on the honourable part it took in initiating and urging forward legislation, which has been advantageous alike to pharmacists and the public. The Act of 1868 was rendered possible by that which the Pharmaceutical Society obtained in 1852, and by the establishment of a museum, laboratories, lectures, and examinations in Bloomsbury Square, and when the Society of Chemists and Druggists joined forces with the Pharmaceutical Society the dislike which so many of our legislators seem to feel to enactments compelling education was at length overcome. Let me point out here that the General Medical Council, by representing to her Majesty's Government in 1864 the necessity of regulating the practice of pharmacy, and by a report issued in the following year gave material help to those who were engaged in pressing forward a Pharmacy Act.

I should like next to say a few words on another aspect of the evolution of pharmacy, the changes which have occurred in the nature of the work itself in our own country.

The Pharmacopœias.

These changes are best illustrated by the pharmacopœias which have been published in Great Britain, commencing with that of the Royal College of Physicians of London in 1618. The first English Pharmacopœias show the position in pharmacy which had been attained by the Greeks and Arabians, for a large number of the formulæ were taken from the works of their leading physicians. The main features of the earliest pharmacopœias are the large number of official substances, and of certain forms of preparations, the extreme complexity of many of the compounds used (one of them contains seventy-two ingredients and many from twenty to fifty), the minuteness of the directions given for compounding them, and the strangeness of some of their ingredients.

The catalogue for the first Pharmacopœia contained 1,254 articles for which the apothecaries were liable to be called upon. In 1632 not less than 180 simple and 27 compound waters were official, whilst there were formulæ given for 80 syrups and preparations of honey, 46 plasters, and 55 ointments, exclusive of sundry oils. One of these deserves quotation.

OLEUM VULPINUM,
MES.

R. Vulpem (quâ fieri potest) pinguem, ætatis mediæ, venatu defatigatam, recenterque occisam, mox et exenteratam, detractâque pelle, nec non ossibus diligenter confractis, in partes plures conscissam. Decoque in

Vini albi et
Aquæ Fontanæ ana libris sex.

Ad medietatem usque, nec sine diligenti despumatione in cocturæ principio: tum demum admisce.

Olei antiqui dulcissimi libras quator.
Salis communis uncias tres,
Florum Salviæ,
Thymi ana libram unam.

Procedatque coctio ad totius aquæ fere consumptionem. mox affundantur Aquæ impregnatæ

(Anethi,
Thymi, an. manipulo uno pleno incocto) libræ octo.

Denuo invicem coquantur omnia lento igne ad consumptionem aquæ: Oleumque ab aquositate post colaturam, infundibulo separatum, usui reservetur.

The details about the fox are very curious. The apothecary must have been a hunting man to be sure of obtaining the proper fat fox, or perhaps the apprentices of those days were told off to secure the right article. And note that the exact amount is given of the materials used to prepare the oleum vulpinum. In the handful of dill and thyme, however, we see a relapse into more primitive pharmacy, but generally the directions are most precise. When, as in many cases, from one to six dozen constituents were mixed together in various way to form one compound, it is manifest that the pharmacists of these early days had heavy duties. But, then, they had no chemical incompatibilities to consider, and the question of purity or impurity of a drug was decided in a very simple fashion. Many other curious and nasty things besides the fox are included amongst the medicines in the pharmacopœias of the seventeenth century, as, for example, human fat and the skull bones of a man who had met with a violent death. The apothecaries must have at times been hard put to it to obtain some of the official drugs, and pharmacists of the present day will not envy them their task of compounding medicines with them.

The pharmacopœias of the eighteenth century show a marked advance in both pharmacology and pharmacy. Chemical products increase in number, and the account of their method of preparation keeps pace with the advancing knowledge of chemistry. Almost all the substances of animal origin disappear, and the electuaries, powders, and other preparations containing a large number of ingredients are replaced by the simpler infusions and extracts. Tinctures increase in number, whilst the waters and syrups are greatly abridged.

In the first pharmacopœias of the nineteenth century we note the indications of a coming change, which greatly added to and altered the duties of the pharmacists. Previously only the mode of preparation of the various substances had been given, but in the pharmacopœias of the London College of Physicians published in 1809 and 1824 a few details are added with regard to the specific gravity which some of the chemicals should have. Though in commentaries on the Pharmacopœia tests for impurities had for some years been described, it was not until 1836 that short descriptions of chemical substances were given in the Pharmacopœia, by which they might be recognised, and by which to a certain

extent their freedom from adulteration might be ascertained. It is worthy of note that in 1836 several alkaloids were made official. In 1851 a further step was taken, and the compounders of medicines were furnished with an official description of some of the vegetable as well as some of the chemical drugs. In the production of the British Pharmacopœia of 1864, issued by the General Medical Council, the aid of the Pharmaceutical Society was sought, and a very great advance was made in the value and completeness of the tests and descriptions given. It was now assumed that the pharmacists had been so far educated in chemistry as to be able to conduct volumetric analysis, and the metric system was allowed in analysis. The tests and descriptions were made still more stringent and exact in the edition of 1885, and in this Pharmacopœia an advance of the greatest importance to pharmacy as well as to medicine was initiated.

Notwithstanding that our legislators have shown but little interest in forwarding the progress of pharmacy, and that no incentive has been given to original research, the pharmacists in Great Britain and Ireland have shown by the work published in the journals an immense amount of energy, not only in devising improvements with regard to the compounding of drugs, but in advancing knowledge as to the nature and amount of the active ingredients contained in drugs and preparations, and in devising methods by which the strength of preparations can be rendered uniform.

The labours of pharmacists and chemists had showed that however great may be the care exercised, the strength in active principles of preparations made in the ordinary way from drugs will differ considerably; they showed, too, that it was possible in the case of some drugs, by modifying the method of making the preparation, to bring them up to a certain standard so far as regard the active principles, and in the Pharmacopœia of 1885 the preparations of opium, cinchona, and nux vomica were standardised, whilst in that of 1898 the list of standardised drugs was increased by the addition of belladonna and ipecacuanha. The introduction of standardisation is a considerable addition to the skilled work required from the pharmacist, and it marks an epoch in both pharmacy and therapeutics.

The Present State and the Future of Pharmacy.

Having dealt very imperfectly, though I fear some of you may think at tedious length, with the evolution of pharmacy, I propose now to allude to some points in its present state and future prospects.

I approach this subject with hesitation, for I speak in the presence of eminent pharmacists. I should hardly, indeed, have ventured upon it here were not that it interests medical men as well as pharmacists and students, and that I know that some of the conclusions to which I, as a medical man, have arrived are in accord with those which have been expressed by pharmacists of large experience. You will have noticed that in recent years, with the publication of each Pharmacopœia, there has been a further call for scientific knowledge on the part of the pharmacists. It is assumed that those who use the Pharmacopœia have had a real and practical training in science, and the tests in the Pharmacopœia have not reached the high water mark of perfection. I do not mean by this that they require to be increased in stringency. I think, indeed, it is quite possible that some of the criticisms which represent certain of the tests as too severe may be found to be correct; but as time goes on, some of the cruder tests will be replaced by others requiring more chemical knowledge and more expertness for their performance, histological examinations will be increasingly relied on in the detection of the sophistication of vegetable drugs, and hence a wider and deeper knowledge of physics, chemistry, and botany will be called for.

I have already alluded to the introduction of standardisation as a considerable addition to the skilled work required from pharmacists, but I am inclined to look upon it also as a sign of other coming changes, which will very markedly affect the future of pharmacy. There are doubtless many who still believe that the active principles, which can be separated from vegetable substances, do not represent the entire curative power of drugs, that the natural combination of minute quantities of other principles present with those on which their activity seems to depend, exerts a subtle influence which renders the preparations of a drug more useful than the chief active principles which can be extracted from it or any possible artificial combination of them. In forming an opinion on such points, however, there is much room for the exercise of the imagination, and some of the differences now supposed to exist between the effects of preparations of drugs and their active principles are, I suspect, due to this. Anyway, it is certain that as the active principles and their exact pharmacological actions have become better known reliance on them has increased, and there has been a greater tendency to think of the preparations of such drugs as belladonna and nux vomica in terms of atropine and strychnine, whilst even in a drug like opium, which contains other active alkaloids, it is generally recognised that the value as a sedative at least is determined by the morphine. There can be little doubt that an important feature in the next Pharmacopœia will be the increased number of drugs standardised. Now between standardisation and the use of active principles, instead of crude drugs, there is only a short step, and though for many a day the galenical preparations which have been in vogue for centuries will be used, still they will, I think, be to a large extent gradually edged out by the active principles. The process has indeed already begun; the large number of granules, tablets, pilules, etc., now employed, containing fractions of a grain of active principles, points to a coming change, and the Pharmacopœia of 1898 has recognised this to some extent by laying it down that the drugs contained in the new forms must answer to the ordinary tests for purity. As the belief in the utility of active principles increases, pharmacists will be required to know more concerning the amount contained in drugs, what possible changes they may undergo inside and outside the body, and the exact chemical relationship between the various principles; they may be possibly called upon, too, for information as to the toxic effects of these principles; for all this they must be well and widely trained in science.

Another feature of the pharmacy of the present day is the great increase in the number of chemical preparations; a few of proved utility have been incorporated in recent editions of the Pharmacopœia, but an immense number built up chiefly by the German chemists, and supplied with the necessary recommendations, are being sent over for use by English doctors, who, for the most part, administer them simply on the faith of these recommendations. A large proportion will, I believe, be found less useful than the older remedies, and some have already been abandoned. Yet there seems no relaxation in the zeal with which new chemical remedies are tried. But for the intelligent employment of these compounds an idea of their chemical structure and its relation to their value is most desirable, while for their combination it is imperative. The pharmacist is often called upon now to give explanations of chemical points, and unless the present system of medical education is altered, and a real knowledge of chemistry and pharmacology made compulsory, a time must shortly come when the functions of the pharmacist will be greatly widened, and in addition to being an intermediary between the manufacturing chemist and the doctor for the supply of the new compounds, he will be an intermediary also for explaining to medical men who use these compounds (which are constantly increasing in complexity) the chemical reasons for their introduction and value, the changes which they may undergo inside and outside the body, and the dangers which may arise from these chemical changes. To fill this *rôle* the pharmacist will be obliged to have not only an advanced knowledge of chemistry, but some idea of physiological action.

Furthermore, if the claims made for the usefulness of some of the extracts of animal organs are made good, the pharmacist will, in the future, have to enter on the wide and intricate field of animal chemistry, which will tax his scientific knowledge even more than does the chemistry pertaining to products of the mineral and vegetable kingdoms.

The older methods of administering medicines by infusions, tinctures, pills and powders, will, I think, be less used, and the newer forms will increase in favour. So far the production of the latter seems to have been largely in the hands of wholesale manufacturers. I sometimes wonder whether it would not be possible for what are sometimes called the elegant forms of administration to be more freely made on a small scale. At the present time a medical man who desires to order medicine in one of these forms is often in doubt whether the preparation he desires can be obtained in reasonable time, unless it corresponds exactly to one of those on the lists of wholesale producers, and sometimes on this account he is driven to order other combinations than he would wish, and by naming the special producer to give the pharmacist much trouble for little profit. I will not enter further into this subject, but only say that I believe there is room in the future for a further development in the art of the pharmacist.

The considerations which I have brought forward, and others which might be urged if time allowed, point to the large amount of scientific knowledge which the practice of pharmacy will require in the future. But it may well be said, what about the other side of the question—will higher scientific education lead to a betterment in a pecuniary and social sense? Now it must be confessed that pharmacy like medicine, can rarely lead directly to fortune making. In medicine, part payment is taken in the pleasures arising from the work itself, and the pharmacist, too, will have to receive part payment from the pleasures of his scientific work, and the position which a knowledge of science will give him among his fellows. I do not suppose that pharmacists, any more than medical men, will ever be free from causes of complaint that unfair inroads are made on their work and emoluments, and that they do not receive a just reward for the amount of work they do. We have seen that from the earliest times the pharmacist has been harassed both on a commercial and on the medical and scientific sides. The work of the Pharmacopolists of old was trespassed on by the way in which other classes took to dealing in drugs, whilst the physicians undertook the compounding of medicines. Later on we find the apothecaries bitterly complaining of the losses entailed on them by the action of the physicians on the one side and of the grocers and druggists on the other.

The Pharmacopolists who combined the sale of drugs with that of other articles, took up a certain kind of medical work as well, and sank low in the social scale. The apothecaries have practically ceased to exist as pharmacists because they took up medical work and were evolved into general practitioners; how will the evolution of pharmacy proceed?

We may note already a loss of some of its older functions and a waning of others. The collecting of herbs has passed into special hands; so, too, has the dealing with drugs in bulk. The production of many medicinal substances, formerly undertaken by pharmacists, is now for the most part accomplished by manufacturing chemists, who use special processes adapted to work on a large scale. I think I see another change impending. The profit arising from the sale of many of the articles unconnected with pharmacy, formerly a source of revenue to pharmacists, is likely to diminish, especially in the large towns; the pharmacist cannot compete with the huge firms which have in recent times become dealers in everything.

But there are other directions in which the work of the pharmacists will develop; the compounding of drugs ought to pass into their hands, and I believe will do so. The practice of pharmacy by doctors is not only an evil to the pharmacist, but a disadvantage to medical men themselves. It leads practitioners to limit themselves unduly to the use of certain drugs, and they lose time which might be devoted to other and more profitable matters. It is true there are many who like to have their medicine from a doctor, but I believe medical men would gain if, wherever possible, they gave up dispensing, and there are few places in which there are not pharmacists ready to take up the work.

Here let me say a word on a matter akin to the one before us. It has been recently stated that secret arrangements are at times made between medical men and chemists, by which the doctor receives a certain proportion of the amount which the chemist charges the patients for the medicines dispensed. If such arrangements are made they are iniquitous and a disgrace to those who make them. I have made enquiries, however, from many chemists in the North of England, and am assured that no such system exists there, and so far those who have made the accusation have failed to substantiate it. It is possible, of course, among the 34,000 members of the profession there may be one here and there so devoid of principle as to be willing to stoop to such conduct. All I can advise you is, that should you ever be approached by such an individual, with a suggestion that you should hand him over any part of your charges for medicine, you should render his exit from your place of business more rapid than his entrance.

I believe not only will the whole of the duties connected with the compounding of medicine devolve before long on the pharmaci ts, but other functions will be taken up by them which pertain to science training, though they are not strictly pharmaceutical, just as in the case of medical men other functions have been taken up which are not distinctly connected with therapeutics, although they follow from medical training.

The chemical investigations which are becoming more and more essential to medical practice might well, I believe, fall into the hands of the pharmacists, as they do into the hands of the chemists and apothecaries in many parts on the Continent, and not only so, but if I divine rightly the future, the pharmacists will in all places be the men of science, the men who *know*. They will be looked up to as such, and it will come to pass that much other work, more or less allied to pharmacy and chemistry, requiring scientific knowledge, will fall into their hands, and they will be remunerated for the lo s of some of the emoluments arising from the purely commercial side of their present work, which I think is likely to occur. I think that even the depressing effects of company pharmacy will be much lessened as the pharmacist becomes more relied on by medical men, not only for safe-guarding the purity of drugs, but for giving help when special information is required on scientific points not directly connected with the cure of disease.

There is one direction in which the temptation to conjoin other work with the compounding of drugs must be avoided. The history of the evolution of pharmacy shows us that there has ever been a tendency for those who deal in drugs to take up treatment, but it also shows us the work of the pharmacist is injured if he assumes the *rôle* of medical practitioner. I know that people will apply to pharmacists for advice as to the use of medicine, but those who give such advice do not obtain the respect of the public, and do harm to the position of pharmacists. If pharmacy is to take the position it is entitled to, all attempts in this direction must be abandoned.

Education.

I have watched with interest and admiration the efforts of the Pharmaceutical Society to improve pharmaceutical education. But if my forecast of the future of pharmacy is correct, further

further educational changes will be required, and I trust I shall not be regarded as wandering out of my proper domain if I venture to make a few remarks on the question of education and examination in pharmacy.

With regard to the Preliminary Examination, I am glad to see the Pharmaceutical Society is following the examples of the various medical corporations, which, with one exception, have ceased, or are ceasing, to hold examinations in Arts, and that the certificates of a satisfactory general education must in future be obtained from bodies which are connected with Arts education and examination; but I hope that in time it may be ordained that these certificates should be furnished before apprenticeship commences. I am not in favour of very rigid rules with regard to the time and manner in which information is to be obtained; but education should be graduated, and the first step should be education in Arts, which should be acquired, not in the middle of, but antecedent to, the commencement of the real work of a pharmaceutical student.

At the present time the final education in the purely science subjects, botany, chemistry, and physics, for the qualifying examination is usually received by pharmaceutical students at the same time as the more technical subjects of pharmacy, pharmaceutical chemistry, and materia medica, and an examination in all at one time follows. The fact that pharmaceutical students pass through an apprenticeship before commencing with formal instruction, renders this mixture of subjects possible, but all men do not come up equally prepared, and some must take harm from it. I think that for the more thorough training in science, which is becoming necessary, an educational division of the subjects will be desirable for all. At present there is no curriculum, and students are tempted to spend as short a period as possible over lectures and laboratory work. The shorter the time men take to acquire knowledge of the subjects of examination and the greater the number of these subjects the less will be the amount of knowledge retained subsequently. I am quite satisfied it would be greatly for the advantage of all if a curriculum were established and students were obliged to distribute their work over a definite period, receiving instruction in science first, and then in the more technical subjects. My belief is that a year at least should be devoted to the science subjects, and that even this will be found all too short for that thorough grounding in science which a pharmacist requires. The lengthening of the educational period would allow of some wider knowledge of physics, and perhaps of some biological training. Moreover, it would allow of all education being practical.

A second year might be devoted to technical training and to the acquirement of a fuller knowledge of organic chemistry, and I think it will become necessary that the technical training be widened, and that instruction should be received in urine analysis, bacteriological analysis of foods, toxicology, and some other subjects. But even if the scientific and technical training be not widened, a two years' educational course for pharmaceutical students is very desirable. I may add that at the Owens College we find little difficulty in inducing most of the students to distribute their work over two years, and that this distribution is a great advantage to them.

The commingling of many subjects has been found to produce unsatisfactory results in medical examinations, and I think it is equally injurious in those connected with pharmacy. I note that the rejections at the minor are extremely high, and though defective methods of education may be to a considerable extent the cause of this, I am inclined to think that it is to some extent the necessary result of combining so many subjects in one examination.

The examination should be divided into at least two parts; there are many objections to the inclusion of all subjects in one examination. It leads to a system of cramming, even though the examination be to a considerable extent practical, for there is a system of cramming for practical as well as for oral examinations. It is a premium on what may be called the examination mind, which is not the highest kind of mind. It is often a hardship on the student who works well and honestly, but, above all, it prevents men working well at any one subject, for excellence in one does not necessarily cover a slight but fatal failure in another at the examination, and, indeed, may lead to it.

The excellence of the Major Examination as at present carried out leads me to think that the work of preparation for it might be utilised for obtaining a science degree in pharmacy. My impression is, and in this I am supported by others better able to judge than myself, that the knowledge required in some of the science subjects is quite equal to that which is necessary for a degree in science, and I look forward to the time when the universities will give a science degree in pharmacy, as they do now in engineering and some other subjects.

I am afraid you gentlemen who are students will think I have forgotten that in the early part of this address I said that I came here to welcome, advise, and congratulate the students of this School, and I acknowledge that the remarks I said I should make on pharmacy and pharmaceutical education have grown to an inordinate length and somewhat crowded out the other part of the work I proposed to myself. But a welcome I am sure you hardly need from me. I know what an interest all your professors take in those who come to work here, and with what kindly feelings they receive you, whether you come as past students or for the first time.

As to advice, my whole address has been devoted to indicating the general course you should adopt in order that you may be successful in life, but there is one thing further I should like to impress upon you who have just finished your work here. Remember that your education is not ended, but beginning; that you must be always adding to your knowledge, otherwise you will surely fall behind in the race of life. And do not be content simply to absorb the knowledge acquired by the work of others, but try yourselves to add to the sum total of knowledge. It may not be possible for many of you to take up work in the admirable laboratories which have been provided for research by the Pharmaceutical Society, though if you have a chance of so doing let me strongly advise you to take it. But cultivate exact observation, for by so doing you will not only advance your own interests, but by adding to knowledge you may advance the interests of your fellow men.

It is customary on occasions like these to advise students who are entering for the first time to devote themselves to work, but my experience of pharmaceutical students is that they do not require this advice, at least at the Owens College we find them amongst the hardest and steadiest workers of those who attend the classes, and if there are any among you who require urging to work, I would give you a different piece of advice—don't be pharmacists. Hard work will be always necessary, and without it you will assuredly fail.

With regard to you who are joining the School, I can very heartily congratulate you on the advantages you will have. You will work under some of the ablest men of the day in their special department, and I know that so far as laboratories and the Museum are concerned, you could nowhere find a better place to work in.

To those who have gone through the course here I offer my congratulations, because I feel sure that they have received great advantages and an education which will stand them in good stead through life.

Finally, I wish to congratulate those who have taken prizes and honours. Prizes may not be a certain sign of future success, but they point in that direction, and I trust that you who have gained prizes may show in your future career that your success was not the outcome of chance, but due to industry and ability.

PHARMACEUTICAL SOCIETY.

RE-OPENING OF THE SCHOOL OF PHARMACY.

The opening proceedings of the School of Pharmacy took place on Monday, October 2, in the Lecture Hall of the Society, when a large gathering of past and present students, members and friends, amongst whom were many ladies, assembled. The chair was taken at 3 o'clock by Mr. W. Martindale, President of the Society, who commenced the proceedings by announcing, with great regret, that the Secretary was unable to be present, owing to severe family bereavement, and that Professor Greenish also was that day attending the funeral of his father, a former President and Treasurer of the Society, and for many years a member of the Council.

Presentation of the Hanbury Medal.

The President said the first business of the day was the presentation of the Hanbury Medal. He said: This medal was established in memory of our esteemed countryman Daniel Hanbury, and is awarded biennially for high excellence in the prosecution or promotion of original research in the chemistry and natural history of drugs. It has been awarded to such illustrious men as (1) Flückiger, (2) John Eliot Howard, (3) Dragendorff, (4) William Dymock, (5) Gustave Planchon, (6) Hesse, (7) Maisch, (8) Vogl, and (9) De Vrij. The award is made by the Presidents of the Linnean, Chemical, and Pharmaceutical Societies, and of the Pharmaceutical Conference, with a pharmaceutical chemist in addition. Our choice this year has fallen upon Herr Geheimrath Albert Ladenburg, Ph.D., Hon. M.B., and Professor of Chemistry at the University of Breslau. He is best known to English pharmacists by his synthetic work in the production of homatropine. On splitting up atropine, tropic acid and tropine can be formed as derivatives; the latter he combined with amygdalic acid to form a compound which is easily converted into oxy-toluyl-tropeine or homatropine, an artificial alkaloid which, with its salts, has proved of the greatest service to ophthalmic surgery. His mathematical method of treating synthetic formulæ, and his prismatic benzene ring, place him in the first rank of chemists as a theorist, while, as regards his practical work, on looking through his long list of communications to scientific societies and literature at home and abroad, we notice articles on "The Valency of Nitrogen," on "Synthetic Alkaloids," on "The Relationship between Hyoscyamine and Atropine, and the conversion of one alkaloid into the other," on "Hyoscine," on "The Mydriatic Alkaloids Occurring in Nature," on "The Synthesis of Coniine," and "On the History and Constitution of Atropine," in addition to the compilation, with other collaborateurs, of a dictionary consisting of more than a dozen volumes treating on inorganic and organic chemistry. As an indefatigable worker and investigator, we have, therefore, few who are his equal. Further, his investigations on atropine, hyoscyamine and hyoscine have been the subjects of spirited discussions by other chemists who have followed him. I had the pleasure of being introduced to him by Dr. Thorpe at the recent meeting of the British Association at Dover, and he expressed regret at his inability to be present on this occasion, his duties at Breslau necessitating his early return to Germany. The medal will, therefore, be forwarded to him through the German Embassy, and Baron von Mirbach, representing the Embassy, has been kind enough to come here to take charge of it. I had the pleasure of receiving a letter from Dr. Ladenburg this morning, in which he says: —

Dear Sir,—It is with great regret that I have not been able to appear personally at the annual meeting of your Society on Monday to be awarded the Hanbury Medal; but I want to express to you, Mr. President, and to the members of the Pharmaceutical Society, on this same day, my best thanks for the great honour you have conferred upon me, a distinction I am proud of.

I shall announce to you the receipt of the golden medal as soon as it will be delivered to me.

You will have a copy of my paper I read in Dover in a few weeks, as the definite print will not be ready before.

Allow me to express to you the pleasure of having made your acquaintance at Dover, and I hope it will not be the last I saw of you.

Yours truly,

Kaiser Wilhelmstrasse 108. Albert Ladenburg.
Breslau, Sept. 29, 1899.

The President having handed over the gold medal,

Baron von Mirbach said he was quite sure it would be highly appreciated by the recipient.

The Dean's Report.

Professor Norman Collie, Dean of the School, who was next called upon to read his report, said that during the fifty-seventh session of the School of Pharmacy sixty-eight students had attended the various lectures and practical classes. In the chemical department the work throughout the year had been carried on satisfactorily, both by the ordinary students and those engaged in research. At the beginning of the session, owing to the chemical laboratory being entirely full, additional room had to be found; this was done by Professor Greenish vacating the octagonal laboratory, which was then handed over to the chemical department. Since then a further enlargement had been made, a number of new benches having been added to the chemical laboratory, making it possible for more students to work there. During the past year the attendance at the lectures and practical classes had been excellent. Also during the past year several changes have been made in the demonstrators in the chemical department. The staff regret that it has lost the services of Mr. Dewhirst and Mr. Frye, owing to their promotion; their places have, however, been efficiently filled by Mr. Wallis, a former student and prize man, and Mr. Gompertz. In this department the Sessional Silver Medal for Theoretical Chemistry was taken by Mr. T. E. Wallis, and the Certificates of Honour were awarded to Mr. H. Payne, who has also gained the Pereira Medal, and to Mr. W. J. Spurway. The Sessional Silver Medal for Practical Chemistry was awarded to Mr. W. L. Nundy, and Certificates of Honour to Mr. T. E. Wallis and Mr. G. Pattison. At the end of the elementary course the Bronze Medal for Practical Chemistry was awarded to Mr. T. W. Maddison, and Certificates of Honour to Mr. C. H. Baker and Mr. W. T. Ransom. In Theoretical Chemistry Mr. T. W. Maddison was awarded the Bronze Medal, and Mr. J. F. Snook and Mr. G. A. Taylor received Certificates. In the Research Laboratory Mr. E. M. Chapman has been awarded the Salters Scholarship, and Mr. W. Garsed the Burroughs Scholarship.

Professor Green reports that the attendance and attention of the students during the session were satisfactory. The medals and certificates were awarded as follows:—Major Course—Silver Medal, Mr. Wallis; Certificates of Honour, Miss Magan and Mr. Garsed. Minor Course—Bronze Medal, Miss Annesley; Certificates of Honour, Mr. Finnemore and Mr. Gray.

Professor Greenish reports that in materia medica forty-five students had entered for the Elementary Course and fifteen for the Advanced. In both classes the work had been well sustained throughout the session, the attendance being better than any previous session. In the Elementary Course Mr. H. Finnemore had carried off the Bronze Medal, and Mr. P. Gray and Mr. N. E. Melbourn the two Certificates of Honour. In the Advanced Course the Silver Medal had been awarded to Mr. H. Payne, and Certificates of Honour to Mr. T. E. Wallis and Mr. W. Garsed. The pharmacy class had also been well attended, forty-five students having been entered. In this class the work had been diligently carried on, and the attendance was no less satisfactory than in the materia medica. At the termination of the course the Silver Medal was awarded to Mr. T. W. Maddison.

The President then presented the prizes and certificates, as mentioned in the above reports, adding a few words of approbation and encouragement to the various recipients.

The Herbarium Competition.

Professor Green being called upon to report of the Herbarium Competition, after briefly describing the conditions imposed, pointed out the value of field botany as an introduction to the science. The points to which the examiner looked chiefly were not simply the number or rarity of the specimens—indeed, rarity scored rather against the collector—the plants should be those of common occurrence, and should be selected to illustrate as many natural orders as possible; secondly, they must be typical plants of the orders, and must represent the plant at different times of its life—it should be submitted in fruit as well as in flower, so as to form a complete picture of the organism. These points he was sorry to say were not always attended to. On the present occasion Mr. Bennett, of Dover, had sent in a collection of very high merit from all these points of view, and he had advised the Council to award him a Silver Medal. The other competitors showed considerable assiduity, but in many cases overlooked some or other of the points he had mentioned, and he was not able to recommend them for recognition.

The President having presented the Silver Medal to Mr. Bennett, Professor Thomson was called on to report on the examination for

The Council Prizes.

He said: On behalf of the examiners in the competition for the Council Prizes I have the honour to report that eleven candidates entered for the examination. In materia medica the papers, as a whole, were well done, showing an intimate knowledge of the literature of the subject. The replies of most of the candidates gave evidence of careful training and steady work. The papers of the three prizewinners indicated a wide range of reading, together with such a grasp of the subject as can only come from accurate observation and direct experiment. This was especially seen in the case of the paper of the winner of the Pereira Medal. In botany the papers were, on the whole, satisfactory; the better ones being of distinct merit. In chemistry the papers of the candidates getting the highest marks were very good indeed. The majority of the papers were satisfactory, but a few disappointing, in one or two cases coming below the standard of the Major Examination. The result of the examination, however, was satisfactory.

The President, previous to presenting the Pereira Medal to Mr. Payne, explained the origin of the prize, and remarked that eminence in pharmacy could only be attained by patient and long continued hard work.

The Jacob Bell Scholarships.

Mr. Lucas was next called on to report on this examination. He said: It is a great pleasure to me to take part for the second time in the examinations for the Bell Scholarships. I am sorry that my colleague Mr. Pinches is not here to-day to report for himself, and I must therefore do the best I can to report for us both. Before proceeding to the statistics of this year's competition, it is desirable to point out that a change has been made in the examination so far as the scientific subjects are concerned. Not a radical change, but rather a modification in the direction of a better definition of the standard to which competitors are expected to attain. Hitherto, these subjects have been defined as "Elementary Chemistry, Botany and Pharmacy," but the Council deeming it inexpedient to leave the interpretation of "Elementary" an open question, recently substituted in the regulations the following paragraph:—

> Botany, chemistry, and pharmacy, based upon an elementary knowledge of the principal chemicals, drugs, and processes of the British Pharmacopœia, such as a student may be reasonably expected to have acquired during his apprenticeship.

With a view to keeping the examination within the limits contemplated by the new regulations, the Council further decided that the technical examination should no longer be divided into three parts, each having separate examiners and each being independently appraised, but that botany, chemistry, and pharmacy should be regarded as one subject and be conducted by one examiner. My only colleague, therefore, has been Mr. Pinches, of the College of Preceptors, who has again set and examined the papers in the school subjects. As the first technical examiner under the new arrangement, the work of the candidates has been invested with especial interest, and I am glad to say that, speaking generally, the papers submitted were of a satisfactory nature, in so far as they bore little evidence of that *special preparation* or *cram* which the Council desires to discourage. Many of the answers showed a considerable degree of merit, and indicated that the student must have worked intelligently and industriously during his term of pupilage. Turning now to statistics, there were twenty-seven competitors for the Bell Scholarships and four for the Manchester Scholarship. Last year I find there were twenty-five for the Bell and two for the Manchester. Of the twenty-seven competitors for the Bell scholarships, no less than ten obtained two-thirds of the maximum number of marks, and the two who came out first obtained 80 per cent. of the maximum. There is something particularly gratifying in the fact of the first of the two scholars this year being Mr. Harold Deane, a grandson of a former President of the Society. I would, however, remind him that his fellow scholar, Mr. Heslop, came close at his heels. With regard to the Manchester Scholarship I am sorry to have to report that none of the four competitors came anyway near the standard required for the award of the Scholarship. According to Mr. Pinches' return not one of them merited a single mark in arithmetic, and in the other subjects they exhibited lamentable weakness. The competitor who did best in the whole examination only obtained slightly over 30 per cent. of the maximum number of marks. This unfortunate condition of affairs will, it is hoped, be remedied by the students in the Manchester District before the next competition. Weakness in arithmetic was also a prominent feature in the Bell competition, and this appears to me to point to a serious defect in the educational equipment of young men who are entering a calling in which ability to perform accurate calculations is an absolute essential. I speak with the painful experience acquired in the examination of Minor candidates, and if I am going outside the strict limits of my duty as a reporter on the Scholarships in alluding to such a defect, it is simply because I feel strongly on the subject, and am persuaded that publicity may produce some improvement.

The President, having suitably exhorted the winners of the Bell Scholarships, and handed them the books which accompany these prizes, and announced the names of the Salters' Research Fellow and Burroughs' scholar for the coming session, called upon Dr. Leech to give the Inaugural Address, which is printed at page 333.

The President, in proposing a vote of thanks to Professor Leech, said the Address had touched upon many points of great interest, not only to students entering the School, but even to those who had borne some of the heat and burden of the day. The employment of some animal substances as materia medica, such as cockroaches and Spanish flies, seemed to be gone out, but others had come in, and parts of animals were now used which a few years ago would have been entirely discountenanced. Reference had been made to the mode in which the art of medicine was formally carried on in the East, and he believed it still prevailed to a certain extent; at any rate, when he was in Cairo, some few years ago, he saw very much what had been described. They would all welcome the advance of scientific medicine in the direction of greater exactness and further standardisation, but there was a limit even to that. In the case of food it would be hardly possible to insist on a certain proportion of albumin, gelatin, etc., in a beef steak, and certain simples were often of great service in medicine, and he believed would play their part in it to the end of time. He was pleased to hear what Professor Leech said with regard to degrees in science for pharmacists, but he was inclined to think it would be better for them to take a degree in pure science, if it were open to them, without having to take up a branch of applied science. If, for instance, zoology were omitted from the examination for B.Sc., he believed a great many pharmacists would go in for it. They were much indebted to Professor Leech for his valuable address, which would afford much food for reflection.

Mr. Carteighe, in seconding the proposal, said he should like all present to bear in mind that they were indebted to Professor Leech, not only for his admirable address, but also because he represented that high type of physician who, while keeping himself in touch with his own special department of science, had also taken a deep interest in materia medica and pharmacy. He had succeeded in establishing in Owens College such conditions that anyone in the neighbourhood could go through an entire curriculum in all the subjects required for the examinations of the Pharmaceutical Society. He hoped the time was not far distant when the enforcement of such a curriculum as he had described would be practicable, and when in every great city where there was a University College young men who had been apprenticed in the neighbourhood, who had attended the science lectures and practical demonstrations there, would be able to come up and pass the examinations as easily as those who attended the course of instruction in that building. It was obvious now that education was so much in the air that the mere smattering of knowledge which used to suffice for passing an examination would not do in future. Professor Leech had been telling them what he as an ex-President and Examiner had been saying for over thirty years. It was no good mincing matters; those who entered pharmacy must be properly trained and educated; if they could not fulfil the requisite condi-

tions they would be nowhere in the race. Pharmacy was always undergoing a process of development, and Professor Leech had done infinite service, both to the students and members, in pointing out some of the possibilities of the future. The Council were deeply indebted to him for his unwearied efforts, under great difficulties, to secure at Owens College a complete system of pharmaceutical education, and he was pleased to have that opportunity of tendering him their warmest thanks.

The vote of thanks having been carried by acclamation,

Professor Leech, in responding, said he had always taken great interest in pharmaceutical education, and was pleased to think that he had been the first to provide a complete course in connection with a University College. He was also gratified to find that the idea had taken root in other places—Liverpool, Birmingham, Sheffield, and Nottingham—and he believed that in a short time similar opportunities would be afforded in all the leading towns. It had been a great pleasure to him to come amongst them, and he hoped both the School and its students would have a prosperous career.

The proceedings terminated by an adjournment to the Examination Hall for light refreshments and conversation.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, OCTOBER 4, 1899.

Present:—

Mr. W. Martindale, President.

Mr. G. T. W. Newsholme, Vice-President.

Messrs. Atkins, Bateson, Carteighe, Corder, Cross, Glyn-Jones, Harrington, Harrison, Hills, Johnston, Park, Savory, Southall, Storrar, Symes, Warren, and Young.

The minutes of the previous meeting in August were read and confirmed.

Dr. Symes asked if any further communication had been received from the Privy Council with regard to the question of placing carbolic acid on the Poison Schedule.

The President said nothing further had been heard as yet, but he believed the matter was receiving the consideration of the authorities.

The Late Mrs. Richard Bremridge.

The President said they had to excuse the absence that day of the Secretary and of Mr. Allen, who were attending the funeral of Mrs. Bremridge, and he would ask the Vice-President to move a resolution on the subject.

The Vice-President moved: "That the Council desires to express its sense of sincere sympathy with the Secretary and Registrar, and with Mr. C. B. Allen, on the death of Mrs. Bremridge." It was not necessary to say anything to commend this resolution to the Council, for every member must sympathise very deeply with the Secretary and Mr. Allen. The occasions on which Mr. Bremridge had been absent from the Council were very few, and they would all hope that his health, which had not been very vigorous lately, would soon be completely restored.

Mr. Cross seconded the motion, which was at once carried unanimously by the members rising in silence.

The Late Mr. Thomas Greenish.

The President announced the death of Mr. Thomas Greenish, at the age of eighty-two, which took place on September 28. Mr. Greenish was a student of the Society from the year 1846 to 1847, and took the Pharmacy Prize in 1847, and became a member of the Society in the same year. He was elected a member of the Council in 1871, acted as Treasurer for the years 1878, 1879, and 1880, and President for the years 1880 and 1881. His term of office as President was rendered memorable by a meeting of the International Congress of Pharmaceutists in London in 1881, and by the legal proceedings against the London and Provincial Supply Association, Limited. He retired from the Council in May, 1895, owing to failing health. The late Mr. Greenish was a typical pharmacist, and had shown the interest he took in pharmacy, particularly with regard to a few pharmaceutical preparations, one of which being syrup of phosphate of iron. In his early days he was an amateur photographer, being a skilful manipulator in the wet plate process, but was latterly better known as a microscopist, and had taken up the histology of drugs. Mr. T. Greenish, who was also a frequent traveller on the Continent of Europe, left a distinguished son, a professor of the Society, with whom and the family of the deceased the Council wished to express their sympathy in their bereavement. He concluded by moving the following resolution:—"That the Council learns with deep regret the death of Thomas Greenish, who had filled with dignity, energy, and ability the responsible offices of Treasurer and President of the Society. During a period of nearly a quarter of a century he conscientiously served the Society as a member of the Council, securing by his unremitting devotion to the duties the grateful recognition of the members of the Society and the high regard of his colleagues. His personal qualities endeared him to a large circle of friends, who feel his loss, but who will long hold his memory in affectionate remembrance. The Council desires to officially record its high appreciation of the work and character of Thomas Greenish, and to tender its sympathy with his family."

The Vice-President seconded the proposition. He said the whole of the long life of the late Mr. Greenish had been full of work for pharmacy and science. It had been his pleasure to make Mr. Greenish's acquaintance in the year 1886, when he came to Sheffield to deliver the inaugural address. Although Mr. Greenish had been away from the Council for some time, the members had had many opportunities of meeting him since he retired from their body. He thought Mr. Greenish was one of the first men who applied the use of the microscope to materia medica, and from his labours had grown up the great work now being done in the histology of drugs.

Mr. W. Hills said he was one of the few remaining members present on the occasion of Mr. Carteighe being elected President as the successor of Mr. Greenish, and he wished to express his personal regard for the late Mr. T. Greenish, as a thoroughly representative pharmacist, a liberal supporter of the Pharmaceutical Society, a kind, generous, and honourable man.

Mr. Atkins said the President had given a very interesting sketch of the pharmaceutical history of the late Mr. T. Greenish, who had passed away to his rest full of years and honour.

Dr. Symes said he should like to add a word, as he was a member of the Council during Mr. Greenish's presidency. He also accompanied him on his first visit to Paris, when, though they were simply taking a holiday, having obtained introductions, they were able to visit and inspect several of the larger pharmacies and factories, and he was much struck with the keen interest which Mr. Greenish took in all pharmaceutical matters, and his great powers of observation, which enabled him afterwards to discuss what they had seen. He had the greatest respect for Mr. Greenish, who devoted his whole life to pharmacy, and had left his footprints on the sands of time.

The President, in putting the resolution, which was carried in the same way as the previous one, reminded the members that a biographical notice of Mr. Greenish, giving more particulars than he had been able to enter into, appeared in the Journal for November 12, 1898.

Decease of Honorary Members.

The President said they had also to regret the death of three honorary members since the last meeting, of whom he spoke as follows:—

Anton von Waldheim, died August 9, aged sixty-nine. He was probably the best-known Continental pharmacist in British pharmaceutical circles, and was styled the "Father of Austrian Pharmacy" by his fellow countrymen. His connection with the work of the International Pharmaceutical Congress, and his interest in the compilation of an International Pharmacopœia, are matters of history which are in every pharmacist's knowledge. He attended most of the meetings of the Congress, and had sufficient faith in the possibility of an universal medicine book as to draft an embodiment of his ideas on the subject. The subsequent fate of the draft is unfortunately wrapped in mystery. Herr von Waldheim was present at the London meeting of the Congress in 1881, when he represented the Austrian Pharmaceutical Society, of which body he was then Vice-President. There is a melancholy interest in recalling that the President of that Congress meeting was our dear old friend Thomas Greenish, whose death I have already had the sorrowful duty of announcing to you to-day. Herr von Waldheim had been an honorary member since 1887, and was a typical apotheker, having been born in the profession, so to speak (for his father was an apotheker), and he passed nearly the whole of his life in the Viennese "apotheke," which he inherited. For some time in his early life he learned English pharmacy in the establishment of Messrs. J. Bell and Co., Oxford-street. Personally I met him and fraternised a good deal with him in 1881, during the meeting of the Pharmaceutical Congress, and again in 1884 in

Vienna, during the first International Pharmaceutical Exhibition. His genial and polished manners attracted everyone to him with whom he came in contact.

Sir Edward Frankland, F.R.S., died August 9, in Norway. His connection with the Society as an honorary member dates from 1862, at which time he had already won a prominent place in the scientific world as an original worker in pure chemistry. His chief work has been in the direction of organic analysis and synthesis, and in investigating the problems of physico-chemistry. He was Professor of Chemistry at Owens College nearly fifty years ago, and subsequently held professorial appointments at St. Bartholomew's Hospital, Royal Institution, Royal School of Mines, and the Royal College of Science. He showed considerable interest in our Society's educational work, and was a member of the Research Committee. Perhaps that interest may have arisen from the fact that in his youth he had been for some time associated with a Lancaster chemist and druggist. Sir Edward was seventy-four years of age. His work on sanitary sewage science and water supplies has made his name a household word wherever English is spoken.

Dr. Kanny Lall Dey, Rai Bahadoor, C.I.E., died at Calcutta on August 16, 1899. He was elected an honorary member of the Society in 1863, at which time he was Professor of Chemistry in the Calcutta Presidency College, and was prominently associated with chemical teaching in India. He filled in succession nearly every post of importance in connection with the scientific work promoted by the Indian Government. But his chief claim to distinction lies not so much in his educational work in chemistry as in the valuable investigations on the medicinal resources of India, which he commenced as far back as 1862, and continued almost to the close of his life. His great work was the collection of descriptive notices on Indian medicinal products, published under the title of "Indigenous Drugs of India," and as a recognition of this Society's encouragement to workers in the field of pharmacognosy, Dr. Dey prefaced his book with a dedication to the Pharmaceutical Society of Great Britain. He was a F.C.S. of London, and had received the diploma (*honoris causâ*) of a number of foreign scientific bodies.

The list of hon. members had thus been reduced by three, and the Council would next year have to consider how it should be filled up. He would suggest that he be authorised to write to the respective families of these distinguished men, condoling with them on their loss.

This was unanimously agreed to.

Election of Members.

The following persons having tendered their subscriptions for the current year, were elected "Members" of the Society:—

Baker, George Bertram; Sheffield
Bones, Arthur Anderson; Coventry
Bray, William John; Romford
Bryan, Howard William; Marshfield
Carr, James Bonwell; Weston-s.-Mare
Chadwick, Milner Bright; Manchester
Coleman, Joseph; Stansted
Cowling, Ernest; Wallingford
Davis, John Butler; Blackheath
Dring, Henry; Wymondham
Hardern, A. E.; Barrow-in-Furness
Jones, David Jordan; Barking
Legge, H. G. B.; Nottingham
Maddison, T. W.; Hebburn-on-Tyne
Maugham, Thomas; Brisbane
Mays, Sydney Walter; Reading
Mushet, Robert; Kilmarnock
Owen, Thomas Pritchard; Pentre
Read, Thomas; Sandwich
Scott, Samuel; Barrow-in-Furness
Stokes, Charles Albert; Bristol
Venables, Samuel Henry; Gorleston
Weiss, Richard; Houndsditch
Wilson, William Smith; Moffat

Election of Student-Associates.

The following persons having passed the First examination, and tendered their subscriptions for the current year, were elected "Student-Associates" of the Society:—

Bateman, Arthur R.; Christchurch
Benson, Sydney; Wigan
Brown, Benjamin J.; Leamington
Bryson, Robert D.; Walker Burn
Campbell, Collin; Ardrishaig
Earl, Fred Greenwood; Eccles
Furber, John; Bowes Park
Hilton, Norman R.; Coventry
Hodgkiss, Thomas W.; Ilkeston
Hopkins, Sherriff B.; Birmingham
Isherwood, Joseph E.; Blackburn
Jones, John Ellis; Penycae
Kenway, Bertha Anne; Bristol
Knight, Alfred W. P.; Wincanton
Laws, Karl A.; Newcastle-on-Tyne
Lindley, James Albert; Prescot
Longstaff, William C.; Houghton
Lowndes, Ernest A.; Birmingham
McCrae, A. C.; Newton Stewart
McLaren, Donald L.; Dollar
Morris, Skone R.; Haverfordwest
Nicholson, George; Kirkby Stephen
O'Hara, Thomas; Nottingham
Proctor, Samuel Hugh; Halifax
Readley, Robert; Jarrow-on-Tyne
Robinson, Alfred E.; Norwich
Robinson, George K.; Barnsley
Sambrook, John Thomas; Monmouth
Shepherd, Ernest F. G.; Lancaster
Stables, John; Doncaster
Thornewell, Albert R.; Birmingham
Tout, William Henry; Plymouth
Walker, William Towler; Settle
Watson, William Reid; Shetland
West, Francis Paynter; Liskeard

Restoration to Register.

The name of the following person, who has made the required declaration and paid a fine of one guinea, was restored to the Register of Chemists and Druggists":—

George Frederick Tuck, 3, The Pavement, East Ham, E.

Several persons were restored to their former status in the Society upon payment of the current year's subscription.

Finance Committee.

The report of this Committee was read, including a recommendation that various accounts be paid.

The President moved that the report and recommendations of the Committee be received and adopted, which was carried unanimously.

Benevolent Fund Committee.

The report of this Committee recommended the grant of £85 in the following cases:—

A registered chemist and druggist (66), who has had five previous grants. (Goole.)

A registered chemist and druggist (72), suffering from chronic illness, has had an annual grant since 1892. (Portsmouth.)

A pharmaceutical chemist member and subscriber (74), who had been in business for nearly fifty years, but had to retire in June last. (Seacombe.)

A widow (46), of a registered chemist and druggist, who has had several previous grants. (Walthamstow.)

A registered chemist and druggist (68), who has had three previous grants. (Nunhead.)

A former member (71), who had a grant last year. (Anstruther.)

A registered chemist and druggist (68), who recently failed in business, and is trying to obtain a situation. (Wrexham.)

A chemist and druggist member, formerly in business in a small way, but has recently failed. (Plaistow.)

A widow (78) of a member and subscriber. (London.)

Three cases were deferred for further information, and three were not entertained.

The death, on September 8th, of Mrs. Jessie McIntyre, of Berwick-on-Tweed, at the age of 84, who had been an annuitant since 1887, was reported.

A statement was submitted showing the financial condition of the Fund, the balance on current account on September 30 being £1,201 10s. 10d., and on the donation account £703 3s. 5d. The number of annuitants on the list in October, 1898, was 43, and 4 were added in December, making 47; 5 had died during the year, leaving 42 on the list. The Committee recommended that four annuitants be elected on Tuesday, December 12.

The following were unsuccessful at the last election:—

Baxby, Emily, 64, Forest Gate.
Stangroom, Fredk., 64, Cley-Next-the-Sea.

The Committee recommended that the following be placed on the list of approved candidates:—

Partridge, Thomas S., 71, Liverpool.
Troke, Charles, 72, Penge.
Burrows, H. Charles, 82, Syston.
Holt, Richard W., 74, Seacombe.

The Vice-President, in moving the adoption of the report, said a great number of cases had been dealt with by the Committee, which was due to the fact that two months' work was rolled into one, owing to the vacation. Several of the cases were of considerable interest, some being more deserving than others. One man who had applied for a grant would have had a very good chance of obtaining it if it had not been for the zeal and energy of one of their local secretaries, who had seen the applicant and made a searching inquiry into the circumstances of the case, the result of which was that the application was refused. The applicant had said that he was 90 years of age, but on investigation it turned out that he was born in 1854. Their thanks were due to the energetic way in which their local secretaries did their work.

The resolution was carried unanimously.

Election of Annuitants.

The Vice-President moved that four annuitants be elected in December next, and that the election take place on Tuesday, December 12, at 10 a.m. In October, 1898, there were forty-three annuitants on the list, and in December of that year four more were added, making a total of forty-seven. Since then there had been five deaths, but although the Fund was in pretty much the same position as it was in the previous year, having regard to the number of casual grants which had to be made, it was felt desirable to fill only four of the vacancies.

The President, in putting the resolution, said the Fund was supported very liberally by their members, but he pointed out that it was not yet sufficient to meet all the applications.

The resolution was carried unanimously.

Meeting of Local Secretaries.

Mr. Cross, pursuant to notice, moved:

That it be referred to the General Purposes Committee to consider whether it would be advisable to summon a meeting of Local and Divisional Secretaries of the Society, to be held in London during the week in which the sessions of the British Pharmaceutical Conference are to be held next year, with a view to secure uniformity of action among those officers in carrying out the Society's work, and to discuss matters affecting the welfare of the Pharmaceutical Society.

This was not a new subject. Two years ago he raised the question of holding such a meeting, and it was referred to the General Purposes Committee, but circumstances then arose which made it inconvenient that such a course should then be adopted, and the matter fell through. This motion did not commit the Council to anything. It merely asked the Committee to consider the advisability of calling the secretaries together, and why it occurred to him that it would be advisable now was that, during the late Conference at Plymouth, he found there was a desire amongst local secretaries, or, at any rate, amongst the members, that some such conference should take place. There was, in fact, a meeting of local secretaries held at Plymouth, but it was not in any degree representative, and some local secretaries even attending the Conference knew nothing about it. He happened to be present, and finding there was such a feeling as he had mentioned, he thought it would be much better for such a meeting to be called from headquarters, and it seemed that the Conference next year would offer an unique opportunity for such a gathering. By comparing notes and taking counsel together, results might be attained, which would conduce to further the best interests of the Society. He was aware that the time was pretty fully occupied at the Conference, but there would probably be less difficulty in getting a good meeting in London than elsewhere. The matter did not require any lengthy explanation at present, but he had no doubt an agenda could be prepared, the discussion of which would conduce to the best interests of pharmacy.

Dr. Symes, in seconding the resolution, said he made a suggestion some years ago that local secretaries should be invited to attend the annual meeting of the Society, with a view to holding such a conference as was now referred to; but after the able paper read by Mr. Smith, of Liverpool, last October, on the duties of local secretaries, in which he emphasised the necessity for their meeting together, he had come to the conclusion that the meeting of the Conference would be a more suitable opportunity than the annual meeting of the Society. There were many things which could be discussed with advantage at such a meeting, one being the desirability of having a large number of assistant local secretaries in large towns. As a former local secretary for Liverpool, he could say that the work was very much better done now, when there were six assistant local secretaries, and he had been told by gentlemen from other towns that the local secretaries would be very glad of such assistance; for it was impossible for the work to be thoroughly done single-handed. The Council never refused to make such appointments when asked, but it would be well, he thought, for the subject to be discussed. The tendency appeared to be for the business of the Conference to extend over another day, and he thought time could easily be found for such a meeting. At any rate the experiment might be tried next year, even if it were not found desirable to continue it every year.

The President, in putting the resolution, said some of the local Societies did their work very well, but some of them would be none the worse for a little more zeal, which might be infused into them by such a meeting as was proposed, which might be all the more useful as it would be held a few months before the appointment of local secretaries for the ensuing year.

The resolution was carried unanimously.

Law and Parliamentary Committee.

This Committee had passed the following resolution, which it recommended for adoption by the Council: "That a clause be prepared dealing with company pharmacy, with the object of asking the Government to include such a clause when a company's bill is next introduced in Parliament."

The President said the matter was discussed at great length by the Committee, especially as to what should be the policy of the Council, and what clause would meet the requirements of the present position. He moved that the report be adopted.

Mr. Young said he could not refrain from expressing his satisfaction that the Committee had brought forward this resolution. Possibly it was an unimportant step, but at any rate it was a step which would lead them from the abstract and chaotic into the region of the concrete. Until yesterday morning he was under the impression that Mr. Carteighe was correct in saying that they had a fairly definite policy before the country with reference to pharmaceutical questions, but after the discussion of last evening he had come to the conclusion that they had either no policy at all, which was confusion, or that they had a dozen or more policies, which was confusion worse confounded. This resolution committed them to nothing in particular, but it did commit them to the necessity of focussing their views into something concrete and tangible, which all could understand. It would be unwise to make any suggestion which might result in a debate such as took place in committee, and which was absolutely fruitless, but he might be allowed to express the hope that the clause when drawn should be more or less in accordance with the resolution passed by the Council in June last, and that, at any rate, one main feature should be the defence of their titles. Whatever it might be wise to leave out or to include, surely there should be perfect unanimity for this, that it ought to be impossible for any body of men as a corporation to use titles which could only be obtained by individuals.

Mr. Atkins said he wished it to be understood that he did not vote in favour of the resolution which had been passed by the Law and Parliamentary Committee on the previous evening because he distinctly objected to it. He was not prepared personally to surrender those privileges which, he thought, they had fairly earned and ought to retain. He had yet to learn that the suggestions which they had sent to the Lord Chancellor had not been favourably received. On carefully reading the Lord Chancellor's speech, he had come to the conclusion that the noble lord viewed their position far more favourably than was generally imagined. He thought it would be unwise on their part to show any measure or degree of surrender on this point. It had been argued with great ability that it was policy on their part to accept the inevitable, but he felt that if disestablishment and disendowment came at all it should be from without. Although Mr. Young said the resolution committed them to nothing, it at least committed them to a stage further than they arrived at last June. No doubt the suggestions that the Council had made might not be accepted by Parliament, but he had every hope that they would. If they were not, at least he should have a clear conscience that he had done his very best to secure what they had all along striven for, and to defend the chemist's personal qualification, obtained by education, examination, and registration, and he looked, with a profound sense of fear, to disaster if this cardinal point of their existence were surrendered. He had formulated in his own mind a policy which might be rejected by the higher authorities, but still it was a clear policy, viz., that there should not be conferred upon company trading the position which personal qualification alone could confer. He had a profound dislike to their licensing or registering that state of things.

Mr. Symes rose to a point of order. He submitted that Mr. Atkins was anticipating what the Committee would do in its report.

The Vice-President wished to endorse what Dr. Symes had said, though he agreed very largely with Mr. Atkins' views. He thought their first business was to maintain the Pharmacy Act, and it was not their policy to make matters easier for company trading.

Mr. Glyn-Jones said there had been one statement made by Mr. Atkins which he should like the members to understand did not convey the feeling of the Committee. Mr. Atkins had said that he would be no party to surrendering any rights they possessed. He (Mr. Glyn-Jones) thought the members ought to understand that there was not as yet any question of surrendering anything. As had been pointed out, the result of the resolution which the Committee had come too, and which it asked the Council to support, would be that a decision would be arrived at. It might be the decision which Mr. Atkins had outlined, or it might not, but he thought they could assure their members that it was quite certain that there was no danger of the Council surrendering any one right which chemists had a chance of successfully claiming.

Mr. Harrison did not wish to prolong the debate, but one remark, made by Mr. Young, he did not like, when he said the resolution did not commit the Council to anything. If the resolution had been intended to commit them to nothing, he (Mr. Harrison) should not have recorded his vote in its favour. It was because he thought the resolution committed the Council to deal with the question of company trading that he gave his vote on the previous evening. He rejoiced to think the time had now come when the Council had

fully made up its mind to deal with this very thorny question; he believed if chemists addressed themselves to it manfully they would find a solution of the difficultics that surrounded them. He hoped they would deal with the question without surrendering anything that properly belonged to them, and he believed the question could be dealt with on grounds satisfactory not only to themselves but to the great majority of the thinking practical men who formed their body.

Mr. Hills thought there was not so much difference between his colleagues as might appear. He was always so pleased to hear Mr. Atkins that he did not like to suggest that he was out of order, but he really thought he had gone unnecessarily into detail, and that the conclusion come to by the Committee was the right one. Company pharmacy was in the air and had been for a long time, and legislation dealing with it was also in the air; the Lord Chancellor had said distinctly that he proposed to deal with the matter next year; and the Committee after a long discussion thought it would be advisable to take up the matter as a practical question and see if it was not possible to frame some clause which might be usefully introduced. The Committee did not commit itself at all as to the line to be adopted; the principal idea underlying the discussion was that it would not be wise to let this opportunity pass without making some effort to lay the views of the Council before the Legislature. It was not committed to any particular action, but simply to considering very carefully whether this was not the time to frame some clause which might be included in a Company Bill which would be advantageous to pharmacy, and make things more endurable than they were at present.

Mr. Carteighe thought the resolution was a very proper one to pass, and he hoped Mr. Atkins would vote for it; the question of what was to be done would come forward later. Mr. Young had done him the honour of referring to his policy, but he did not know that he ever had a policy at all. All he had said was that the Council adopted a distinct policy when the Bill was before Parliament, but that Bill was now dead, and therefore the question arose whether they should be prepared to deal with it if it were revived; some people were very sure that it would be, but he did not feel at all sure himself, the question simply was, whether if it were re introduced the Council should be prepared to deal with it. That was the purport of the resolution, and he would appeal to Mr. Atkins to support it.

Mr. Young said he referred to a recent utterance of Mr. Carteighe in which he repudiated the idea that the Council had no policy.

Mr. Carteighe said the Bill was then alive; it was now dead.

Mr. Glyn-Jones said he thought Mr. Carteighe's statement was made after the Bill was dead.

Mr. Carteighe said the Bill was not actually dead until Parliament was prorogued.

The President, in putting the motion, said it no doubt committed the Council to this extent, that if the Bill were again introduced next session the Council should be prepared to deal with it, and he trusted it would do so in a reasonable and logical way by framing a clause which would be consistent with the best interests of the Society. How that should be accomplished would have to be thrashed out in committee, and he trusted they would all approach the matter with unprejudiced minds.

The resolution was carried with one dissentient.

General Purposes Committee.

A portion of the report of this Committee was read which recommended certain alteration in the syllabus for the examinations, and also the appointment of a sub-committee to select suitable persons for an appointment as member of the Board of Examiners.

This portion of the report was adopted.

Correspondence.

A letter was read from Mr. Smith, Liverpool, Chairman of the Federation of Local Pharmaceutical Associations, enclosing a copy of the rules of the Federation and the following resolution which was passed at the annual meeting held on July 25 last. "It is desirable that nominations of local secretaries of the Pharmaceutical Society should proceed from local associations and committees. That the objects of the Federation would be more effectually served if local secretaries were appointed by the associations to represent them on the Federation, and that the rules of the Federation be altered wherever it may be necessary to effect a closer co-operation between local associations and the Pharmaceutical Society's local secretaries in promoting the interests of these associations and of the Pharmaceutical Society."

It was agreed that this communication should be referred to the General Purposes Committee.

A letter was read from the Clerk to the Salters' Company approving of the nomination of Mr. E. M. Chapman as the Salters' Research Fellow at the Society.

Letters were then read from the North-East Lancashire Chemists' Association and the Preston and District Association enclosing resolutions calling upon the Council to openly discuss the question with regard to company trading at the October Council meeting.

The letters were referred to the Law and Parliamentary Committee.

A letter was read from the Colonial Office thanking the Society for the information and advice which it had given in respect of the Gibraltar Pharmacy Ordinance.

A letter from the Dewsbury and District Chemists' Association contained a resolution urging upon the Council the necessity of appointing local secretaries in all the Parliamentary boroughs and divisions throughout the kingdom, and also a resolution dealing with proposed legislation.

The Halifax and District Chemists' Association sent a letter containing a resolution passed by that body, suggesting that steps should be taken to place doctors' dispensaries under the same poisons' regulations as chemists' shops.

A communication from the Coroner for East Ham was next read, drawing attention to the fact that he had recently held an inquest on the body of a Mrs. Hickman, who was proved to have died from an overdose of opium, or some of its alkaloids, taken from a bottle which had no poison label upon it.

The President said the Council could not take any action in the matter, as it was not known where the poison was purchased.

Dr. Symes suggested that the Coroner should be asked for information on the subject.

The letter was referred to the General Purposes Committee.

The President moved that the dates of the Council Meetings for next year be fixed for January 10 and June 12, instead of the first Wednesdays in those months.

The resolution was adopted.

It was reported that a letter had been received from the secretary of the Education Department for Scotland, enclosing a Report for the year 1899 by Sir H. Craik on the inspection of higher class schools, and the examination for leaving certificates.

Legal Business.

The Council then went into committee to hear and consider the part of the report of the General Purposes Committee which dealt with legal matters.

On resuming, the report and recommendations were unanimously adopted, and special resolutions passed, authorising the Registrar to take proceedings against the persons named therein.

Determination of Phosphorus in Phosphorised Oils.—E. Louise advocates the use of the following method for the determination of phosphorus in phosphorised oils; it consists in precipitating the phosphorus from the oil, previously dissolved in acetone, by means of silver nitrate solution. From 8 to 10 Gm. of the oil are weighed accurately into a graduated 200 C.c. measure, then made up to 200 C.c. with acetone, and well mixed. The acetone solution is then divided into 10 equal portions each of 20 C.c., in a series of test tubes. Two solutions of silver nitrate are now made, one containing exactly 10 per cent., the other 1 per cent. of the salt. To the first of the series of test tubes two drops of the 10 per cent. solution of silver nitrate are added, by means of a Duclaux's drop-counter, which discharges 100 drops of distilled water; the contents of the tube are then well mixed and filtered from the black precipitate which falls. If the filtrate shows no further blackening on the addition of another drop of the reagent, a more delicate test is made with the remaining nine tubes. To each of these one drop of the 10 per cent. silver solution is added; then, to the first, 1 drop of the 1 per cent. solution, to the second, 2 drops; three drops to the third, and so on. On filtering, the tube which gives a filtrate which does not further precipitate is noted; if, for example, this be at No. 5, containing the equivalent of 15 drops of 1 per cent. silver nitrate solution, the original oil will contain, in parts per mille of phosphorus,

$$\frac{15 \times 0{\cdot}05036 \times 10}{W}$$

where W = the original weight of the oil taken.—*Journ. de Pharm.* [6], **10**, 241.

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THE COUNCIL MEETING.

On the minutes of the previous meeting being read and confirmed, the President stated, in answer to Dr. Symes, that no further reply has yet been received from the Privy Council Office as to the Council's recommendation that carbolic acid should be added to the poison schedule, but he believed the matter was receiving consideration by the authorities.

The President then mentioned that the Council had to excuse the non-attendance of the Secretary and Mr. Allen, and at his request the Vice-President moved a resolution of condolence in reference to the cause of their absence.

In referring to the recent death of Mr. Thomas Greenish, the President mentioned that he was a student at the Society's School in the early days of its existence, a pharmacy prizeman in 1847, and had been a member of the Society from that time; he was also a member of Council from 1871 until 1885, Treasurer from 1878 to 1880, and President from 1880 to 1882. The period of Mr. Greenish's presidency was made remarkable by the House of Lords' decision of the company question as affecting the business of the chemist and druggist, and also by the International Congress of Pharmacists held in London. After brief mention of some scientific subjects to which Mr. Greenish had specially directed his attention, the President moved a resolution, expressing the esteem of his colleagues and their appreciation of his services in connection with the Society, which was seconded by the Vice-President and carried, after being supported by Messrs. Hills, Atkins, and Symes.

The President then drew attention to the deaths of three honorary members of the Society—A. v. Waldheim, Sir E. Frankland, and Dr. Kanny Lall Dey—which have taken place since the last meeting, and after giving some details of their position and work, suggested that an expression of condolence should be addressed by him to the respective families of those distinguished persons.

The report and recommendations of the Finance Committee were then adopted, and on the recommendation of the Benevolent Fund Committee, nine grants, amounting to £85, were ordered to be paid. The death of Mrs. Jessie MacIntyre, an annuitant since 1887, was reported. A statement was submitted showing that on the 30th ult. the current account balance was £1,201 10s. 10d., and that the donation account amounted to £703 3s. 5d. In accordance with the recommendation of the Committee a resolution was passed that four annuitants should be elected next December. In moving the adoption of the report and recommendations of the Committee, the Vice-President mentioned that one of the applicants, representing himself to be ninety years of age, had been refused, though he would otherwise have had a good chance of obtaining a grant, because it was found on inquiry that he was born in 1854.

In moving, pursuant to notice that has appeared in the Journal, a resolution relating to the efficiency and uniformity of action among local secretaries of the Society, and the advisability of holding a meeting to consider the best means of securing those objects, Mr. Cross recalled the discussions that have taken place in reference to the subject, and pointed out the special opportunity that would be offered for holding such a meeting when the Pharmaceutical Conference is held next year in London. He also spoke of having become aware, from views expressed at the meeting recently held at Plymouth, that there is a decided feeling that such a meeting of local secretaries would be useful.

In seconding the motion, Dr. Symes referred to the suggestion he made some years ago as to local secretaries being invited to attend the Society's annual meeting for the same purposes, but he agreed that the plan recommended by Mr. Smith, of Liverpool, was preferable.

In putting the motion, the President said that, while some local secretaries do their work very well, others would be better for a little more zeal that might be excited by such a meeting as was proposed, and the resolution was then carried unanimously.

The report of the Law and Parliamentary Committee stated that a resolution had been passed for adoption by the Council that a clause dealing with company trading as it affects pharmacy should be drafted with the object of asking the Government to include it in any Company's Bill that may be introduced into Parliament.

The President said this matter had been discussed at great length in the General Purposes Committee, and he moved that the report should be adopted.

In seconding the motion, Mr. Rymer Young said he could not refrain from expressing satisfaction with the step taken by the Council, for, though it might be unimportant, it was an advance by which they might be led from the existing abstract and chaotic condition into the region of concrete reality. Until yesterday he had been under the impression that Mr. Carteighe was correct in saying the Council had a definite policy, but the discussion last night led him to the conclusion that they had either no policy at all, or—worse still—that they had a dozen or more different policies. The proposed resolution did not commit the Council to anything in particular, but he was glad that it did impose the necessity of focussing their opinions into something tangible and intelligible. Without venturing any suggestion that might result in such a debate as took place in Committee, he would at least express the hope that the clause, when drawn, would be

in accord with the resolution passed by the Council last June, and that at any rate one prominent feature would be defence of their titles. Whatever might wisely be left out, there should not be any uncertainty on that point. There should be perfect unanimity in the claim that no body of persons should be permitted to use a title that could only be obtained by individuals.

Mr. ATKINS explained that his reason for not voting in favour of the motion was that he objected to any surrender of privileges which had been fairly earned. He had yet to learn that the suggestions sent by the Council to the LORD CHANCELLOR had not been favourably received, but, on the contrary, the LORD CHANCELLOR'S speech led him to conclude that the noble lord viewed chemists' position much more favourably than was supposed by some. For that reason he thought any premature indication of surrender would be unwise. Though the policy of acquiescing in the inevitable had been urged with ability, he felt still more strongly that if disestablishment and disendowment were to come at all, they should come altogether from without. By acting on that conviction he felt that he would have a clear conscience, as having done his duty in seeking to defend the personality of the chemists' qualification which had been obtained by education, examination, and registration. He apprehended serious disaster if that cardinal point of their continued existence were surrendered. That was, in his opinion, a clear policy, and the position which personal qualification alone could confer should not be given to company trading even to the extent of recognising such a state of things or even registering companies.

Dr. SYMES objected that Mr. ATKINS was out of order in anticipating what the Committee might do in its report, and the VICE-PRESIDENT endorsed that view, though largely agreeing with Mr. ATKINS'S remarks. He thought the first business of the Council was to maintain the principle and intention of the Pharmacy Acts, and not to make company trading easier.

Mr. GLYN-JONES drew attention to Mr. ATKINS'S mention of surrendering chemists' rights as not, in his opinion, conveying the view of the Committee. He wished it to be understood that as yet there is no question of surrendering anything. Whatever might be the decision arrived at by the Committee, he thought members of the trade might be quite certain the Council would never surrender any single privilege which chemists were able to claim.

Mr. HARRISON objecting to the remark that the resolution did not commit the Council to anything, said he should not, in that case, have voted for it. He held that its merit was that it did commit the Council to dealing with company trading, and he rejoiced that the Council had at length resolved to deal with that thorny subject. If chemists would address themselves to it manfully he believed they would find a satisfactory solution of the difficulties which surrounded them, without surrender of anything belonging to them and without losing the approval of the great majority of thinking men.

Mr. HILLS thought the difference of opinion as to company trading was more apparent than real. The chief point was that this opportunity of impressing the views of the Council on the Legislature should not be lost.

Mr. CARTEIGHE, in expressing approval of the resolution, said he hoped Mr. ATKINS would vote for it, and, referring to Mr. YOUNG'S remarks as to policy, said that so long as the Company Bill was before Parliament the Council had adopted a distinct policy: now that the Bill might be revived, the question as to what should be the policy of the Council would have to be dealt with by the Committee, and on that ground he appealed to Mr. ATKINS to support the resolution.

The PRESIDENT, in putting the motion, said that it would commit the Council to deal with the question of company trading if the Bill were again introduced, and in that case he hoped the question would be dealt with in a reasonable and logical manner consistent with the best interests of the Society.

Part of the report of the General Purposes Committee relating to alterations in the syllabus for the examinations and to the selection of persons for appointment as examiners was adopted.

The correspondence comprised a letter from Mr. SMITH, the Chairman of the Federation, in reference to the nomination of local secretaries, and to closer co-operation between local associations and the Pharmaceutical Society's local secretaries; letters from the North-East Lancashire Association and from the Preston and District Association in reference to company trading—these were referred to the Law and Parliamentary Committee. Other letters were from the Dewsbury and District Association in reference to the appointment of local secretaries and to proposed legislation; from the Halifax and District Association suggesting that doctors' dispensaries should be placed under the same poison regulations as chemists' shops; from the East Ham Coroner drawing attention to a case of poisoning; from the Colonial Office in reference to the Gibraltar Pharmacy Ordinance; from the Clerk to the Salters' Company approving the nomination of Mr. E. M. CHAPMAN as Salters' Research fellow; and from the Secretary of the Education Department for Scotland, enclosing Sir H. CRAIK'S report on the inspection of schools and the examination for leaving certificates.

THOMAS GREENISH.

THE extremely scanty list of Past-Presidents of the Pharmaceutical Society of Great Britain has been still further diminished by the death of Mr. THOMAS GREENISH at the mature age of eighty-one years. Though born at Lamphey, near Pembroke, Mr. GREENISH was of Flemish extraction. He received his early education at a small country school, and was subsequently apprenticed for five years to a chemist and druggist named WILLIAMS, at Brecon. His first engagement as an assistant was with Messrs. DALMAHOY, of Ludgate Hill, London, but, becoming acquainted with the late WILLIAM INCE, he was soon transferred to the establishment of Messrs. GODFREY and COOKE, in Conduit Street. That event occurred in 1841, the year the Pharmaceutical Society was founded, and six years later Mr. GREENISH was elected a member of the Society under the Charter. In 1847, also, he won the first prize for pharmacy at the Society's School of Pharmacy. From the very outset he took a great interest in the work of the Society, as evidenced by the numerous

papers read by him at evening meetings or contributed to the *Pharmaceutical Journal* from time to time. One of his favourite subjects was work with the microscope, and he was an ardent advocate of the application of that instrument in pharmaceutical research. He was a great traveller, having visited most European countries, as well as the United States of America, and was a firm believer in the virtues of lengthy annual holidays, free from all business cares, as being conducive to the better conduct of business during the remainder of the year.

Mr. Greenish was first elected a member of Council in 1871, and he succeeded Sandford as President in 1880, after having previously acted for two years as Treasurer. During his term of office the fifth International Pharmaceutical Congress was held in London, and it is noteworthy that the following resolution was adopted by that Congress:—"It is the duty of all pharmacists to urge that, in the future revision of any national pharmacopœia, it is necessary that there should be a permanent committee or commission, comprising among its members the largest possible number of pharmacists." Mr. Greenish was always a warm advocate of thorough educational training of pharmacists as a means of improving the position of the craft. In the presidential address delivered at the fortieth annual meeting he spoke of the tendency to overcrowding as an indication that the conditions of entrance to the business of a chemist and druggist were not properly understood. The unpreparedness for the Preliminary Examination was spoken of as forcible evidence of the deficiency of middle-class education, and the frequently apparent ignorance of the fact that a youth desiring to enter the calling would be called upon to pass examinations before being able to conduct a business on his own account, as showing the great responsibility resting upon chemists who took apprentices. In the address delivered at the next annual meeting reference was made to the attention that had been given to the subject of pharmaceutical education and the establishment of a compulsory course of study, to be preceded by the passing of a preliminary examination, affording evidence of a sufficient liberal education. The prevailing low condition of the business of chemists and druggists throughout the country was held to be largely due to the unreasonable demand for cheap labour bringing into an overcrowded trade young men of deficient education, who should rather be discouraged, for their own sake, from entering it, because they were not the material from which pharmacists could be made, and because the instinct of self-preservation should lead pharmacists to guard with tenacity all that pertains to admission to their business.

A striking resemblance manifests itself between certain of Mr. Greenish's utterances and some passages in the address delivered by Professor Leech on Monday last. The necessity of a compulsory curriculum in pharmacy was ever a strong point with Mr. Greenish, and he was greatly impressed with the necessity imposed upon the modern pharmacist of preparing himself to cope with the changes that are taking place in the practice of medicine. Throughout his long life he consistently maintained a lofty ideal with regard to the pharmacist's professional status, and his death is greatly regretted by a wide circle of friends, who recognised in him a typical scientific pharmacist.

ANNOTATIONS.

The President of the Pharmaceutical Society of Ireland admits ignorance of anything that has been done by the British Society since 1895, in the direction of seeking to prevent companies of unqualified persons from carrying on the business of a chemist and druggist. That admission bears out our statement that his previous remarks (see *ante*, p. 290) betrayed a somewhat imperfect acquaintance with the earlier history of the affair. As a matter of fact, much has been done by the Executive of the British Society in relation to this difficult problem since 1895, and even up to the present time, but the negotiations have been conducted privately and the Society's representatives have not felt at liberty to disclose publicly what passed on the different occasions.

The Standardisation of Galenicals was the subject of an article by Mr. Edmund White, in last week's Journal, which must be regarded as very timely in view of Professor Leech's reference to a probable increase in the number of standardised preparations. Mr. White's view is that it is a fallacy to regard standardised preparations as the limit of pharmaceutical perfection, and he maintains that, when our knowledge of the active principle or principles of a drug is clear and definite, the need for galenical preparations of that drug vanishes. The pharmacist, of course, must be prepared to make and supply such preparations so long as the physician orders them, but that is the only reason why official formulæ for them should persist. It is also desirable that a given preparation of a drug containing a potent active principle should not vary greatly in strength; so long, therefore, as that preparation receives official recognition, it may be desirable to standardise it. But it is clear that this can only serve as a temporary expedient, for if the effects produced by galenical preparations can be traced to certain definite substances contained therein, it is obviously more rational to resort to the use of the pure active principles. Time, labour and money will then alike be saved, and patients need no longer continue to swallow inert colouring matters, etc. As forcibly pointed out by Mr. White, in the case of liquid extract of cinchona, for the privilege of taking quinine and other less valuable cinchona alkaloids, associated with various inert impurities which serve to make the remedy more nauseous than it need be, one pays more than four times the price of quinine sulphate itself. Moreover, the special advantages sometimes claimed for galenical preparations are quite lacking in this case, and the administration of the liquid extract is not inaptly described as "a messy and expensive method" of attaining the desired end.

Those who Advocate Standardisation contend, on the other hand, that our knowledge of the active principles of some drugs from which standardised preparations are made is not sufficiently advanced to justify us in resorting to the use of the pure alkaloids, etc. But in such cases, as is cogently remarked by Mr. White, the value of the standardised preparations may easily be overrated. Standardised preparations, therefore, "can only be regarded in many cases as temporary expedients, suitable for the transitional period when we are passing from an incomplete to a definite knowledge of the constituents of a given drug," and "the logical consequence of their employment ought to be their substitution by the pure substances which have formed the basis of standardisation." In effect, Dr. Leech says the same thing. He thinks there is only a short step between standardisation and the use of active principles instead of galenical preparations of crude drugs. There are doubtless many, he states, who still believe that the active principles do not represent the entire curative power of drugs, and that the natural combination with them of minute quantities of other substances present in the crude drugs results in a subtle influence being exerted by galenicals,

which is lacking in the case of pure alkaloids. But, in forming an opinion on such points, "there is much room for the exercise of the imagination," and some of the differences now supposed to exist between the effects of galenical preparations of drugs and their active principles are, Dr. Leech suspects, due to that. "Anyway, it is certain that as the active principles and their exact pharmacological actions become better known reliance on them has increased, and there has been a greater tendency to think of the preparations of such drugs as belladonna and nux vomica in terms of atropine and strychnine, whilst even in a drug like opium, which contains other active alkaloids, it is generally recognised that the value as a sedative at least, is determined by the morphine." Whilst, therefore, there can be little doubt that an important feature in the next Pharmacopœia will be the increased number of standardised drugs and galenical preparations, the more general use of active principles in place of crude drugs is only deferred.

SUGGESTIONS FOR LOCAL ORGANISATION are submitted by Mr. James Cocks, of Stonehouse, Devon, the Hon. Secretary of the Federation of Local Pharmaceutical Associations. In these, it is pointed out that the objects of a local association should be such as will meet the wants of those engaged in the practice of pharmacy, from social, trade, and educational standpoints. Where towns have a population below fifty thousand, it is suggested that several should be grouped together into a district, with nominal headquarters conveniently situated for educational purposes, and that meetings to deal with social and trade topics should be held throughout the district. Many associations favourably started have come to grief, it is asserted, through devoting too little attention to social matters, none to trade interests, a certain amount to the improvement of education, and much to discussions about professional status. In looking for members of associations, organisers are said to be confronted generally with the following three classes:—The good-natured loyal individual who readily joins for old acquaintance' sake and ultimately proves the backbone of the association; the hard business man who wants something in return for his subscription; and the man who is suspicious because he has belonged to some former association long since deceased, and prophesies similar failure in the case of the new venture. Unfortunately no special suggestion is offered regarding the manner in which the last-mentioned should be treated. In catering for the members, Mr. Cocks suggests that chief prominence should be given to the social side. He thinks there should be the usual annual dinner, a ball in the winter, and an outing in the summer, which ladies should be invited to attend. With regard to trade interests, he says: "Appoint an honorary solicitor, who services would be free to the executive, through whom any individual member could ask a question on trade matters; establish a co-operative buying and trade defence section; arrange a contract rate for the carriage of goods; establish an exchange or sale at reduced prices for unsaleable or damaged articles or goods; an executive alert for legislative matters, such as interviewing local members of Parliament when necessary, in the initial stage; avoid the introduction of early closing, or arrangement for prices mutually." On the educational side, it is suggested that classes should be organised in such subjects as are not dealt with at local Technical Schools, so that a complete curriculum of study may be arranged, and the requirements for the Minor Examination met. The town chosen for this purpose should be the nominal headquarters for the district, and the library and museum of the Association should be kept there. Finally, it is urged that the Executive should consist of men who will think, speak, and act only for the good of the Association. If sincerely carried out, the above suggestions, it is thought, would in time result in the enrolment as members of almost the whole of the chemists in the district, who would then constitute a perfectly organised force always ready to assist the craft at large in arriving at definite opinions on urgent matters, as they present themselves for discussion from time to time.

THE CRY OF THE CONSUMPTIVES is voiced by Mr. J. A. Gibson, of Edinburgh, in the *Nineteenth Century*, where he points out that, though the true knowledge with regard to the causes, prevention and cure of consumption, are gradually being disseminated, the efforts which are being put forth to grapple with the evil are pitifully inadequate. The author has formerly contended that consumption can be cured in any climate, the only essential being the judicious location of sanatoria—in protected places, at a fair altitude, lying well with regard to the sun, with pure, bracing air about, and trees near. He insists that it is a matter of some importance that a consumptive should be cured in the climate in which he will afterwards have to live, and that the one essential of climate is pure air. It is recommended that special attention should be devoted to the quantity, quality, and kind of food to be given to patients, as well as to the methods of cooking it. Much must also be learned regarding temperature, bathing, exercise, and rest—as to when the patient should be in bed, when lying, when walking, and how far; in addition, attention must be devoted to sanitation, disinfection, washing, and heating, whilst the fear of the open window is to be for ever banished. In fact, medical men must be specially trained if there is to be hope of any measure of success in the crusade against consumption, and when they have been so trained they must give up their lives to that work alone. It is suggested that consumption ought to be made a notifiable disease, that the Government should build sanatoria, that efforts should be made to stamp out tuberculosis in cattle and to prevent overcrowding, and that patients should not be allowed, when cured, to return to their former occupations, if those be of an unhealthy nature.

WHISKEY AS AN ANTIDOTE TO CARBOLIC ACID is the latest American sensation, and the *Bulletin of Pharmacy* publishes some most startling facts (?) in connection therewith. In the first place, it is stated that a woman bent on suicide swallowed a considerable quantity of carbolic acid, but that—some whiskey having been mixed with the poison to render it palatable—no escharotic effect whatever was produced in her mouth and throat. Presumably, also, the woman recovered, for it is recorded that the whiskey "had completely neutralised the poison." Experiment, we are told, demonstrated that this must have been the fact; for after pure and undiluted acid had been applied to the skin, and even allowed to remain until painful escharosis began, "the application of alcohol at once stopped the pain, and almost entirely obliterated the scar." Next, it is related how one medical man declared that it was no unusual occurrence to see another medical man catch pure carbolic acid in his open hands, and in a few moments remove all the effects by washing his hands in pure alcohol. And, "he is now almost daily flushing abscess cavities with pure carbolic acid, and afterwards washing them out with pure alcohol." But the palm must be awarded to the tale of a medical man who "deliberately placed the tip of his tongue in some acid contained in a shallow dish, which, of course, immediately resulted in escharosis of the soft and delicate tissues. The pain was intense; yet the immediate application of alcohol, which was made by holding a half-ounce of the fluid in the mouth for thirty seconds, brought entire relief, and completely effaced all evidence of escharosis." The remarkable instances quoted prove, according to the *Bulletin of Pharmacy*, that "alcohol is *par excellence* the antidote for carbolic acid poisoning." It may, however, be suggested that the published records of the cases prove something else. At the same time, whiskey may possibly be used with advantage in cases of carbolic acid poisoning; it is well known to be a useful application generally, especially when taken under medical advice.

METHYL ALCOHOL AS A MENSTRUUM.*

BY WILBUR L. SCOVILLE, PH.G.,

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That methyl alcohol is being used to a considerable extent as a solvent in pharmaceutical preparations intended for external use, is generally known among pharmacists. As a substitute for ethyl or grain alcohol in internal remedies the sentiment of pharmacists is undoubtedly against the use of methyl alcohol, though the comparative physiological action of the two forms when in a condition of comparative purity is still in question. That the ordinary commercial grades of wood alcohol are decidedly poisonous none will deny, but that they contain foreign bodies in considerable proportion, to which the toxic effects may be chiefly due, is also generally admitted. It is not so very long ago, however, that scientific literature was considerably occupied with the consideration of the impurities found in alcoholic spirits, and which were produced in the same process and by the same means as those which resulted in ethyl alcohol. These by-products of a higher series of alcohols were found to produce a very energetic action when taken internally, and comparatively small amounts were sufficient to cause toxic symptoms. Modern methods have, however, succeeded in eliminating from commercial alcohols and spirits all except the merest traces of these more powerful products of fermentation, and the effects of ethyl alcohol are becoming better known. Could it be once proven satisfactorily that methyl alcohol in itself is no more toxic or injurious than ethyl alcohol, when taken internally, an increased demand for it in a pure state would stimulate efforts to more cheaply eliminate the objectionable substances and supply it at a low price. At the present time wood alcohol can be obtained almost free from odour, and of a high degree of purity, at a considerably less price than that paid for grain alcohol. This purified alcohol is adapted to many uses for which the crude product cannot be employed. It is not only more agreeable and less easily detected, but there is evidence to show that its effects upon the system are also different.

Effects of Methyl Alcohol upon the Human System.

The experience of Professor Puckner, of Chicago, who compared the effects of methyl and ethyl alcohol upon his own person, with favour to the former, are well known, and have been corroborated by H. D. Abbott, of Salem, Mass. Mr. Abbott is not in the habit of using alcoholic beverages, even occasionally, and his observations are thus the more clear. On two different occasions he tried the effects of a purified methyl alcohol and of commercial grain alcohol of corresponding strength. Doses of one-half ounce each were taken, upon an empty stomach, and within an interval of twenty-four hours between. In both trials the effects of the methyl alcohol appeared the more quickly and were more transient, passing off in a very short time and leaving no depression. The exhilarant action of the ethyl alcohol appeared more gradually, were more persistent, and were succeeded by a slight depression.

Toxic Effects Due to Impurities.

Another evidence that the toxic effects of wood alcohol may be due to the impurities which it contains more than to the alcohol itself, is found in tincture of iodine. Several writers have recommended that this preparation be made with wood alcohol, and a number of pharmacists have tried it. The iodine dissolves more quickly in this medium, and all appears well. But when the ordinary cheap grades of wood alcohol are employed the tincture develops a very penetrating odour, and becomes so irritant as to make it unsaleable. This does not appear when the purified alcohol is used. Samples prepared from purified methyl and ethyl alcohols, which have stood a year and a half, show no marked change in either case, and cannot be distinguished except by the odour.

* From the *American Druggist.*

A further knowledge of the properties of true methyl alcohol is, therefore, desirable, and for the pharmacist a consideration of the solvent powers of this fluid is of primary importance. In a general way it is stated that it has about the same solvent powers as grain alcohol, but that some differences exist is naturally to be inferred. These may be so slight as to be unimportant, or they may in some instances be wide enough to be of some consequence.

Relative Value of the Two Alcohols as Menstrua.

In the absence of specific data on this point, with regard to vegetable drugs, H. D. Abbott and F. A. Merriam carried out a series of experiments at the Massachusetts College of Pharmacy to determine the relative value of the two alcohols when used as menstrua. The drugs tried were those whose preparations are used externally, in liniments, etc., or such as are represented in solid extracts, wherein the menstruum being driven out plays no direct part in the physiological action of the remedy. An attempt was made to have all the alcoholic (solid) extracts of the Pharmacopœia prepared from the two alcohols for comparison, but a third student failed to finish her portion of the work, leaving the present list incomplete.

Method of Determination.

The method followed was to make an official preparation of the drug, a tincture, extract or fluid extract, selecting that which demanded the highest percentage of alcohol, and using for one portion of drug official alcohol, and for another portion of the same drug the best commercial grade of methyl alcohol. The two preparations were made under as like conditions as possible, the two portions of drug being moistened and packed at the same time, and percolation being carried on at as near the same rate as possible and under the same conditions of temperature, and the percolates carefully watched to note any difference in colour, rate of exhaustion, or other characteristics which might be discernible. In all cases percolation was allowed to proceed at a rate of 10 to 20 drops per minute, and exhaustion was determined by the colour and taste of the percolate, or by an absence of cloud when allowed to drop into water. Cylindrical percolators of the Oldberg pattern were employed, these being fitted with drop tubes passing through perforate stoppers, and sealed at the upper end, but perforated at the side near the upper end of the tube, so that the percolation could be regulated independently of the packing of the drug. The processes of the Pharmacopœia were followed in detail, except that in making extracts the first portion of percolate was not reserved, but the entire amount was collected in one body, in order to note any physical differences and to compare the solvent powers of the two alcohols.

Determination of the Total Solvent Power.

The relative rapidity of action is shown in the volume of percolate required to exhaust the drug, as given in the table below. The total solvent power was ascertained by estimating the soluble matters extracted from the drug. For this purpose 5 C.c. of the measured percolate was evaporated in a porcelain evaporating dish just on a steam bath, and when apparently dry it was transferred to a hot air-oven kept at a temperature of 100° C. until dried to constant weight. The total quantity of soluble matter in the percolate was computed from this weight, and the percentage extracted from the drug then calculated. By basing the percentage of extraction on the drug the differences in quantity of percolate obtained were allowed for.

Method of Assay.

The nux vomica extracts were assayed by the official process, using the dry extract. The belladonna extracts were assayed by a similar method. Fifteen grains of extract were treated with 150 C.c. of a mixture of ether, alcohol, and ammonia water for six hours, 100 C.c. of the clear fluid then separated, and the alkaloids extracted by shaking with successive portions of two per cent. sulphuric acid. The mixed acid washings were then rendered alka-

line with ammonia, and extracted with successive portions of ether, the ether evaporated and the residue titrated with decinormal sulphuric acid, using Brazil wood as an indicator.

The methyl alcohol employed had a specific gravity of 0·796, and boiled at 65° C. The ethyl alcohol had a specific gravity of 0·820.

The results are shown in the table.

Table of Results.

Preparation Made.	Amount of Drug Used.	Menstruum. Alcohol.	Menstruum. Water.	Total Percolate Obtained. Ethyl.	Total Percolate Obtained. Methyl.	Per Cent. Extractive. Ethyl.	Per Cent. Extractive. Methyl.	Active Principle Per Cent. Ethyl.	Active Principle Per Cent. Methyl.	Character of Principle Estimated.
Aconite root										
Tincture	87·5 G.	700	300	250	250	14·9	14·7	0·436	0·421	Alkaloid
Arnica flowers										
Tincture	50 G.	500	500	250	250	41·3	40·0	0·564	0·481	Alkaloid
Arnica root										
Tincture	25 G.	650	350	250	250	23·2	24·1			
Belladonna leaves										
Extract	100 G.	200	100	343	355	23·0	25·0	0·436	0·421	Alkaloid
Fl. Extract	100 G.	800	200	345	365	12·8	13·2	0·564	0·481	Alkaloid
Belladonna root										
Tincture	100 G.	91%		500	500	18·3	17·2			
Calendula										
Tincture	25 G.	95	50	500	500	2·5	2·4			
Capsicum										
Extract	100 G.	91%		498	467	34·4	35·8	18·0	17·5	Alkaloid
Cannabis Indica[1]										
Extract	200	91%		1272	1290	19·1	17·4	20·2	19·9	Alkaloid
Cannabis Indica[2]										
Extract	200	91%	500	1113	1110	17·0	17·2	5 G.	4·5 G.	Resin
Conium										
Extract	200 G.	91%		850	865	6·2	6·0			
Ginger										
Fl. Extract	200 G.	91%		832	856	29·9	29·9			
Iris										
Extract	200	91%		410	395	10·0	10·6			
Nux Vomica[1]										
U.S.P. ext.	100 G.	750	250	1050	1055	13·2	12·7			
Nux Vomica[2]										
U.S.P. ext.	200 G.	750	250	168	175	12·5	11·7			
Podophyllum										
Resin	100 G.	91%		200	200	2·1	2·2			
Pyrethrum										
Tincture	40 G.	91%		1170	1195	53·8	53·2			
Rhubarb										
Extract	200 G.	800	200	325	320	22·7	21·3			
Stramonium leaves										
Extract	100 G.	500	500	1330	1340	20·0	19·4			
Stramonium seed 1										
Extract	200 G.	500	500	1209	1215	11·5	10·9			
Stramonium seed 2										
Extract	200 G.	91%								
Physostigma										

A summarising of the table will show that there are but slight differences in the action of the two alcohols upon the drugs tried. The small differences in extractives and in the quantities of menstrua used may mostly be accounted for in differences in manipulation and errors in weight. A slight error in estimating the extractive matter in the percolate would be multiplied many times in the final result.

Little Difference in the Finished Product.

In no instance was there any marked differences in the appearance of the products when compared. Slight variations were sometimes noticeable, such as a slightly darker shade in the tinctures of aconite and arnica, and the resin of podophyllum, made with methyl alcohol, but these were observed only when the two products were compared. The extract of belladonna leaves made with methyl alcohol appeared slightly granular, while that made from ethyl alcohol was smooth.

In the case of cannabis indica number one, iris and rhubarb, the extractive matter reported is very high, and may refer to a moist rather than a dry extract. In the other instances the results agree well with data previously obtained regarding the amount of extractive matter in these drugs, which data were not accessible to the two workers.

The tinctures and fluid extracts made with methyl alcohol betrayed its presence by their odour, but in the case of the solid extracts the difference could not be detected.

The Surreptitious Use of Wood Alcohol,

whether for solid extracts or for preparations intended for external use, is not to be countenanced. If wood alcohol is suitable in all respects for these preparations, the fact will ere long be recognised by the medical and pharmaceutical representatives, and its use openly sanctioned. Until, however, the majority of pharmacists and doctors shall have become satisfied as to its freedom from objectionable qualities, and its adaptability to medicinal uses, it should be held in abeyance, or, if used, its substitution should be openly proclaimed.

REVIEWS AND NOTICES OF BOOKS.

Die Ætherischen Oele. Von E. Gildemeister und Fr. Hoffmann. Bearbeitet im auftrage der firma Schimmel and Co. in Leipzig. Pp. iv. + 919. Berlin: Julius Springer, 1899.

The issue of this work marks a distinct epoch in the history of essential oils. The nine hundred quarto pages are devoted to an exposition of all that relates to essential oils, including an historical account of their uses and methods of preparation from the earliest times. The book summarises the somewhat copious literature scattered throughout the scientific journals and provides a very interesting and complete account of a class of bodies which play a very important part in pharmacy. The subject matter is divided into three parts. Part I., consisting of 136 pages, which we learn from the preface is chiefly due to Dr. Hoffmann and is mostly historical, gives an interesting account of the *rôle* played by oils and oil-yielding substances in the trade of the world. The methods of distillations are described from the earliest historical periods up to the present day, and the numerous illustrations provide a very interesting comparison between the primitive flask and retort of the ancients and the complicated steam plant in use at the present time. Part II. contains a general account of the preparation, the constituents, and the methods of testing essential oils. This part and the following part devoted to the description of the oils in detail is mainly from the pen of Dr. Gildemeister, assisted by special contributors. The fundamental principles underlying the methods of obtaining oils by distillation are first discussed from a theoretical standpoint, showing how the best results may be attained. This chapter serves to emphasise the value of the application of scientific knowledge to technical operations, with a view to improving the product and economising materials and labour.

In another section an account is given of the more commonly occurring constituents of essential oils—the aliphatic, aromatic and hydro-aromatic hydrocarbons, the alcohols, aldehydes, ketones, phenols, acids, esters, lactones and some sulphur and nitrogen derivatives. One would have been glad to have had a summarised account of the large number of researches dealing with the constitution of the terpenes. These researches are scattered and somewhat contradictory, so that something of the sort would have been distinctly useful in the work under consideration. The authors, however, content themselves with a description of the properties, derivatives and physical constants of the chief well-recognised terpenes.

A chapter is devoted to the general methods of examination of essential oils by their physical properties and the determination of certain constituents. This includes also a section relating to the detection of substances very commonly used as adulterants of essential oils. Part III. gives a more or less detailed description of no less than four hundred and twenty-two individual oils. It comprises an immense mass of information which, taken in conjunction with the numerous references to original papers, renders the book very useful as a work of reference for everyone interested in this class of substances. The article on rose oil is a fair illustration of the thoroughness with which the matter is treated. It consists of eighteen pages treating of the history, source, preparation, properties, composition, and tests—the three last extending over nine pages—and contains all necessary information respecting rose oil. It is pointed out that one kilogramme of rose oil can be obtained from about 6,000 kilos of German roses, that the characteristic aroma of rose oil is not entirely due to the alcohols and the ester—geraniol, l—citronellol, geranyl acetate—but to a combination of them with small quantities of unknown bodies, and that the chemical and physical tests cannot be entirely relied on as evidence of purity. The chief adulterants are stated to be palma rosa oil and geranium oil. In this manner is each oil described. Throughout the book there is an air of authority that commands attention, and its issue by Messrs. Schimmel and Co. is instructive in the sense of giving additional evidence, if that be necessary, of the scientific manner in which industrial operations are carried out in Germany in contra-distinction to the rule of thumb procedure almost universally predominant in this country. Some of the information here given on essential oils may be familiar to readers of Schimmel's semi-annual reports which, while naturally not neglecting trade interests, periodically summarise results obtained in the course of chemical research, and are always of interest to chemists who are desirous of keeping in touch with the latest information on the subject of essential oils. Such scientific work in technical operations can only be possible when a research laboratory with trained chemists is part and parcel of the chemical factory.

It is with good reason that Gildemeister and Hoffmann's book, based on the practical application of the results of scientific research, forms such a valuable contribution to pharmaceutical literature, and indeed may be considered indispensable to such chemists and pharmacists as are more particularly interested in the chemistry of essential oils.

Richter's Organic Chemistry. Edited by Professor R. Anschutz. Translated by Edgar F. Smith. Third American, from the eighth German edition. Vol. I. Chemistry of the Aliphatic Series. Pp. 625. Price 15s. London: Kegan Paul, Trench, Trübner and Co., Limited. 1899.

The division of this work into two volumes has been rendered necessary by the enormous development in almost all departments of organic chemistry. Vol. I., dealing with the fatty or aliphatic compounds only, is larger than the original book published as the first American edition, which was issued in a single volume. Comparing this volume with its predecessors one must admit that great improvements have been made. Assuming that Vol. II., dealing with the cyclic compounds, is translated equally well from the already-published German text, English-speaking students will be in possession of one of the best modern text-books of organic chemistry. The errors observable in the last American edition, particularly in the formulæ and equations, are fortunately absent in the new edition. Although most of these errors were sufficiently obvious, they must have provided many stumbling-blocks for the student. The introductory portion, comprising 77 pages, gives a condensed account of the determination of formulæ, the physical constants, and the constitution of carbon compounds. Although necessarily brief, it provides a useful summary of these matters, and its value is enhanced by frequent reference to original papers. Unfortunately for English readers, most of the papers have to be sought for in German periodicals.

The difficulties which surround the systematic naming of organic compounds is recognised, and while the familiar names for numerous well-known compounds are retained, the names based upon the suggestions of the Geneva Convention are frequently added in brackets. The complete adoption of the system which was proposed by the Convention would introduce numerous difficulties apart from the unfamiliarity of the new names.

The subject matter of the present volume is brought well up to date. The system of classification adopted is based upon the alcohols, all substances being grouped under the alcohols, from monohydric to hexahydric and polyhydric, to which they are most nearly related. As in the previous editions, large and small type is employed to indicate the elementary and more advanced portions, and very numerous references are given for those wishing to have more details than are found in the text. In its present form Richter's 'Organic Chemistry' is undoubtedly one of the best text-books for advanced students, and is, in addition, a valuable work of reference.

Physics: Experimental and Theoretical. Vol. I. Mechanics, Hydrostatics, Pneumatics, Heat, and Acoustics. By R. H. Jude, D.Sc., M.A., and partly from the French of H. Gossin. Pp. xxii. + 926. Price 12s. 6d. nett. London: Chapman and Hall. 1899.

This new work on physics will be completed in a second volume dealing with optics and magnetism and electricity. Dr. Jude set out to translate into English the "Cours de physique" of Prof. Gossin, but found, like many other translators in the same department, that the translated work would not entirely meet the requirements of students in the various science schools in this country. He has, therefore, modified certain sections and added a good deal of new matter of his own.

With regard to experimental physics the present volume gives descriptions in much simpler and lucid language than is usual in books on physics so comprehensive in scope. The description of methods and apparatus is also well done; such things as the radiometer, Bunsen's calorimeter, and the specific heat of gases at constant volume and pressure being particularly well done. The popular side of physics has also been developed, and the student will find very readable descriptions of such things as weather prediction and the scientific results of ballooning.

Dr. Jude has endeavoured as much as possible to limit the mathematical demonstrations to algebra and geometry, with the result that the student, who is not familiar with the higher stages of mathematics, will probably take more interest in this side of the subject when it is presented to him in a simplified form. The illustrations are numerous and well done. One notices a good many which inevitably seem to appear in all text-books of physics, but, on the whole, the illustrations will have a distinctly fresh appearance for the English student. With regard to pharmaceutical requirements the scope of the work—apart from the mathematical treatment—is somewhat wider than is indicated by the syllabus of the Major examination. There is, however, no book on physics which quite meets the need of that syllabus, and the present work may be strongly recommended to those Major students who desire an easy and at the same time comprehensive volume on physics. As previously remarked, the mathematical treatment, which is distinctly necessary for a proper demonstration of physical theorems, is done as simply as possible. Sets of exercises with answers are also given, and a very moderate acquaintance with algebra and geometry suffices for the solution of most of the problems set.

The most conspicuous failing is the absence of any index, which makes rapid reference to any particular subject impossible. The portions relating to what may be termed chemical physics—for example, solution and chemical action—are also not very satisfactory

PHARMACEUTICAL SOCIETY.

MAJOR EXAMINATION QUESTIONS.

MATERIA MEDICA.

Tuesday, October 3, 1899.—*From* 10 *a.m. to* 11 *a.m.*

1. What are the sources of the official sennas? How can one be distinguished from the other? Discuss their relative value and indicate their active principle. Describe the characteristics of the latter body, and if it form salts, suggest one or more which you consider likely to be of practical value.

2. Mention the active constituent of Barbados aloes; describe in detail a process by which it can be obtained, and the tests by which it can be identified

BOTANY.

Tuesday, October 3, 1899.—*From* 11 *a.m. to* 1 *p.m.*

1. Write a short account of the chief modifications of the vegetative organs of plants for purposes of storing reserves of food.

2. Give a brief account of the phenomena of transpiration, and describe the mechanism by which transpiration is regulated in the plant.

3. By what characters are Bryophyta distinguished from Pteridophyta?

PRACTICAL MATERIA MEDICA.

Tuesday, October 3, 1899.—*From* 2 *p.m. to* 3.30 *p.m.*

1. Prepare transverse and longitudinal sections of the belladonna root provided. Draw and describe your preparations and leave one of each for inspection. Comment upon any peculiar features in their histological structure, and name any cell contents which you may recognise.

2. Report upon the sample of powdered belladonna root.

PRACTICAL BOTANY.

Tuesday, October 3, 1899.—*From* 3.30 *p.m. to* 5 *p.m.*

1. Make preparations to illustrate the microscopic structure of *A*, and sketch the chief features of interest in them.

2. Dissect *B* carefully—sketch your dissection and give explanatory references indicating the morphological value of each part.

3. Refer the plants *C* and *D* to their natural orders, giving reasons for your references.

CHEMISTRY.

Wednesday, October 4, 1899.—*From* 10 *a.m. to* 1 *p.m.*

Six questions only are to be attempted, and of these at least two must be taken from Part II.

PART I.

1. Indicate the nature of the experimental facts by means of which Dalton supported his views respecting the atomic constitution of compounds.

2. Give three methods by which nitrogen can be obtained in a condition free from other constituents of the atmosphere.

3. What volume of sulphur dioxide measured at 10° and 740 Mm. would theoretically be required to reduce a solution of 1 gramme of potassium dichromate in dilute sulphuric acid? [Cr = 52·5.]

4. What is the general chemical nature of glass? To what are the colours of coloured glasses due? What products are formed when a sample, of "hard" glass is reduced to powder and fused with excess of sodium carbonate?

5. A weak solution of hydrocyanic acid is suspected to contain hydrochloric acid. How would you test it for this impurity?

6. Starting from metallic lead, describe how each of the following substances may be prepared:—(*a*) White lead, (*b*) red lead, (*c*) lead acetate, (*d*) basic lead acetate, (*e*) lead peroxide, (*f*) lead nitrate.

PART II.

7. Give the constitutional formula of glycerol and discuss the evidence on which it is based.

8. Starting from acetic acid, how could you prepare (*a*) methane, (*b*) ethane (*c*) oxalic acid?

9. Write a short account of the processes by which commercial benzene is obtained. What are the common impurities in this liquid, and how would you prepare from it a sample of pure benzene?

10. Describe the preparation of salicylaldehyde.

PHYSICS.

Wednesday, October 4, 1899.—*From* 2 *p.m. to* 5 *p.m.*

Six questions only are to be attempted.

1. Explain carefully how the height of a mountain could be approximately determined by a purely physical method without the use of a barometer.

2. Find the specific heat of a substance 100 grammes of which at 90° C. when immersed in 250 grammes of water at 12° C. gave a resulting temperature of 18° C.

3. Describe the construction of a Leclanché battery cell, and state the changes that occur within the cell when it is in action.

4. What do you understand by the terms "real image," "virtual image"? Show by a figure how an image is formed in a plane mirror.

5. To what are the Frannhofer lines of the solar spectrum due? How could such lines be obtained in the spectrum of a luminous terrestrial body?

6. Describe accurately the arrangement and method of using a Bunsen photometer. What is the difference in the luminosity of two lights which show the same effect upon the photometric screen; one at the distance of one foot, the other at a distance of two feet from the screen?

7. What is understood by the critical temperature of a gas? Mention any practical points in connection with the critical temperature of a gas and the storage of the liquified gas under pressure.

8. Describe fully what happens when a constant current of electricity is passed for the same length of time successively through solutions of (*a*) copper sulphate, (*b*) silver nitrate, and (*c*) water.

PHARMACEUTICAL SOCIETY OF IRELAND.

ANNUAL MEETING.

The twenty-fourth Annual Meeting of the members was held on Monday, October 2, in the Society's House, 67, Lower Mount Street, Dublin, the PRESIDENT, Mr. R. J. Downes, in the chair.

ELECTION OF COUNCIL.

The scrutineers reported, and the PRESIDENT declared that the following seven gentlemen had been duly elected members of the Council:—Messrs. G. D. Beggs, J. J. Bernard, R. Simpson, J. E. Connor, W. J. Baxter, P. N. White, and W. Jameson.

THE PRESIDENT'S ADDRESS.

The PRESIDENT then delivered his annual address, in which he referred to the trial of The Queen (at the instance of William Boulton Conyngham) *v.* Pharmaceutical Society. He stated that the judgment given, if not in the Society's favour, was, at least, not unfavourable. The important question of the *ultra vires* of the Society's regulations was argued and decided, and although the regulations in question were decided by a majority of the judges to have been *ultra vires* at the time when they were approved by the Privy Council, it was unanimously held that they were affirmed and "set up" by the Amendment Act of 1890. The previous decision of the Queen's Bench was confirmed, that a company not entirely composed of qualified persons could not supply the requisite declaration of service, but that Hayes, Conyngham, and Robinson, Limited, being composed entirely of qualified persons, "fulfilled the conditions of a firm of legally qualified pharmaceutical chemists," one of the judges affirming that a firm did not cease to be a firm because it became incorporated—a dictum which he thought may be of considerable importance hereafter. The Society had thus recognised the applicability of the Companies Acts to pure pharmacy and pure drug business so long as the members are all qualified to transact the business engaged in, but drawing a distinct line as to the competence of the mixed company. This principle the Society hoped to see further recognised by Parliament in the Amendment of the Companies Acts. The President also referred to the refusal of the Local Government Board to recognise the Licentiates of the Society as qualified to undertake the duties of public analysts. The Council, he said, had had an interview with the head of the Department of the Local Government, and the result was to encourage the Society to seek power to hold an examination which would be recognised as qualifying for the position of public analyst, and that was now being considered by a special Committee. He then proceeded to deal with the question of company pharmacy, and gave a brief history of the Society's agitation in the matter. Referring to an article in the *Pharmaceutical Journal* of September 23 (see *ante*, page 305), the President, replying to the statement that his remarks at the last Council meeting betrayed a somewhat imperfect acquaintance with the earlier history of the matters referred to, said that he was not concerned with the "earlier history," and admitted ignorance of any move in regard to the question of company pharmacy, from the completion of the Departmental inquiry in 1895 till the Irish Society took up the matter in 1897. After speaking of the work of the Pharmacopœia Committee the President went on to review the work of the Society's schools during the past year, and of the social meetings, and wound up his address by again calling attention to the continuance of the depreciation of the "Arts and Mysteries" as a life calling, the statistics of examinations showing a falling off in every stage except that of "Assistant." The register indicated a natural but limited increase of 22 licentiates, 22 registered druggists, and 8 assistants, while the number of chemists and druggists remained stationary.

The various points touched upon in the address were subsequently discussed by the members present, Professor Tichborne speaking in favour of a post-graduate course to satisfy the requirements of the Local Government Board, but objecting to the title "Fellow" being granted in connection therewith.

MIDLAND PHARMACEUTICAL ASSOCIATION.

At a Council Meeting held on Wednesday, September 27, at Mason University College, Birmingham, the programme for the coming session was discussed and arranged.

The President announced that Alderman W. Gowen Cross, J.P., of Shrewsbury (member of the Pharmaceutical Council), had consented to give the inaugural address on Thursday, November 2.

The report of the Honorary Secretary, Mr. G. H. Brunt, on the circular issued in connection with proposed pharmacy classes at Mason University College, showed that the scheme had been favourably received by pharmacists in the Midlands and elsewhere.

Mr. Charles Thompson was appointed to represent the M.P.A. on the Executive Committee of the Federation of Local Pharmaceutical Associations, and at the unanimous request of the Council accepted its nomination of him for the local Secretaryship of the Pharmaceutical Society for the coming year.

HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting of this Association was held at the Old Cock Hotel, Halifax, on Thursday, September 28, Mr. Cobb, President, in the chair. There was a large attendance of members, it being the first meeting of the winter session. A very interesting paper was read by Mr. Gibson Dixon, and it was afterwards discussed by the members.

Mr. Councillor Hebden, J.P., kindly offered space in his warehouse for the purpose of accommodating the library of the Association, and he was appointed the librarian. Early closing was then discussed, and it was decided that the chemists of Halifax close their establishments at 1.30 on Thursdays for the rest of the day.

The Secretary, Mr. H. C. Brierley was instructed to advertise this in the local papers for a month.

Mr. Gibson Dixon proposed:—

That this meeting of the Halifax and District Chemists' Association learns, with the deepest regret of the tragic death of Dr. J. Dick, of Eastbourne, and is of opinion that some steps should be taken to place doctors' dispensaries under the same poisons regulations as chemists' shops are now placed, and that a copy of this resolution be sent to the Council of the Pharmaceutical Society of Great Britain.

This was carried unanimously.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION.

On Monday evening a monthly meeting of the Dewsbury and District Chemists' Association, was held, members being present from Dewsbury, Heckmondwike, Thornhill and Batley. Mr. A. Foster occupied the chair.

Mention was made of the proposal to amend the Pharmacy Act and after some conversation the Association unanimously adopted the following resolution:—

That in view of the probable reintroduction of the Companies Act Amendment Bill into the House of Commons in the next session of Parliament, and recognising a clause in the said Bill relating to the business of a pharmaceutical chemist, or chemist and druggist, as directly antagonistic to the spirit and intention of the Pharmacy Act of 1868, and which would, if passed into law, practically annul the fundamental principles of the Statute, namely, compulsory qualification, by examination of each person carrying on business, or who assumes the title of Pharmaceutical Chemist, or Chemist and Druggist, thereby defrauding the public of the protection which the measure was intended to secure, and at the same time inflicting the most glaring injustice on those who have at great trouble and expense obtained registration under the provision of the Act, this Association earnestly trusts that the Council of the Pharmaceutical Society will use every measure in their power to prevent the said clause receiving Parliamentary sanction in its present form. The Association is of opinion that the most strenuous effort should be made to secure the inclusion of pharmaceutical chemists and chemists and druggists in the clause of the said Bill relating to the medical and dental professions, or, failing this, such radical amendment of the first mentioned clause as will render it illegal for any person or persons, individually or collectively, to take or use the title or exercise the business unless he and every person or persons have become registered under the provision of the Act of 1868. In the event of neither of these endeavours being successful, the Association would support an immediate and vigorous attempt to obtain such amendment of the Pharmacy Act as would achieve that end.

The following resolution was also adopted:—

That this Association urges upon the Council the necessity of appointing local secretaries in all Parliamentary boroughs and divisions throughout the kingdom, as we consider that this is the best means by which the work of the Society can be carried on effectively.

The Secretary (Mr. R. Gledhill) was requested to have copies of the resolution printed and sent to every member, and also to Associations in the North of England, asking of their support.

POOR LAW DISPENSERS' ASSOCIATION.

A meeting of the Poor Law Dispensers' Association was held on Thursday last at the Sessions Hotel, Clerkenwell, when Mr. C. Spencer (Marylebone) presided. There was a good attendance of members, being rather above the average number. Amongst those present were Messrs. R. E. Jones (Poplar), W. E. Miller (St. Pancras), A. Smith (St. Pancras), J. J. Smith (Marylebone), C. Spencer (Marylebone), F. N. Clark (Paddington), C. Fryer (Holborn), H. Hewitt (Holborn), E. Donnan (Islington), F. Bourke (Rotherhithe), and M. G. Smith (Lewisham), Secretary.

A council meeting having been held previously, and the order of business having been arranged, Mr. Spencer was unanimously elected to occupy the chair. The business, as a whole, rather partook of the nature of a discussion upon minor points of qualification for Poor Law Service than the conditions or terms of service, which might have better occupied the time and attention during the two hours at their disposal.

After Mr. Spencer had opened the proceedings by drawing attention to the fact of his work being nearly finished at the conclusion of two years of incessant toil along with his coadjutors on the Council, brought forward a letter received from the Poor Law Officers' Association, intimating the receipt of one from the Local Government Board on the 9th ultimo to the effect that all Metropolitan Poor Law Dispensers in receipt of a maximum salary of £140 (through the medium of their respective Boards of Guardians), can have it increased at an interval of every four years afterwards until a maximum £180 has been reached.

Mr. Jones having been called upon to say a few words, made quite a lengthy and eloquent speech (occupying about half-an-hour), in which he dwelt with especial stress upon the need of good men being let into the Poor Law Service, and that there should be more uniformity observed in the conditions of qualification so as to exclude a larger number of those who would be engaged at a minimum rate of salary.

Mr. Clark proposed a resolution to amalgamate the two kindred Associations, viz., the Poor Law Dispensers and the Public Dispensers, which, on being put to the meeting, was lost by a large majority in favour of an amendment proposed by Mr. Hewitt, to adjourn the meeting rather than to disband.

EXTRACTS FROM CONSULAR REPORTS.

The Lapse of the Patent in Antipyrine last year, as was to be expected, caused a decrease in the price of that article. Consul-General Schwabach (Germany) points out in a recent report that such an enormous fall as from 96 to 14½ marks per kilo. could not possibly lead to a corresponding consumption of that substance, and that at present it is doubtful whether its preparation is at all profitable.

British Chlorinated Lime, it is stated, is less wanted in Germany than formerly, as the electrolytic system of production provides Germany with as much as she requires, particularly as a duty of 3 marks per 100 kilos. is levied, and must be deducted from the already low prices. According to the British Consul, the past year was so unfavourable for the manufacturers of chlorinated lime that it became necessary for them to meet and consider whether it was not possible to fix the price at any rate so high that it left a margin for profit. The result of this conference was a rise of 20 per cent. The amount imported last year was 3,452 cwts., while the export from Germany amounted to 376,625 cwts. By far the greater part of the chlorinated lime used in Germany is produced by the electrolytic method, and the prejudice which formerly existed against this mode of production is nearly removed. In fact, many firms which produced chlorates and alkalis by the old method were obliged to adopt electrolysis in order to obtain anything like remunerative prices. Electrolytic works are reported to be in course of construction in the United Kingdom, Belgium, Russia, Austria, and America, so that there is a danger in the near future of over-production, unless some other additional use than those at present in vogue for chlorinated lime should be discovered.

The Glycerin Market in Germany during 1898 was, according to a recent report, much quieter than in the previous year, when a North American ring sent the price up to 120 fr. for 100 kilos. Last year, however, saw a decrease in the price of raw glycerin

to 70 fr. per 100 kilos., and this price was maintained with little variation till the end of the year. The consumption in the United States is reported to have been much less than usual in 1898 on account of the war. Within the past few months a considerable quantity has been required to supply the dynamite factories, consequently prices have gone up, and there is a prospect of a still greater rise. The price for purified glycerin was subject to the same variations as that of raw glycerin. The Association of German Glycerin Refiners found it difficult to maintain the price they had determined upon, for the reason that much foreign glycerin found its way into the German market, and was sold at a much lower rate. The quality of the foreign article, however, was not so good, but it was useful for a variety of purposes, and will eventually become a factor in competition which cannot be entirely ignored.

THE IMPORT OF RAW GLYCERIN into Germany last year was 185,614 cwts., as compared with 194,689 cwts. in 1897. Of this, 87,149 cwts. went from Great Britain. The import of purified glycerin amounted to 28,977 cwts., compared with 35,612 cwts. the previous year; of this Great Britain sent 8,432 cwts. In spite of foreign competition, however, the German glycerin production shows a decided increase principally in glycerin for making dynamite, of which Cape Colony and the Transvaal took by far the largest quantity. The export of German glycerin in 1898 amounted to 127,300 cwts., compared with 67,953 cwts. in the previous year; of this amount 8,810 cwts. came to Great Britain, while South Africa took much more than half of the entire German export.

A NEW PROCESS FOR MAKING SULPHURIC ACID has, according to a recent report, been patented by the Baden Aniline Soda Factory, whereby there is an immense saving in fuel, and the expensive platina-apparatus is no longer necessary. Another important feature is the fact that no saltpetre is required by the new process. Saltpetre is of such importance for agricultural and technical purposes that any economy in its use must be welcomed, the more so as the saltpetre fields will probably, in course of time, be exhausted.

GERMAN MANUFACTURERS OF POTASSIUM CHLORATE AND NATRON, at the beginning of last year, found business so unsatisfactory, owing to the various factories competing with each other in lowering the price, that they conferred together, and came to an understanding by which the price of chlorate productions, manufactured by the electrolytic method, were fixed at a certain rate. The result was that the price of potassium chlorate rose from 53 to 62 marks per 100 kilos., which price, it is stated, has since been satisfactorily maintained. The import into Germany in 1898 amounted to 29,725 cwts., compared with 27,646 cwts. in 1897; of this 8,259 cwts. went from Great Britain.

THE SALTPETRE INDUSTRY in Germany is reported to have experienced many changes during last year. Notwithstanding the fact that the price of raw kali saltpetre and Chile saltpetre kept up, the prices of the manufactured article went down, without any compensating increase in the sale. The cause of this unsatisfactory condition is attributed by Consul-General Schwabach to the large number of new factories and the diminished use of saltpetre in the manufacture of explosives. The export from Germany decreased. Great Britain, however, took 84,244 cwts.

A HIGH IMPORT DUTY is the probable cause of the decrease in the importation of alkali from Great Britain to Germany in 1898, the figures being 6,623 tons, as against 8,272 tons in 1897. Another reason is the increased production of soda from year to year in Germany itself. Last year the United Kingdom sent 11,742 cwts. of calcined soda, compared with 20,527 in 1897, and seeing that, as intimated above, a high duty is imposed on the import, the price for British soda must have been very low. The duty is 2s. 6d. per 100 kilos., and considering the low value of the material it is so disproportionately high that it is to be hoped that the next commercial tariff will deal with this question. Of the persulphates the most important import was kalium salts, which is used as a developer in photography. The use of natrium salts, it is stated, has greatly increased in Germany for medicinal purposes and also as an antiseptic.

PHARMACY IN AUSTRALASIA.

(From Our Melbourne Correspondent.)

WHEN I LAST WROTE we were, in Victoria, looking forward with eager interest to the further process of the Victorian Poisons Act Further Amendment Bill through the Legislative Council, feeling confident that in Mr. Grimwade (of Felton, Grimwade, and Co.) we had a representative who could lucidly explain the principles lying behind the amendments desired by the Pharmacy Board, and forcibly advocate their adoption.

UNFORTUNATELY, when the second reading came on, on August 8, Mr. Grimwade was too unwell to put in an appearance, and Sir Frederick Sargood, to whom he had entrusted his "brief," did not have the courage or inclination, when the Bill was in Committee, to move the first intended amendment, that paragraph (A) clause 4, "patent or proprietary medicines" be omitted—that is, from the list of exemptions. After this the Committee-men, in the absence of perhaps the only member of the House who could direct them, had a lot of information to give each other as to "poisons" and "patent and proprietary" medicines; and proceeded to make various alterations more or less—principally less—advisable, with the details of which it is scarcely worth while in the meantime to burden your pages, as at their last meeting the Pharmacy Board declared that the alterations made did not meet with their approval, and resolved to bring under notice of the Government before the Bill was introduced into the Legislative Assembly the amendments which the Board considered urgent and necessary in order to make it a workable measure.

AT THE LAST MEETING OF THE PHARMACEUTICAL SOCIETY OF AUSTRALASIA the Committee of the proposed Victorian Pharmaceutical Conference—respecting which see previous notes—reported that a circular had been sent to every chemist in business in Victoria, inviting co-operation and assistance, and that the Committee was now engaged in the preparation of the various formulæ to be shortly submitted and dealt with.

AT A MEETING OF CHEMISTS, held at the Melbourne College of Pharmacy on August 14, it was decided to form a Chemists' Cricket Club, and the following officers were elected:—Patrons, Hon. F. S. Grimwade, M.L.C., Messrs. H. T. Tompsitt and R. P. Francis; President, Cr. Chas. Pleasance; Vice-Presidents, Dr. Plowman, Messrs. Rankin, Strutt, and Cattach; Secretary, Mr. A. F. Vivian. So do not be surprised if at an early date you will have to entertain an Australian Eleven ready to meet, and sure to beat, any knights of the pestle in the old country that may have the temerity to challenge them.

THE RECENTLY-PUBLISHED ANNUAL REPORT OF THE AUSTRALIAN COLLEGE OF DENTISTRY, MELBOURNE, shows that although only three years established, the College has acquired an intercolonial reputation, there being among the thirty-nine students now attending the institution several attracted from other colonies. In proof of the charitable character of the institution is the fact that over 10,000 patients were attended to at the hospital during the past year.

AT THE AUGUST MEETING OF THE PHARMACY BOARD OF NEW SOUTH WALES, Messrs. Ll. Williams and H. S. Brothwood were respectively re-elected President and Treasurer for the ensuing year. In expressing his thanks, Mr. Brothwood referred to the necessity which he foresaw in the near future of applying to the Government for funds, as the receipts accruing from registrations, etc., during the past two years were now falling off, the Board had done an immense amount of work on very little money, and he expressed the hope that their efforts would be appreciated and recognised by the Government. Which remains to be seen.

IN THE MEANTIME the Board is determined to take active measures against offenders under the Pharmacy Act, 1897, and the Poisons Act, 1876, and has issued a circular to registered chemists, magistrates, and council officers with a view of obtaining their assistance in the matter by undertaking the position of district inspectors. The duties outlined by the circular are: (1) To see that chemists' shops are carried on by those persons only who are registered pharmacists. (2) To see that scheduled poisons are not sold by persons not having certificates as dealers in poisons from

the Pharmacy Board. (3) In cases of breaches of the above Acts to prosecute the offenders in Court by authority of the Pharmacy Board. The remuneration to the inspectors is allotted at one-half the fines inflicted, and a refund of the expense incurred by the inspectors on account of such prosecutions. About thirty applications have been received by the Board, and are now under consideration.

The Registered Pharmacists' Society of N.S.W. has succeeded in securing from the Government the use of convenient premises for the proposed course of popular scientific lectures. and arrangements are now being made for an early commencement. In regard to the complaint in connection with the Friendly Societies' Dispensaries, the Society has been less fortunate, its communications to the Principal Under-Secretary on the subject having so far been practically ignored. The President has accordingly been authorised to interview some suitable member of the (N.S.W.) Legislature, with a view to having the correspondence between the Society and the Colonial Secretary's department tabled in the House.

At a meeting of members of the Dental Profession, held in Sydney on August 14, it was resolved to form an Odontological Society on the lines of that already successfully established in Victoria, the principle of membership being that "a person shall be eligible for election as a member, provided that he be of good character, that he does not conduct his practice by means of the exhibition of dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show-case exposed to public inspection, or by means of public advertisements or circulars describing modes of practice or patented or secret processes, or by the publication of his scale of professional charges." The following office-bearers were elected:—President, Mr. E. Reading; Vice-President, Dr. A. Burne; Hon. Treasurer, Mr. E. K. Satchell; Hon. Secretary, Mr. Donald Smith; Members of Council, Dr. Syme, Dr. F. Magnus, Messrs. P. B. Reading, Soderberg, Hunter, and Dr. Hunter.

NEW REMEDIES.

Bismuth Oxybromate and Sulphocarbolate.—Hugh Woods employs bismuth oxybromate in the treatment of nervous disorders of the stomach. It can be given several times a day in doses of 60 centigrammes, but in smaller doses of 30 to 40 centigrammes it is very efficacious. Being an insoluble yellow powder, it should be suspended by means of mucilage of acacia. Bismuth sulphocarbolate, a rose-coloured powder, slightly soluble in water, is employed by the same author in certain febrile maladies, in dyspepsia, and in abnormal fermentations in the alimentary canal; it forms a useful antiseptic. It is given in the form of a cachet in doses of 20 to 50 centigrammes three or four times daily.—*Nouv. Rem.*, **15**, 394.

Local Applications in Rheumatism.—The following application is recommended by Bourget:—Salicylic acid, 45 grains; oil of turpentine, 45 minims; wool fat, 5 drachms; lard, 5 drachms. then covered with any impervious material. S. Sterling employs This is spread over the parts, a dressing of absorbent cotton applied, the following ointment:—Salicylic acid, oil of turpentine, lanolin, of each, 1; lard, 4. This is applied to the affected joint, covered with non-absorbent cotton, then wrapped in gutta percha. When the superficial epidermis is destroyed, the turpentine is omitted.—*Pract.*, **63**, 358.

Creosote-Ichthyol.—This is the name given by H. Goldmann to a mixture composed of creosote carbonate, 15; ichthyol, 15; glycerin, 30; peppermint water, 10. The mixture is useful in tuberculosis, in doses of from 20 to 30 drops (with wine or lemonade) three times daily; for children, 10 drops three times daily is sufficient.—*Oest. Zeits. Pharm.*, **53**, 429.

Eumenol.—Eumenol is the name given by E. Merck to the extract of the root Tang-Kui, which has long been known in China as a remedy for amenorrhœa and dysmenorrhœa. The botanical origin of the root is unknown, but Harth strongly recommends its use.—*Oest. Zeits. Pharm.*, **53**, 428.

LETTERS TO THE EDITOR.

The Proposed Canadian Addendum to the B.P.

Sir,—In your comments on the proposed Canadian Addendum (September 2), you are somewhat in error in stating that the formulæ were devised, etc., by Messrs. Lyman, Sons and Co. The work was done by me, or under my supervision, in the laboratory of that firm, who kindly placed material and apparatus at our disposal to carry on the work.

Montreal, September 11, 1899. J. E. Morrison.

The Solubility of Quinine Hydrochloride.

Sir,—Having had recently to prepare a large quantity of strong alcoholic solution of quinine hydrochloride, I was led to consult the standard works as to the solubility of that salt in 90 per cent. alcohol. I find that the B.P., 1898—"our casket of natural gems more or less polished"—gives 1 in 3, and in the U.S.P., and 'Extra Pharmacopœia,' the same figures are given, but Squire says 1 in 1. From experiments I have made, I am able to confirm Squire's statement, and may add that at temperatures below 60° F. re-crystallisation quickly takes place.

North London Chemical Works, Holloway, October 2, 1899. F. Bascombe.

Ether-Soap.

Sir,—It may interest Mr. Hocking still further to know that the "surgeon's formula," which he is using and to which he refers in last week's Journal, is one communicated by me to that gentleman (who happens to be connected both with Evelina and St. Thomas's Hospitals) some months ago. I think Mr. Hocking, before writing his letter, should have consulted the surgeon from whom he derived the formula; he would then have found that the formula was given for private use and was not intended for publication by anyone into whose hands it might fall. In that case Mr. Hocking's letter and this reply would have been unnecessary. Very possibly the case of the third hospital mentioned by Mr. Hocking is similar to his own; but as the name of the institution was not mentioned, I am unable to say definitely. Comparison of the formulæ will show that the proportions of the constituents are almost the same. I have made some slight alterations which further experience suggested. The method described by Mr. Hocking was the one formerly used by me. I have, however, since changed it to the more cleanly and expeditious method described in my paper, the advantages of which over my former method, still preferred by Mr. Hocking, are sufficiently obvious. If one makes the solution according to my formula, in quantities of about 5 litres instead of a few C.c., there should be no difficuity in confirming my observations as to the rise of temperature and the formation of deposit. The occurrence and amount of this deposit will obviously depend upon the composition of the sample of oleic acid employed, commercial varieties of which are never pure, and is there any need for the employment of a very pure acid in the present case?

St. Thomas's Hospital, S.E., October 3, 1899. Edmund White.

Sodium Arseniate.

Sir,—Your "Students' Column" this week treats of sodium arseniate. My experience of the subject goes to show that as to stable-keeping qualities the crystals are the more trustworthy. I have here about 3 ounces that I can vouch for being twenty-five years old, at least, and there is no change in their appearanee whatever. The dried, on the contrary, has had to be thrown away twice or thrice during the same period because it became damp, and a specimen of the fused—as old as the crystals—has an evident tendency to return to the crystalline state. I should be happy to supply any pharmacist of my acquaintance—in proper form—with a specimen for examination upon application.

39, *Church Street, Maryletone, N.W., October* 3, 1899. J. C. Hyslop.

Poor Law Dispensers' Association.

Sir,—Now that the important question of salary is settled by the L. G. B., increasing the maximum salary to £180 per annum, I trust that the executive of the above Association, who have erected a monument of fame which will endure for ever, will take immediate steps to prevent the burial of their Association, and so avoid another resurrection of it.

The Association, as at present constituted, is not on a sufficiently sound basis to be lasting. It is but a carcase without a spirit, shell without a kernel. We do not want a thing of paper, a castl in the air, but a reality which will bear the test of common sense and with that view I advocate that we immediately amalgamate with the Public Dispensers' Association, and so promote the welfare of all public dispensers, thus opening up a wide field, with, I hope, a fertile soil, where discussions and lectures will extend intellectual culture, the fundamental principles of success.

Let us persevere and struggle to reach the apex of possibilities; it may require time, but it will be done if we are determined. Let us not pass our lives in obscurity. Let each who values himself, his intellect, and his betterment, consider the advancement of the whole craft. Join the Public Dispensers' Association, and do not grudge to trim the morning lamp, or acquire too great an affection for the pillow, and so assist in nibbling at the apple of knowledge in search of the core. Let each remember that his attendance should be regular, and that by improving the mind, obstacles will be removed that will gradually lead not only to improvement, but increasing improvement socially and financially, with the view of the Poor Law Dispensers' Association amalgamating with Public Dispensers' Association.

28, *Goring Road, Bowes Park, N.*, S. B. DONNAN.
March 3, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Sale of Business (H. K.—34/15).—Your best plan is to submit the agreement to a solicitor, and ask his opinion upon it.

Capsules (S. H.—34/25).—You should be able to obtain them through any wholesale house.

Sale of Prussian Blue (E. W. S.—34/27).—(1) Prussian blue is not a scheduled poison; (2) It hardly seems necessary to label it "poison."

Tannigen (W. H. and S.—34/29).—The substance you require is probably tannigen, which is insoluble in water, and is usually dispensed in cachets, in doses of 3 to 8 grains.

Army Medical Staff Corps (J. M.—34/22).—See the note on the subject in the *P.J.* for September 9 last, page 250, and write to the headquarters of the Army Medical Staff, 18, Victoria Street, London, S.W., for further particulars.

Pharmacopœias (E. E. H.—34/20).—(1) A 'Pocket Pharmacopœia' is published by Baillière, Tindall and Cox, price 3s. 6d. (2) Only second-hand copies of the works you name are now obtainable; advertise in the Exchange column of the *P.J.*

Medicine Stamps (W. S. A.—34/24).—All you require to do is to purchase a stock of stamps from the Inland Revenue authorities and attach one to each package in such a manner that the package cannot be opened without breaking the stamp.

Canada Balsam (A. H. B.—34/28).—The oleoresin or the spirit must have been at fault, as there is no difficulty in dissolving genuine Canada balsam, which has been evaporated to dryness, in pure benzol. The solution should not leave a sticky residue on drying.

Microscope (W. G. P.—34/26).—You can get a good student's microscope by Leitz (Stand V), with two eyepieces and two objectives, for £3 10s. Write to C. Baker, 244, High Holborn, London, W.C., for particulars. Watson's stands are, of course, much superior, and well worth the extra cost.

Photographic (J. B.—33/24).—The negative was rather fully exposed, and we should say not developed far enough. To prevent the prints losing their gloss, it is advisable to paste a piece of waterproof paper on the back of them when they are squeegeed down to the glass. We do not know the varnish, but it is probably a solution of white shellac in borax and glycerin and water. If you could send some up we might be able to tell you.

Ext. Cinchonæ Liq. (E. A. A.—2/4).—It does not at all follow that, because one fluid ounce of liquid extract is prepared from one ounce of cinchona bark containing 5 per cent. of alkaloids, the finished preparation must contain 5 per cent. of total alkaloid. According to the B.P., 1885, the residue left in the dish consists of pure alkaloids; Mr. White shows that such is not the case. If, therefore, you have been in the habit of preparing a liquid extract really containing 5 per cent. of pure alkaloids, you cannot have standardised it by the process official in the B.P., 1885.

Use of Title (C. H. B.—34/32).—(1) The individual referred to may be unaffected by the first fifteen sections of the Pharmacy Act, 1868, by virtue of being registered as a legally qualified medical practitioner. If not, send particulars of the case to the Secretary and Registrar of the Pharmaceutical Society. (2) The Privy Council can direct the name of a chemist and druggist who has committed an offence under the Pharmacy Act to be erased from the Register, but the Pharmaceutical Society is invested with no such authority. The Council of the Society can direct the removal of a person's name from the list of members, but that does not affect the position of the individual as a registered chemist.

Tinct. Iodi Decolor., B.P.C. (W. B. B.—34/10).—In calculating the iodine strength of the official tincture for comparison with other iodine preparations, you must only consider the *free* iodine present. The iodine in potassium iodide is so firmly combined with the metal that it never manifests the local action shown by free iodine. Potassium iodide is associated with iodine to assist the solution of the latter. The expression "about the same strength" must therefore be taken as referring to the 250 and 218·75 grains of iodine in the two preparations you mention. We should think the decolorised tincture would be meant by the prescriber of lin. iodi alb.; or, perhaps, the tinctura iodi decolorata fortior of the B.P.C.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

Corrections.

PERCENTAGE SOLUTIONS OF THE PHARMACOPŒIA.—At page 317, column 2, line 9 from the bottom, for "24/11 or 22/11," read "24/11 or $2\frac{2}{11}$."

THE TESTING OF TURPENTINE OILS.—At page 330, column 1, line 15 from the bottom, for "88°" read "8°."

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Anderson, Andrews, Attree, Bartlett, Bell, Bennett, Bentley, Booth, Brierley, Brunt, Cocks, Ferryman, Fox, Frame, Gamble, Gibb, Gibson, Glew, Groth, Hibbert, Hill, Hogg, Hooker, Jennings, King, Kirkby, Lake, Longstaff, Maben, McKellar, Massie, Mumbray, Nursaw, Pater, Pinson, Powell, Roberts, Roy, Rudd, Sleath, Smith, Snowden, Tuckett, Type, Tyrer, Walton, Whineray, Wilkinson, Williams.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

EFFECTS OF ANHALONIUM LEWINII.

Dr. W. E. Dixon finds that "Mescal" acts differently from any other known substance, although in isolated properties it resembles many. *Cannabis indica*, which it was at first thought to resemble most closely differs from it in producing delusions of merriment and a hypnotic effect; "Mescal" never gives rise to merriment, but rather to a condition of ideal content, and produces wakefulness. It is closely related to strychnine by its marked effect on the brain and cord, but whereas strychnine acts mainly on the cord, the effect of "Mescal" is mainly cerebral, and opisthotonos never occurs. It resembles nicotine in its effects on nerve, first paralysing nerve cells and then fibres. Other properties of "Mescal" may be compared to those of digitalis and cocaine, but in each case with marked contrasts. In its peculiar stimulation of the occipital cerebrum "Mescal" appears to stand alone. Its properties lead the author to hope that it may be of use in therapeutics: the fact that even after very small doses a feeling of well-being and exhilaration results, points to its use as a general stimulant to the central nervous system, the diminution in the kinæsthetic sensations possibly making it of special use in melancholia. Further it is possible that its effect on slowing the heart by a direct action on cardiac muscle and in small doses increasing the force of the beat may be found of use.—*Journ. Physiol.*, September, 1899, p. 69.

ALKALOIDS OF ANHALONIUM LEWINII.

Dr. Dixon points out that Heffter described (*Berichte*, 1896) a method by means of which four alkaloids — mezcaline, anhalonidine, anhalonnine, and lophophorine—could be extracted from "Mescal" buttons. E. White, of St. Thomas's Hospital, has amplified Heffter's work, and prepared the alkaloids in the following proportions from the crude "buttons":—Mezcaline and anhalonidine (about equal amounts of each), 1·16 per cent.; anhalonnine, 0·46 per cent.; lophophorine, 0·14 per cent. The alkaloids were supplied in a beautiful crystalline condition, except lophophorine, which appears to be only crystalline in the form of a salt. All were freely soluble in distilled water, alcohol, or normal saline solution, and possessed remarkable similarity in their physiological actions. Anhalonnine and anhalonidine have the same formula—$C_{12}H_{15}NO_3$—and are isomeric; their physiological effects are identical. Lophophorine ($C_{13}H_{17}NO_3$) belongs to the same series, differing only by the addition of CH_2: this addition, however, appears to have the effect of increasing the toxicity. Mezcaline ($C_{11}H_{17}NO_3$), though apparently differing somewhat in constitution, is also closely allied to the other bases, and its physiological action is almost indistinguishable from that of anhalonnine.—*Journ. Physiol.*, September, 1899, p. 71.

MELTING-POINT OF HYDROGEN.

T. Bayley points out that the value—about 16°·7 C. (abs.)—given by Professor Dewar for the melting-point of hydrogen is near a value —16°.768 C. (abs.)—which is, within narrow limits, a common measure of the melting-points of the family of alkali-metals of which hydrogen is the first member. Thus, taking the latest determinations given in Roscoe and Schorlemmer's 'Chemistry':—

	M.P. (abs.)		16·768		Diff.
H	c. 16·7	(Dewar)	X		
Li	453		27	= 452·73	— 0·27
Na	368·6		22	= 368·89	— 0·29
K	335·5		20	= 335·36	— 0·14
Rb	311·5		18·5	= 310·20	— 1·3
Cs	299·5			= 301·82	+ 1·3
—	c. 273		17·5	= 293·44	

c. 293 is the melting-point for the unknown alkali-metal (A W c. 223·7) next succeeding to Cs, independently arrived at by a graphical treatment of the melting-points of the elements in a manner similar to that employed for the A.V.'s (*Journ. Am. Chem. Soc.*, 20, No. 12). This graphical treatment clearly demonstrates an interrelation between the A.V.'s, M.P.'s, and B.P.'s of the elements, and in view of the figures given above the question may be asked whether the melting-points of the alkali-metals are not simple multiples of the melting-point of hydrogen. Also taking 0·036 (Dewar) as the maximum density of liquid hydrogen (= A.V. 11·6), the A.V.'s of the same metals are (but only approximately) simple multiples of this hydrogen value.—*Chem. News*, **80**,159.

ALUMINIUM IODIDE EXPLOSION.

P. L. Narasu received at Madras two samples of aluminium iodide in hermetically sealed glass tubes, from a German firm. Whilst one of the tubes was being passed round a class, the other—lying on the demonstration table—suddenly exploded, and its contents were thrown out. Prior to the event both the tubes appeared to be perfectly sound, and there was no reason to suspect that the volatile compound had formed an explosive mixture with air. The temperature of the lecture-room at the time the explosion took place was nearly 95° F.—*Nature*, **60**, 520.

EFFECT OF ARSENIC ON PLANTS.

According to M. R. Bouilhac, a number of freshwater algæ which he enumerates can absorb a certain amount of arsenic acid in the form of arseniates without injury; these salts partially taking the place of phosphates. Among the algæ which possess this property are *Ulothrix tenerrima*, *Protococcus infusionum*, *Dactylococcus infusionum*, and *Stichococcus bacillaris*. With *Schizothrix lardacea*, arsenic acid appears to have even a more favourable effect on its growth than phosphoric acid.—*Bull. Soc. Bot. France*, 1899, p. 61; from *Annales Agronomiques*, 1898.

MICROSPORIUM AND ALLIED FUNGI.

In the opinion of MM. L. Matruchot and C. Dassonville, all the fungi which cause ringworm, herpes, and allied cutaneous diseases—*Trichophyton*, *Achorion*, and *Microsporium*—should be placed in the *Ascomycetes* among the *Gymnoasci*. The conidial apparatus of *Microsporium* is a similar structure to those of *Gymnoascus*, *Ctenomyces*, and *Trichophyton*. The spores are solitary, or grow laterally and irregularly on the filaments. They are formed by the transport and encysting of the protoplasm, and are attached by a more or less broad surface. *Microsporium* possesses also pectinaceous hyphæ similar to those of *Ctenomyces*. Whether it should be retained as a distinct genus, or united with *Ctenomyces*, *Trichophyton*, and *Achorion*, and all sunk in *Gymnoascus*, the authors leave an open question.—*Comptes rendus*, **129**, 123.

ANIMAL AND VEGETABLE CANCER.

M. Bra records some interesting observations on the analogies presented by cultures of *Nectria ditissima*, the fungus which produces "cancer" in trees, and those of the parasitic fungus which accompanies cancer in man and other animals. In the former case the cultures produced round spores about 1 μ in diameter, displaying a brownian movement, having a strong tendency to agglomerate and multiplying endogenously by budding. The spores, spherules, conids, and hyphæ present staining reactions and biological characters identical with those of the human parasite. Inoculations of trees with cultures of the human parasite resulted in a "cancer" in all respects resembling that produced by *Nectria*; and conversely, the ingestion of rabbits by cultures of *Nectria* caused the production, in about three months, of round ulcers in the stomach similar to those produced by the ingestion of cultures of the human parasite.—*Comptes rendus*, **129**, 118.

PERCENTAGE AND OTHER SOLUTIONS.

BY HAROLD WILSON.

Pharmacist to University College Hospital.

The subject of percentage solutions is one in which, as a teacher of pharmacy, I have been much interested, and it was, therefore, a pleasure to read the paper published by Mr. F. A. Upsher Smith in a recent number of the *Pharmaceutical Journal* (*ante*, p. 317). I am in entire accord with the first of his conclusions, viz.: "True percentage solutions containing x parts by weight in 100 parts by weight are not desirable as long as liquids are measured.

True percentage solutions are useless when liquids are dispensed by measure; for, neither the weight of principle contained in a given weight of solution, nor the volume of the principle which has been mixed with a given volume of the solvent, are of any use as a basis for calculating the weight or volume of principle in measured quantities of the finished product.

As pointed out by Mr. Upsher Smith, the chief difficulty met with in using true percentage solutions is the varying specific gravity of the solvents ordered; this can be demonstrated in a very convincing manner by preparing solutions of a salt, such as mercuric chloride, in water, ether, and glycerin, each solution being of the same true percentage strength, and containing the same weight of the salt; it is then very evident that the strengths of the respective solutions are quite different if determined by the weight of salt in a given volume. This difficulty disappears where fluids as well as solids are dispensed by weight, but, so long as fluids are measured (and I hope this may always be the case), the volume of a true percentage solution required to contain a definite weight of principle can only be determined by direct experiment in each case as it arises.

Considering that we are almost compelled to regard the strength of solutions in terms of weight or volume of the principle in definite volumes of the product, it appears to me that it would be well if the British Pharmacopœia, our "uniform standard and guide," were to make some authoritative statement as to the method of procedure to be followed in preparing solutions ordered to contain definite percentages of solids or liquids. This seems all the more necessary, as undoubtedly the ordering of percentages in prescriptions is on the increase. I suggest, as the most satisfactory method of dealing with the question, that in pharmacy the term percentage, when applied to solutions, shall be restricted to indicating the parts or fluid parts of the principle contained in 100 fluid parts of the solution. This is the system under which the standardised preparations and most of the liquors of the British Pharmacopœia are prepared, though in no case are the products spoken of as percentage solutions.

Some such paragraph as the following would, I think, meet the case if inserted in the Pharmacopœia.

"Percentage Solutions."

"In preparing solutions ordered to contain x per cent. of a solid or liquid, the following rules shall be observed:—

"(1) *Solution of a solid in a liquid.*—Take x parts of the solid, dissolve and make up to 100 fluid parts with the solvent ordered.

"(2) *Solution of a liquid in a liquid.*—Take x fluid parts of the liquid, dissolve and make up to 100 fluid parts with the solvent ordered."

Another matter which may be conveniently referred to here is the necessity for an authoritative statement as to the correct interpretation of prescriptions in which are ordered solutions containing 1 part in x parts. The following is a very commonly occurring prescription of this class:—

℞. Sol. Hyd. Perchlor., 1 in 1,000.
Mitte, ʒviii.

This prescription is dispensed in one of two ways—

(*a*) By making a solution containing 1 grain of mercuric chloride in 1,000 minims. In this case $\frac{480 \times 8}{1{,}000} = 3{\cdot}84$ grains of mercuric chloride would be contained in eight fluid ounces of the finished solution.

(*b*) By making a solution containing one grain of mercuric chloride in 1,000 fluid grains. In this case $\frac{437{\cdot}5 \times 8}{1{,}000} = 3{\cdot}5$ grains of mercuric chloride would be contained in eight fluid ounces of the finished solution.

By the first method a solution is obtained which is more than one-tenth stronger than one prepared by the second method; this is surely a serious difference. I will refrain from citing the arguments of the respective adherents of the methods given; suffice it to say, that enough uncertainty exists to give colour to these arguments when a uniform and definite method should unquestionably be followed in all such cases.

I therefore also suggest that some such paragraph as the following be inserted in the Pharmacopœia:—

"Solutions Containing 1 Part in X Parts."

"In preparing solutions ordered to contain 1 part of a solid or liquid in x parts of the finished solution the following rules shall be observed:—

"(1) *Solution of a solid in a liquid.*—Take 1 part of the solid; dissolve and make up to x fluid parts with the solvent ordered.

"(2) *Solution of a liquid in a liquid.*—Take 1 fluid part of the liquid; dissolve and make up to x fluid parts with the solvent ordered."

I am perfectly aware that I have only been stating well-known facts with regard to these solutions, but I do hope my remarks may lead to steps being taken which will render it impossible for any such misconceptions to arise. We must strive for uniformity. We all know instances in which pharmacists have lost the confidence of customers through such trivial matters as the varying colour of an infusion; but what would these people think if they knew how much the strength of a solution depended on the particular views of the pharmacist who dispensed the prescription.

My reason for advocating the use of parts or fluid parts of principle in fluid parts of product, is, that made in this way, solutions will be of the same strength, whether British or metric weights and measures are employed. The fluid grain bears practically the same relation to the grain as the cubic centimetre does to the gramme, but if, on the other hand, we decide to make solutions containing grains in minims, then we destroy the connection between the British and metric systems.

Mr. Upsher Smith's second conclusion reads as follows: "Solutions containing x grains in 110 minims, are unnecessary and clumsy, because they serve no useful purpose, and do not admit of consistent and simple dosage of potent drugs."

Against this I must protest most strongly; in fact, to criticise in this way a Pharmacopœia which has adopted the metric system as an alternative in formulæ for the first time, is little short of heresy. If we go back to "percentage" solutions containing grains in minims, how are we to secure that uniformity between British and metric systems which must pave the way for the complete adoption of the latter in this country?

It is indeed unfortunate that fluids are prescribed in minims, rendering the calculation of the quantity of solid present in a small dose of the official liquors somewhat tedious. For all this we must blame the minim, and look upon the fluid grain as one of the prophets of the coming metric system. With regard to the discrepancy in dosage which Mr. Upsher Smith points out in the case of sodium arsenate, and solution of sodium arsenate, I should seek an entirely different remedy. What purpose is served by having official liquors which are merely aqueous solutions of salts? Why cannot the

salts themselves be ordered? Surely if such salts were ordered by weight the pharmacist might be trusted to select and make a solution of his own, which in his experience was most convenient for dispensing purposes. It seems to me that it would be easier, and certainly more scientific, to order definite quantities of a drug than of a solution the strength of which the prescriber frequently knows nothing.

PRACTICAL STANDARDS OF SOLUBILITY OF CHEMICAL SUBSTANCES.

BY HAROLD WILSON,

Pharmacist to University College Hospital.

It has occurred to me that the statements in the British Pharmacopœia as to the solubility of chemical substances, though scientifically accurate, might with a little extension be made much more useful both to medical men and pharmacists.

Here we find that the information takes the form of noting the number of parts of water or other solvent in which one part of the substance will dissolve. No mention, however, is made of the volume resulting from such solution. Now, in practice we require to know what quantity of the substance is capable of being held in solution at ordinary temperatures in some given volume which is the resultant of the solution of the substance in the particular solvent ordered. I, therefore, suggest that the quantity of the substance contained in a given volume (say a fluid ounce and some convenient volume in cubic centimetres) of a saturated solution at 50° F. (10° C.) should also be mentioned. In most cases it would only be necessary to treat in this way the case of solution in water. The most desirable temperature to select is a point for discussion, and it might be advisable to give figures for more than one temperature

I will give one instance of the uselessness, from the practical pharmacist's point of view, of some of the statements at present in the Pharmacopœia. In the case of sodium sulphate we are told that it "is soluble in less than half its weight of water at temperatures from 77° to 86° F. (25° to 30° C.)."

This is all very well as a fact, but the information is not of the least use to prescribers and dispensers, at any rate, in such a climate as ours. No general remarks are made showing the peculiar variations in the solubility of this salt at different temperatures. I cannot but think that such isolated statements are more fitted for a dictionary of chemistry, and that they might well be deleted from the Pharmacopœia. Let us try to make the book a really more practical one by removing statements of doubtful utility, and introducing information more fitting to those whose lot in life necessitates its constant companionship. But whence shall the required data be derived in order that such information *can* be given? Most improvements introduced into the Pharmacopœia have been the result of independent researches conducted by pharmacists. But I take it that no pharmacist will gratuitously undertake work of this kind. However useful and even necessary the results of such labours might be, the subject is too tedious and dull to be ever undertaken for love by anyone competent to obtain accurate results. Work of this description must be paid for, and it is a thousand pities that the Pharmacopœia authorities have not yet advanced so far as to appoint a body of paid workers. Such a body would find abundant employment in routine work and in checking many processes advocated by independent workers. We should then hear less of unworkable and clumsy methods finding their way into the Pharmacopœia. The latter might then come much nearer to that high standard of perfection which it is our hope and ambition to see in our recognised authority.

EXTRACTUM BELLADONNÆ, B.P.

BY F. A. UPSHER SMITH.

Demonstrator of Pharmacy, Pharmaceutical Society's School.

This note has for its object the raising of a point which has given the pharmacist some difficulty during the past eighteen months. When extractum belladonnæ is ordered in a prescription, it is not easy to decide which extract to use, since there are now two official extracts, known respectively as extractum belladonnæ alcoholicum and extractum belladonnæ viride.

Inquiries recently made among some of the leading pharmacists in the West-end elicits the fact that some use the alcoholic and others the green extract when simply extractum belladonnæ is ordered in prescriptions. It matters less which is used in making pills than in making suppositories, though the balance of evidence is in favour of the alcoholic extract for suppositories. The case may be thus briefly put:—

In support of the green extract it may be urged: (1) That the older practitioners have it in view when writing prescriptions; (2) that in the list of alterations in the nomenclature of the preparations of the B.P., 1898, extractum belladonnæ viride is given as the new name for extractum belladonnæ; and (3) that the green extract possesses better binding properties than the alcoholic when used for forming pills.

On the other hand, it may be claimed for the alcoholic extract: (1) That it is a preparation of definite strength; (2) that it is free from chlorophyll, consequently there is less difficulty in making belladonna suppositories with it; and (3) that the suppositoria belladonnæ of the B.P. are made with the alcoholic extract.

It will be seen, therefore, that each extract has something to recommend it before the other. Those who have attempted to prepare suppositories containing extract of belladonna and tannin will testify to the extreme difficulty of turning out a presentable product when the green extract is used. A strict minimum of heat is necessary to prevent an unsightly mass, and even then only the most skilful and rapid operator is successful. If the use of the green extract be insisted on, then it will be found advisable to make the suppositories in the cold. This plan was adopted in the School of Pharmacy last winter with considerable success.

In my opinion, the alcoholic extract is the most suitable for making suppositories. That it is by no means an ideal preparation has already been shown by Bird (*Pharmaceutical Journal*) [4], **7**, 163). Its disadvantages, however, affect chiefly its employment in forming pills. It is too crumbly, and lacks the binding properties of the green extract and of the alcoholic extract of the 1885 Pharmacopœia. This points to the use of the green extract in pill-making.

Further, there remains the undoubted fact that many medical men are still ignorant of the contents of the new Pharmacopœia. There are, indeed, some who are unaware even now that a new Pharmacopœia was published in 1898. There is no doubt that these practitioners, as well as others who have a preference for the green extract, intend it to be used when they simply order extractum belladonnæ in prescriptions.

Lastly, the definite statement in the Pharmacopœia, p. xxvi., that the present name for extractum belladonnæ is extractum belladonnæ viride, leaves no room for misinterpreting the intentions of the Pharmacopœia authorities. By extractum belladonnæ they certainly mean extractum belladonnæ viride. It would be well, provided they sanction the use of the alcoholic extract for suppositories and the green extract for pills, that they should insert a note to that effect, as is done under unguentum paraffini, where white ointments are directed to be prepared with the white variety of soft paraffin, and coloured ointments with the yellow.

It is hoped that pharmacists will ventilate and discuss this question. At present the existing confusion in the use of the two kinds of extract is increasing rather than diminishing, as every year another generation of students goes back to business, uncertain as to what other pharmacists are doing in the matter. Though different opinions have been held in the past, yet at all events some degree of unanimity may be attained in the future by discussing the question.

THE EARLY HISTORY OF CINCHONA OFFICINALIS.

BY G. CLARIDGE DRUCE, M A.,

(Fielding Curator in the University of Oxford.)

In the library of the Botanical Gardens at Oxford I have recently met with the following letters relating to the early history of the Loxa *Cinchona*, which it may be well to print. Although no fact of great importance is contained in them, any information about such a valuable remedy needs no apology for insertion in the pages of the Journal.

London, December 20, 1741.

Worthy Sir,—Your great learning in Botany, etc., which hath placed you in that Honourable Station you now enjoy, obliges me to take this Liberty in presenting to you the Draught of a Plant heretofore in England not known altho' the Bark which it produces is such a common and valuable commodity and one of the most noble specificks we have in Medicine. It is the representation of the distinct parts, of the very Tree which produces the Jesuits Bark. The specimens which I had to make this Draught by, where sent as a present. along with a large quantity of the Bark itself, to Dr. Mortimer, R.S.Sec., from Loxa, in Peru, by Msr. Condamine, a French Mathematician, who was then at the Place where it was gather'd, viz., in the Mountains of Cajanuma, near Loxa. The leaves, etc., where of such a thick and hard texture, and folded so intricately, as well as broken, by means of the pressure of the Bark amongst which they lay, that it was with much difficulty (by the means of hot water), I expanded them, fit to represent in this state Exposed to your view, at last I did compleat my design, and glew'd the several parts upon paper, which was presented to the Royal Society, together with my drawing from which it was made which was compared with the Specimens, was approved of, as also was ordered to be engraved purposely to place in the Philosophical Transactions. Msr. Condamine's Draught, which is published in the French Memoirs for 1739, was thought not to answer near so well, he not taking notice of several particulars, which are of the greatest Consequence. This plate is not yet finished 'cause our Learned in Botany are Dubious concerning its Genus, by reason its flowers where not expanded in our specimens (to make the draught compleat we have taken a flower expanded out of the French Memoir). The name to give is what we stay for, some will have it to be Bignonia, others a Lilack, wherefore Sir an answer from you together with your opinion concerning this Particular, will be very satisfactory, and taken as a particular favour from your Very Humble Servant

JOHN HAWKEENS,
at Mr. John Rawling Apothecarys in Silver Street
Bloomsbury Market
London.

P.S.—Sir I hope, This, my Boldness, when you know it comes from an Apothecarys Apprentice, will not be taken amiss, my design being only of propagating knowledge, when with great Labour I can obtain it, what made you known to me Sir, was your works, already publish'd & that Minute and Infinite Subject of Mosses, whereupon you now labour, and which I long to see publish'd made me think no one had more right to one of these Prints, Than yourself, which was the chief inducement for my now troubling you.

Dillenius answered as follows:—

I had yr favour of ye 20 inst together with ye Plate of ye Jesuits Bark Tree Plant, of which you desired my Opinion. From what I can collect from ye several figures & their Explications, it differs widely from ye Genus of Bignonia, nor is it a true Species of Lilac, if ye calyx stands at the top of ye embryo & seedvessel and for some other reasons too. If you could spare me some flowers & seedvessels, perhaps I could determine matters, better if you can, please to add a branch & some leafs, as good as you have them, which will oblige

Your humble servant
J. J. DILLENIUS Dec. 25, 1741.

Two years after Mr. Hawkeens sent a second letter, which is as follows:—

May 14, 1743. Chelsea.

Sir,—Some time ago I sent a print of the Jesuits Bark Tree, I have now added the Quina Quina (the Bark of which was first made use of for curing Agues), but this that we now use being found preferable, has made the other rejected. Sir I hope you'l Except it and I have my desire. I sent you a few seeds, etc. of the Jesuits' Bark, but wether you received them or no, I never had the pleasure to know. Sir I am at present a Sorting all Petiver's plants in the Possession of Sir Hans Sloan which you (in the Synopsis Raii præfat.) thought would always lie in oblivion. I wish you prosperity to go on in Your Botanical Works and particular that of the Pinax which all lovers of Botany long to see.

I am Your most obedt. Humble servt.,
J. HAWKEENS.

P.S.—Sir, If you should hear of any Nobility, etc. of the University, who are for going the Tour thro' Europe, etc, I should take it a particular favour you'd acquaint me of it, I having a great desire to see a little of the world in some station or another, I can have careful recommendation.

Please to direct to me at Sir Hans Sloan, Chelsea.

Reference to the 'Pharmacographia' will show that the M. Condamine referred to is M. Charles-Marie de la Condamine, who from 1736 to 1743 was occupied in measuring the arc of a degree near Quito, and who, on the 3rd and 4th February, 1737, visited the Sierra de Cajanuma, 2½ leagues from Loxa, and there collected specimens of the tree now known as *Cinchona officinalis* var. *Condaminea*. It will be remembered that Dillenius, the Professor of Botany at Oxford, 1734–47, edited the third edition of Ray's 'Synopsis' which was published anonymously, or to speak more correctly, without the author's name on the title page, in 1724, the work on Mosses referred to by Hawkeens was the *Historia Muscorum* a quarto volume, published in 1741. Petiver, whom Hawkeens mentions, was an apothecary, a celebrated naturalist, a contemporary and correspondent of Ray, and who contributed the list of Middlesex plants to Camden's 'Britannia'. Sir Hans Sloane was a celebrated savant, whose immense collections are contained in the British Museum.

SUGGESTIONS ON PRACTICAL PHARMACY.

The report presented by the Committee on Practical Pharmacy of the American Pharmaceutical Association at this year's meeting included a number of suggestions which should prove of interest to English pharmacists. They are grouped under two heads, suggestions received by the Committee, and others offered by that body.

Suggestions Received by the Committee.

COMPOUND CHALK POWDER.—E. R. Selzer advises the addition of oil of cinnamon directly to the compound chalk powder in proper proportion to take the place of the oil in the cinnamon water directed by the Pharmacopœia. He is of the opinion that the presence of the oil will prevent fermentation in the powder, which sometimes occurs when it is not properly dried.

COMPOUND TINCTURE OF GENTIAN.—Wm. Mittlebach says compound tincture of gentian should be allowed to stand at least a year, and to undergo varying temperatures before being filtered. This procedure will prevent the usual precipitate forming after filtration. He is also satisfied that the 1880 formula for compound soap liniment is to be preferred to the latter formula, which he thinks unsatisfactory. He is of the opinion that elixir of iron, quinine and strychnine phosphates should not be made in large quantities, and should be stored in small bottles perfectly filled to avoid the discoloration of the product, which, he says, is prone to become dark.

EFFERVESCENT SOLUTION OF MAGNESIUM CITRATE.—J. H. Schmidt has had trouble with the U. S. P. effervescent solution of magnesium citrate. He boils and cools the water just previous to using and adds the syrup of citric acid to the solution before filtering. In this way he secures a "sightlier" preparation and one which will remain clear. To save time, in making camphorated tincture of opium, he uses 40 C.c. of the tincture instead of 4 grammes of the powdered opium.

SYRUP OF TOLU.—J. F. Kiedaisch, jun., offers the following formula for syrup of tolu:—

Balsam tolu	1·28 oz.
Sugar	7 lb.
Water, enough to make	1 gal.

Place the balsam of tolu in a mortar and add 1 pound of sugar, rub them together into a coarse powder, then mix with the remaining sugar. Prepare a percolator as described under "Syrup," U. S. P., 1890, into which put the mixture, and proceed to percolate with distilled water; returning portions of the percolate until it runs through clear.

EXTRACTS IN PILL MASSES.—H. T. Cummings calls attention to the necessity of thoroughly incorporating pilular extracts into pill masses. He advises that the extract be well softened with water before it is mixed with the other ingredients of the mass. He has also found the water-bath useful in dissolving the extract of liquorice in making brown mixture.

Elixir of Ammonium Valerianate.—Chas. H. Ware suggests the use of compound tincture of gentian as an acceptable flavouring for elixir of ammonium valerianate. He finds that the sugar for syrup of wild cherry is best dissolved by percolation and has much trouble filtering the solution of liquorice for brown mixture. He asks why glycyrrhizin could not be used instead of extract liquorice.

Cold Cream.—William Gray offers the following formula for cold cream, and claims that it furnishes a product as nearly perfect as it is possible to attain. He says it will not become rancid, and that the rose water will not separate from the base:—

White wax	6 oz.
Spermaceti	6 oz.
Expressed oil almonds	3 lb.
Rose water	1 lb.
Sodium biborate	30 gr.
Oil rose	2½ dr.
Oil patchouly	5 gtt.

Suggestions Offered by the Committee.

The Committee in its further efforts begs leave to be suggestive; it will strive to offer sample notes of a kind which it believes will be interesting to active retailers. It is to such that we would call the Association's attention as follows:—

Dispensary and Laboratory.—The advantage of having these away from the public and apart from the sales department are many and are generally obvious; there are also some objections and inconveniences. Yet it is very desirable that the prescription department and the place for manufacturing be as nearly together as possible, because the apparatus and facilities of one are often badly needed in the operations of the other. The comfort of dispensers is greatly augmented if they can relieve themselves of unnecessary clothing, suiting their dress to the weather and character of the work they are doing. Salesmen can also present, continuously, a better appearance when they are entirely relieved of laboratory work. The passage of work through separate hands adds many checks to errors.

Apparatus and Facilities.—A dearth of these make quick work and good work almost impossible. A good mechanic can, it is true, work with poor tools, but it is only through necessity that he does so, and much of his valuable time is consumed thereby. Water baths of various sizes and kinds should always be at hand, and in a condition to be readily used. A small tablet machine will pay for itself in a very short time, and will add to one's reputation. A konseal apparatus is almost indispensable. Suppository moulds of sufficient number and variety should be in place, but three sizes of rectal and two of urethral are generally enough.

Containers.—Nothing adds so much to the facility of the dispenser, and nothing adds so much to the appearance of his work, as a suitable container. More than a few words regarding them will not be out of place.

It is really remarkable how many kinds of bottles can be used to advantage. Besides regular sizes, half-gallon and one gallon bottles should be washed and held in place. Twelve-ounce bottles should be among the regular stock, and a twenty-ounce bottle is sometimes badly needed. Sets of blue-glass bottles for external use remedies should be on hand, and amber bottles for solutions of silver salts, etc., are necessary; a set of moderately wide-mouth bottles with short corks to fit is stock constantly needed for tablets and granulated effervescent salts. Sets of glass-stoppered tincture bottles, flint and amber and glass-stoppered wide-mouthed bottles will be found most convenient. Full sets of homeopathic vials will not be out of place in the dispensary, and screw cap bottles and jars of every variety will be found to be of great advantage Screw-cap vials answer best for coated pills, for hard capsules filled with liquid, and for tablets, but ordinary capsules and uncoated pills look badly in these, and should be dispensed in boxes.

Pill boxes are generally had in proper sizes and in sufficient and attractive variety. If these are supplied with a label on bottom also, this under label can bear copy of prescription when required, and should invariably be numbered at top to prevent mixing of tops, as sometimes occurs.

Powder boxes of different sizes should, of course, be had, but all powder boxes should be made to accommodate the same size powders, as folded, then it is easy to select the box which will nicely contain the powders prepared. Powders naturally do not always occupy the same space, and it is difficult for the dispenser to select the proper size powder box beforehand, the necessity for which is removed by this uniformity of width.

Boxes for soft elastic capsules, plasters and suppositories, boxes for dusting powders with perforated diaphragms, boxes for medicated soaps lined with paraffin, boxes for eye solutions, holding one ounce bottle and pipette, are very attractive and convenient. Collapsible tubes of all sizes for ointments, with cartons to fit each size—necessary because the tube cannot be labelled; ointment jars with metallic caps and ointment jars with glass tops; special amber glass-top jars for ointments of mercuric oxid, etc. Containers are indeed a study, and interesting papers could be written upon the subject.

Dispensing Notes.—How prescriptions should be received, numbered, dated, and filed, and what recording notes should be made.

Every well-equipped pharmacy should be supplied with a good steel numbering machine that will triplicate. These triplicating machines have to be made especially, but cost little more than the usual ones. There should also be provided order blanks, something like the sample attached hereto, and blank checks of a convenient form; these can be used as a means of advertising if desired.

Orders are easily divided into three classes: "Waits," "Calls," and "Send-outs." If the prescription is on a "wait," it should be numbered by the machine, the order slip should receive the same, as also should the check given the customer. The order slip is simple marked "wait" if the party is unknown, and the name and "wait" if known. This same procedure is gone through with for a "call," excepting this term is substituted for "wait," and the time of calling added, if this can be ascertained. Of course, if paid for, this fact should be indicated. When these are delivered it will be necessary to mark them either paid or charged, as the case may be. The "send-out" order slip should receive, of course, name and address, and should be marked paid, charge, or collect. It should receive one number from the machine, the prescription one, and the third should be placed on a book where a memoranda of all "send-outs" should be made; otherwise they might be overlooked. This book should show time of required delivery. The prescriptions and order slip should be dated before the label is written with one of the small rubber dating stamps so easily obtained. It will be found much better to write the abbreviation for the month than to use the conventional numerals, which are not so well understood by the laity, and are much more apt to be made in error. One month is seldom if ever written for another, but one number is easily made when another should be used. Every pharmacist of any experience has been annoyed by duplicate numbers and by "skips"; frequently serious errors have occurred. A well-made machine will prevent all this, if it is not used to number the labels, which look much better numbered with a pen, and these must bear the proper figures if the checking is carefully done. The order slips are a most ready and convenient means of charging sales; in this regard they will many times save their cost and the value of time consumed in filling them out. They can be posted directly to ledger or copied in day-book; each day should be wrapped with paper bands, marked, and the packages of the several months should be bundled. They record receiver, compounder, and might be made to indicate who delivered package. Each slip should show list of other goods to be delivered with prescription, and one, indeed, should be used for every sale..

The checks, besides insuring the delivery of the proper prescription, save worlds of embarrassment, invariably following the asking for names, which in many instances the customer dislikes to give.

Notes regarding the peculiarities of the prescription or the mode of preparation should invariably be made upon the prescription itself. These notes when necessary should by all means appear. The filing of prescriptions is largely of individual preference, and is much influenced by the space at hand. No plan, however, seems to take the place of the large invoice book into which they are to be pasted.

CHECKING PRESCRIPTIONS.—This should be done in all cases where it is possible. It takes time, 'tis true, but it is not only a safeguard to the patient, but also guards one's business, and is a relief and comfort to the conscientious dispenser that is indescribable.

The label should be written first, no matter by whom; the prescription and label should be checked before the prescription is compounded, then the label should be attached to the container by the dispenser the moment the prescription is finished. The label and prescription should then be checked again. This, however, is all useless unless a lot of wooden trays are at hand—eight inches by twelve inches by two inches deep is a convenient size. Into such a tray must be placed every article used by the dispenser, the prescription and the labelled package and all handed to checker, who will certainly discover a misused drug. This tray system will work much more easily and satisfactorily than may at first appear.

Absorbent cotton, almost indispensable to the dispensing department, is scarcely more useful than is the absorbent, sterile gauze prepared for surgical dressings. Any number of uses will be found for this and it always offers a perfectly clean towel not often otherwise obtainable. The finer quality is preferable, and if kept in a box or drawer with a pair of shears handy it will be very serviceable; the cost is small. It is especially useful as a coarse strainer, for drying vessels, for wiping off capsules, etc. Once used, it is, of course, thrown away.

Collapsible tubes can be quickly and nicely filled with ointments, which must not be fused, by placing the ointment on a piece of parchment paper which has been wet, and from which the adhering water has been wiped. A long slim package should be made, as near the shape of the tube as possible, only smaller; the usual wrapping fold should be made in the paper. One open end of this package should be introduced into the tube, to the shoulder. The exposed end of the package should now be constricted and the ointment "stripped" out between the thumb and finger, filling the tube from the shoulder; meanwhile the paper should be drawn out as the tube fills. A pair of forceps, made for the purpose, are very desirable for sealing collapsible tubes. Metallic containers when used for ointments of mercurials, silver, salts, etc., should be coated with a resin. An ethereal solution of tolu will be found very satisfactory and a convenient acquisition to the dispensing department.

Percentage solutions are now comparatively common prescriptions. Pharmacists should be quite sure they fully understand the quantities required to make the percentage called for. It has been observed by members of this committee that the methods often used give weaker solutions than intended; especially is this the case with those of higher percentages. The fact that the substance dissolved goes to make up a part of the total weight should not be overlooked, as is often the case. 45.5 grains added to one fluid ounce of water does not make a 10 per cent. solution. But 50 grains to 450 grains of water does—and this will make very nearly one fluid ounce of the solution.

FILTRATION OF SOLUTIONS.—Where first-class filters are not to be had and good filtration is required, a pledget of absorbent cotton, in the neck of the funnel in connection with the paper filter, will be found effective. Especially useful for eye solutions.

Eye solutions of small amounts of fluid and of delicate alkaloids should be made by washing the bottle with filtered water—shaking out all adhering drops—placing salt in bottle and adding sufficient filtered water.

Konseals can be handled to best advantage in a regular apparatus. Not too much moisture and liberal pressure are the rules to follow. A convenient mould for gelatin lozenges can be made by placing the hinged portions of the konseal machine flat on a piece of glass. The moulds thus made can be evenly filled with the melted gelatin base, properly medicated and adjusted. When cool, the lozenges can be pushed through or out with no difficulty. Different size lozenges can be made with this improvised mould. A good base is made by using one avoirdupois ounce of French gelatin and one fluid ounce each of glycerin and water.

Gelatin bases for lozenges and suppositories can be made by dissolving the gelatin in hot water at once. It is not necessary to allow it to "soak" as is generally directed, provided the French Gold Medal product is used.

Compressed tablets can be made in a smaller way quite quickly if the proper compressing machine is at hand. The small compressors used with a mallet are not worthy a place in our stores. It is not at all necessary to granulate the substances to be compressed if the machine is fed by hand. Indeed, in almost every instance better results can be obtained when a very fine powder is used than otherwise. Often when a substance will not adhere at all, in coarse powder, tablets can be easily made if the fine powder is used.

Alkaloids, as such, are often soluble in fixed oils. This fact should not be overlooked, and when a salt of an alkaloid is prescribed in oily solution a proportionate amount of the uncombined substance should be substituted.

SPRAY.—Fluids should be dispensed as perfect and permanent solution if it is possible to be so. As these are invariably expected to be in an atomisable condition, it is thought that slight alteration of this class of prescriptions is allowable. Small or additional quantities of potassium iodide, glycerin, alcohol, alkali or acid cannot be objected to, if used with due consideration for their medicinal effect.

Waxed paper can be used to great advantage in dispensing many powders and powdered substances. When used the packages should also be wrapped in the usual white paper, since the waxed paper is unsightly.

An irrigating bottle of 2-gallon capacity, placed upon a shelf just above the level of the average eye, if fitted with a short rubber tube, a burette, pinch-cock, and a glass tube nozzle, will be found to be a most convenient holder for dispensing water. The amount required can be very quickly and accurately drawn by holding a graduate on a line with the eye.

Conclusion.

These notes, homely, perhaps, have not been offered by the committee as being in any way scientific as science is generally understood; nor is it claimed that they are representative or that the collection is by any means as large as should appear hereafter. They are simply intended to show a line of work which we believe would be profitable to a large number of the association's members. Whether or not they are of a kind that is helpful and are sufficiently new to be attractive should be fairly discussed by this body, and if such a committee is to be continued it should have the support and counsel of the association. In any event, it is only fair to remember that our trials have been the trials of the pioneers, and the same fairness will look for no more than crude results.

Not from without, but from within, does pharmacy to-day need help; help not so much of the scientific sort, but of a kind that is plain, that is practical, that can be used in the modern drug store, and make it in kind, and, to a degree at least, what the larger manufacturer is. Establish principles, principles so well formed and so well laid that no superstructure built upon such a foundation shall fail. Theories too, but easily convertible theories, to be readily applied to daily needs. Much pharmaceutical testing is above our heads, and we need beyond all things else practical tests.

So much pharmaceutical writing is even more heavenward. There is need for easily and quickly applied means for testing our purchases. Pharmacists should give more time and pains to the department of buying. Yet, withal, conscience and desire are to be our greatest helps.

Patient inquiry and personal experience confirms the belief that pharmacists of a class that is creditable to the profession are to-day largely manufacturing their galenicals. It is possible to prove, omitting extracts and fluid extracts, representative members of this association actively engaged in the retail business are preparing all preparations of the pharmacopœia used in sufficient quantities to pay, excepting perhaps four or five, viz: :—Spirit nitrous ether, spirit ammonia, solution of iron chlorid, solution of lead subacetate and mercurial ointment. If this be so, and there is still much manipulation required at the prescription counter, the times and conditions plainly point to the necessity for ample facilities and sufficient equipment. To justly judge as to the extent and limit of such requirements, one must look beyond his own narrow bounds and the possibilities of his environments and scan the larger field of possibility—the one into which ambition or desire may lead him.

In closing this report we trust it has been shown that there is yet dispensing to do, that there are still preparations to be made, and hope that through our efforts some little something has come to help the dispenser, the practical pharmacist. All of which we respectfully submit while justly appreciating the honour done us.

THE PREPARATION OF SPIRIT OF NITROUS ETHER.*

BY JOSEPH FEIL, PH.G., CLEVELAND.

For more than two centuries spirit of nitrous ether has been a standard medicament, and notwithstanding the facts that it rapidly deteriorates in quality, that the method of its production has varied with the appearance of almost every new addition of the United States and other pharmacopœias, that the strength in what some British investigators, Professor Matthew Hay, Dr. D. J. Leech, and others, regard as its essential constituents—namely, ethyl nitrite and nitrous acid, varies from the very moment of its finished preparation, and that the various pharmacopœias require different standards, it yet holds its own as a valuable medicine.

The U.S. Pharmacopœia of 1820 and of 1830 had a process taken from the old London Pharmacopœia, which produced a colourless product, yet it must have been therapeutically effective, and certainly contained much ethylic aldehyde. The 1840 and 1850 U.S.P. gave a variation of the old process, and since then every edition of the U.S.P. contained a new or somewhat varied method of preparation. Also the description of the galenical has been changed from time to time until coming down to the recent U.S.P. we have an attempt to produce an alcoholic solution of chemically pure ethyl nitrite.

All processes previous to the last one were eminently practical for the retail pharmacist, but the 1890 process is an absolute impossibility for those who are supposed to need it. The reason is readily seen: Ethyl nitrite is a highly volatile and inflammable liquid, boiling at 18°, and dangerous to prepare, except for those who are accustomed to and experienced in the manipulations of practical organic chemistry. All attempts to devise processes on this line must necessarily fail.

I believe the quality of spirit of nitrous ether is decidedly inferior to-day, owing to the present U.S.P. method of preparation. It has come about in this way, the process being an impossibility for the retail pharmacist, many tried to conform to it by purchasing ethyl nitrite and dissolving the chemical in alcohol. This procedure is open to two quite serious objections:—

1. The ethyl nitrite is probably pure when leaving the laboratory of a reliable chemical manufacturer, but no one has yet discovered a process of preventing its deterioration, and the substance when reaching the retailer through the jobber ranges in strength from 40 to 60 per cent. of the strength stated on the label.

2. It requires great care and a fair degree of skill to properly mix the alcohol with it, owing to its extreme volatility, and some loss almost invariably results. As a consequence of the above, it is common to find the average specimen, as found in retail pharmacies, to assay about 1 per cent. ether instead of 4 per cent.

With these facts in view, I have been seeking for a process which in the hands of a fairly skilled pharmacist should yield a product of good quality in a reasonably short time in quantities as needed by the average shop.

The objections to recently proposed processes will be found in a paper read by me at the Ohio State Pharmaceutical Association meeting held at Put-in-Bay, in June last.

The process here proposed requires about fifteen to twenty minutes' time, and the manipulations are such that anyone skilled in ordinary chemical manipulations can easily carry out.

THE PROCESS.

Sodium nitrite..	30 G.
Sulphuric acid	20 G.
Alcohol	Sufficient.

The sodium nitrite and 300 Gm. alcohol are placed in a litre flask with a two-hole cork or rubber stopper, in one of the openings is placed a stoppered funnel of any description, the other has a glass tube connected with an upright condenser kept cool with running water.

The sulphuric acid is placed in a funnel, the mixture is then heated until the alcohol is about beginning to bubble, the heat withdrawn and the sulphuric acid slowly added; after action ceases, heat is again applied a moment or two and withdrawn. A second repetition may again cause an action to begin; usually this does not occur, although it is best to try it.

The contents of the flask are allowed to cool, and then filtered in a well-covered funnel and alcohol added to make 450 Gm. It is of course preferable to assay the filtrate and then dilute, but a large number of experiments gave very close results at the quantity stated.

An excess of sodium nitrite is intentionally used, as molecular quantities do not act as well practically. While the ethyl nitrite is here produced in solution all attempts to prevent some escape have failed, yet a much larger quantity is obtained than in any other process that I am familiar with. U.S.P. 1898 process, my average yield has been 30 per cent. of the theoretical requirement. Scoville's process, average yield, 40 per cent. My process given above, general yield, 75 per cent.

The product obtained by this process conforms to the present pharmacopœial requirements, but has in addition an odour reminding one of the spirit obtained by the U.S.P. 1880 process. The time and attention required is so little, and the process so safe, that it is well adapted to the essential requirement that spirit of nitrous ether should be freshly made at least every two or three months.

*Read before the American Pharmaceutical Association. From the *Western Druggist*.

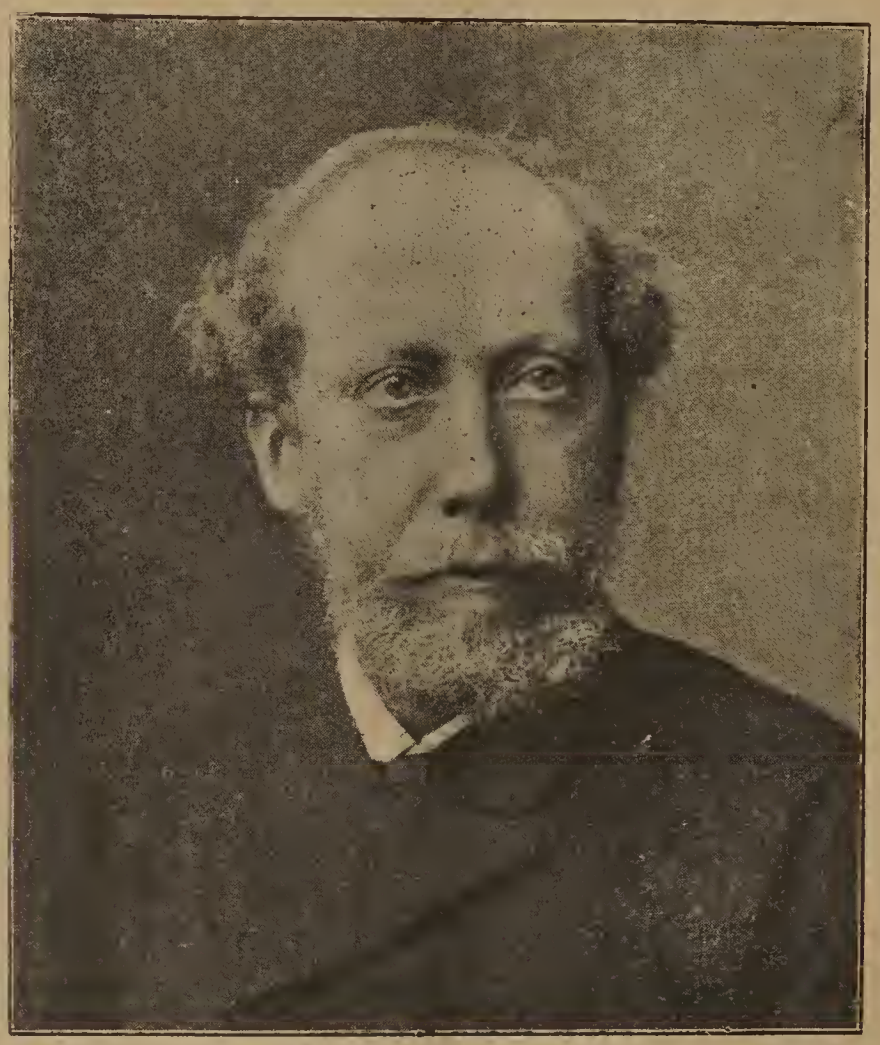
Enteroliths formed by Drugs.—Puis y Sans records a case in which he prescribed magnesium salicylate and benzonaphthol in the form of a small cachet. The next day, the author received a whitish body, hard as a stone, which had been found in the motions. It consisted solely of the drugs administered, consolidated into a stony mass. Rovisa has observed similar results after administering magnesium carbonate and salol, and Lloret has found bismuth salicylate and benzonaphthol to form intestinal concretions in the same way. *Med. and Surg. Review of Reviews.*

ALBERT LADENBURG.

A BRIEF NOTE ON HIS WORK,

BY W. HARRISON MARTINDALE, PH.D., MARBURG.

Albert Ladenburg, on whom the Hanbury Memorial Medal has this year been bestowed, was born at Mannheim on July 2, 1842. He graduated as Doctor of Philosophy at Heidelberg in 1863, and became Privat Docent at the same university in 1869. In 1873 he was called to the professorial chair at Kiel, taking the position of Professor of Chemistry and Director of the Laboratory. In 1883 he was elected Honorary Member of the Pharmaceutical Society of Philadelphia. In 1884 he was created Honorary Member of the Pharmaceutical Society of Great Britain. In 1886 the degree of Doctor of Medicine of Bern University was conferred upon him—*honoris causâ* In 1889 he became Professor of Chemistry and Director of the Laboratory at Breslau.



Other distinctions were also showered upon him, as, for example, that of Foreign Membership of the Chemical Society in 1888, and that of Honorary Membership of the Literary Society of Manchester in 1892.

To review the life-work of the subject of this article with credit to him in a few short lines is apparently an impossibility, and, indeed, even if Journal upon Journal were written concerning his work by an abler hand than mine, there would yet be left many a page unturned in the *Berichte der Deutschen Chemischen Gesellschaft*, and many a paragraph unnoticed in the *Annalen der Chemie*.

I will, therefore, content myself by culling a few facts from standard authorities, such as Ernst von Meyer's 'History,' and those which I have mentioned.

His "Vorträge über die Entwickelungsgeschichte der Chemie in den letzten 100 Jahren" (1st edition 1869, 2nd edition, 1887) is well known as a genuine historical book of reference.

His "Handwörterbuch der Chemie" is a standard work. It consists of thirteen volumes, and was issued by the chemical section of the "Encyklopädie der Naturwissenschaften," with Ladenburg as editor, in conjunction with from fifteen to twenty distinguished collaborators per volume.

His prismatic formula for benzene is well known as one of the several brought forward to explain more completely than than Kekulé's hexagon formula the chemical behaviour of benzene.

In the early days of the benzene controversy, as every student knows, it became a question to determine the relative positions of the entering substituents in the various benzene substitution products as, for example, in the three dibromo-benzenes, and Ladenburg, with his researches on terephthalic acid, was one of the ardent investigators who helped to solve the problem which resulted in the structure of the ortho, meta, and para-compounds being arrived at with comparative certainty.

Ladenburg was among those who aided the proof of the constitution of pyridine and quinoline.

His researches were particularly directed to the alkylated pyridines, especially the isomeric methyl- and ethyl-pyridines and the pyridine mono-carboxylic acids.

It was found that deductions similar to those which had been drawn from benzene could also be drawn from pyridine, namely, that only the theorctically possible methyl-pyridines and pyridine carboxylic acids were capable of preparation, and no more.

In alkaloidal research, the view was expressed that the alkaloids were derivatives of pyridine or quinoline, and this was grounded on the conversion of pyridine into piperidine, which is a decomposition product of the alkaloid piperine, and on the retransformation of piperidine into pyridine.

Ladenburg, amongst others, conducted researches which helped to prove the connection between these bases, the former containing six atoms more H in the molecule than the latter. The analogy between them—piperidine and pyridine on the one hand, and hexahydrobenzene and benzene on the other, thus became apparent.

Further, in alkaloidal work, was added by Hofmann the conversion of conine into conyrine, and on the last page (833) of his communication "Zur Kenntniss des Coniins" (*Berichte*, xvii., April 12, 1884), one reads:—

"By the conversion of an undoubted pyridine base into conine the synthesis of the latter is led a step further towards realisation. Ladenburg has applied the alkylisation of aniline to pyridine, and has succeeded in preparing ethyl-pyridine . . . ."

Turning to Liebig's *Annalen*, vol. ccxlvii., one finds 98 pages on "Pyridine and Piperidine Bases," by Ladenburg, and the few pages from 80 onwards on conine are particularly well worth reading, as they verily bristle with scientific excitement.

His ingenious condensation synthesis of conine consisted in the preparation of α-allyl-pyridine, the conversion of this by means of sodium into α-propyl-piperidine, and the subdivision of the latter optically inactive substance into its active components.

To arrive at the latter result, two courses were open to him—(I.) the fungus method; (II.) the crystallisation method.

(I.) In making use of *Penicillium glaucum*—the common blue mold—he was following in the footsteps of Pasteur, but even with

a solution as dilute as 0·1 per cent., this fungus left the poisonous alkaloid unaffected after remaining in contact with it for six weeks.

(II.) He then again turned to Pasteur for a hint—though an indirect one—and realising that he (Pasteur) had utilised *salts* in his work on tartaric acid, he borrowed a crystal or two of +conine tartrate from Schorm who had several years before obtained and analysed the same.

By means of this he succeeded in splitting up his inactive compound, and on p. 86 of vol. ccxlvii. of the *Annalen*, Ladenburg writes in italics :—

And now, therefore, the complete identity of dextro-rotary α-propyl-piperidine with natural conine is established, and in this fact the first complete synthesis of an alkaloid has been effected.

Chemists, however, disputed the completeness of this synthesis. Ladenburg therefore communicated a note (*Berichte*, xxii., p. 1403), in which, with the aid of seventeen references, he substantiated his claim; the possible steps being acetic acid (Kolbe, Melsens, Wanklyn), acetone, isopropyl alcohol (Friedel), glycerin (Friedel and Silva), allyl bromide (Cahours and Hofmann), trimethylene-bromide (Erlenmeyer), piperidine (Ladenburg), pyridine (Königs, Hofmann), α-picoline (Ladenburg and Lange), conine.

The +tartaric acid had also been synthetically prepared—authors :—Maxwell Simpson, Perkin and Duppa, Kekulé, Pasteur, Jungfleisch.

Further syntheses by Ladenburg are those of atropine from tropine and tropic acid (*Annalen*, ccxvii., p. 74; *Berichte*, xii., 942; xiii., 104, 909); and of homatropine (*Annalen*, ccxvii., 82), by heating tropine mandelate with dilute hydrochloric acid.

One cannot refrain from mentioning the "Scopolamine Controversy," in the earlier stages of which Ladenburg was conspicuous (*vide* summary, *P. J.* [4] **3,** 41). But I regret that space will not permit me to go deeply into this. (For further literature *vide P. J.* [4], **5,** 41; [4], **5,** 377; [4], **6,** 290.)

I will conclude by giving in full the *résumé* of Ladenburg's work as cited by him.

(1) In common with Ch. Friedel; Researches on silicon and compounds, and on the analogy of this element with carbon.

(2) Researches on benzene and derivatives; (*a*) constitution o benzene; (*b*) condensation products in the ortho- series.

(3) Researches on pyridine and alkaloids; (*a*) synthetic methods of forming pyridine bases; (*b*) constitution of atropine and analogous alkaloids; (*c*) synthesis of conine.

(4) Researches on low temperature; (*a*) density of ozone; (*b*) method of measuring low temperature.

(5) Researches on racemic compounds; (*a*) preparation of semi-racemic compounds; (*b*) characterisation of racemic compounds.

If any readers wish, after perusing this poor attempt of mine, to become convinced of the merit of the recipient of this year's medal, or if they do not realise the magnitude of Ladenburg's own modest *résumé*, I beg to refer them to the Royal Society's Catalogue of Scientific Papers, where will be found between the years 1865 and 1884 several pages of headings alone. And furthermore, the *Berichte* and the *Annalen* may obviously be consulted.

Egg Water in Convalescent Dietary.—A nurse contributes to the *Hospital* an article on the value of egg water as a nutrient, especially in cases of anæmia, gastric ulcer, dyspeptic troubles, obstinate vomiting, and in those cases where milk is not well tolerated. It is prepared by diluting the whites of 2 or 4 eggs with sufficient water to make a pint. Combined with whey instead of water, it forms a good food in cases of enteric fever where milk is not tolerated. It is well known and much used in France as the official "eau albumineuse."

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.

Sodii Bromidum.—If absolutely pure, 102·23 grammes of sodium bromide require 10,000 C.c. of N/10 vol. sol. of silver nitrate.

$$\underset{102\cdot23}{NaBr} + \underset{168\cdot69}{AgNO_3} = AgBr + NaNO_3$$

$$\therefore \text{ 1 gramme NaBr requires } \frac{10{,}000}{102\cdot23} \text{ C.c. N/10 } AgNO_3.$$

$$= 97\cdot8 \text{ C.c.}$$

If more than this quantity of silver nitrate solution be required, the presence of more than traces of chlorides is probably indicated. If less than 97·8 C.c. be required, and the qualitative tests for impurities give negative results, the cause is probably the presence of adherent water. Sodium bromide absorbs moisture from the air if carelessly stored, and the lower figure, 95·8 C.c., in the official test allows the presence of two per cent. of water.

Sodii Carbonas.—Crystallised sodium carbonate readily loses water on exposure to air, the crystals falling to powder, which contains five instead of ten molecules of water of crystallisation. When taking a sample for volumetric determination a large crystal should be broken, and the desired quantity selected from the clear, glassy central portion. The official requirements indicate 98·02 per cent. purity.

$\frac{1}{2}Na_2CO_3,10H_2O$ = 142·055, and this quantity in grammes neutralises 1,000 C.c. of N/1 vol. sol. H_2SO_4

$$\therefore \text{ 1 gramme sodium carbonate} = \frac{1{,}000}{142\cdot055} \text{ C.c.}$$

$$= 7\cdot04 \text{ C.c.}$$

$$\text{and } 6\cdot9 : 7\cdot04 :: 98\cdot02 : 100.$$

When heated above 80° C. the whole of the water of crystallisation is expelled, corresponding to a loss of 62·93 per cent. For 284·11 parts (m. wt. $Na_2CO_3,10H_2O$) lose 178·80 parts ($10H_2O$) of water.

$$\therefore \text{ 100 parts lose } \frac{178\cdot80 \times 100}{284\cdot11} \text{ parts.}$$

$$= 62\cdot93 \text{ per cent.}$$

As mentioned above, the effloresced salt obtained by exposure to air at ordinary temperatures corresponds to the composition $Na_2CO_3,5H_2O$. At a slightly higher temperature more water is expelled and a salt containing one molecule of water is obtained, and this last molecule is expelled at 80°C.

Sodii Iodidum.—This salt is directed to be crystallised from warm solutions in order that it may be obtained anhydrous. From cold solutions sodium iodide crystallises with two molecules of water. The anhydrous salt is deliquescent, and being an expensive substance, the Pharmacopœia fixes the limit of water to be allowed in the commercial salt at 5 per cent. Owing to the possible presence of this proportion of water the volumetric determination is directed to be carried out with the salt recently dried at 120° C. The molecular weight of sodium iodide is 148·78.

$$\therefore \text{ 14·878 grammes NaI require 1,000 C.c. N/10 } AgNO_3$$

$$\text{and 1 ,, ,, ,, } \frac{1{,}000}{14\cdot878} \text{ ,, ,,}$$

$$= 67\cdot2 \text{ C.c.}$$

The official figure, 66·5, indicates 99 per cent. purity, but it must be remembered that the presence of either bromides or chlorides will

* Note.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

cause the volume of silver solution to exceed the quantity for pure sodium iodide. The absence of more than traces of these bodies must therefore be proved by careful qualitative testing.

Sodii Phosphas Effervescens.—The sodium phosphate must be rendered practically anhydrous before mixing with the sodium bicarbonate and the citric and tartaric acids; otherwise the water of crystallisation would be set free when heat was applied, and so bring about the reaction between the added acid and alkali.

Sodii Salicylas.—The student is referred to the articles on this substance, and on salicylic acid, which will be found in the Students' Columns, *P.J.* Oct. 1, 1998, p. 378.

The use of uranium nitrate, now introduced as a means of distinguishing salicylates from carbolates and sulphocarbolates, is based upon the formation of a precipitate of uranium salicylate, the uranium salts of carbolic and sulphocarbolic acid being sufficiently soluble, under the conditions mentioned, not to form a precipitate.

Sodii Sulphas.—This salt, as mentioned in the official test, is insoluble in 90 per cent. alcohol. It may also be useful to remember that all metallic sulphates, with the exception of ferric sulphate, are insoluble in strong alcohol. According to the equation:—

$$Na_2SO_4,10H_2O + BaCl_2 = BaSO_4 + 2NaCl + 10H_2O$$

319·90 parts of sodium sulphate yield 231·74 of barium sulphate.

$$\therefore \text{ 1 gramme } Na_2SO_4 10H_2O \text{ yields } \frac{231{\cdot}74}{319{\cdot}90} \text{ grammes } BaSO_4$$

$$= 0{\cdot}7244 \text{ grammes.}$$

The Pharmacopœia figure, 0·725, is, therefore, slightly in excess of the weight which can theoretically be obtained from pure sodium sulphate. Whether this is intentional or not the fact is, that under the conditions described in the official text for performing the analysis, the weight of the dried precipitate will be slightly in excess of the theoretical calculated quantity, because the precipitate of barium sulphate carries down and retains a trace of alkaline salt, which is only removed with great difficulty. In performing the experiment the sulphate solution should be just boiling before the barium chloride solution is added. The precipitate is then produced in a dense sandy condition, and is easily filtered off and washed.

Sodii Sulphas Effervescens.—See notes under the corresponding preparation of sodium phosphate.

Sodii Sulphis.—The difference between sulphites and thiosulphates should be carefully noted. When sodium sulphite solutions are acidulated the sulphurous acid which is formed remains partly dissolved, and is partly decomposed into water and sulphurous anhydride. This is evolved, and may be recognised by its odour. The proportion of the sulphurous acid so decomposed depends upon the conditions of the experiment—chiefly the concentration and temperature of the solution.

(i.) $Na_2SO_3 + H_2SO_4 = Na_2SO_4 + H_2SO_3$
(ii.) $H_2SO_3 = H_2O + SO_2$

In the case of sodium thiosulphate, the corresponding thiosulphuric acid is unstable and decomposes into sulphurous acid and sulphur, the latter appearing in the form of a nearly white, cloudy precipitate. When sodium thiosulphate solution is acidulated we get therefore the odour of sulphurous anhydride, as with the sulphite, and a light cloudy precipitate of sulphur in addition.

(i.) $Na_2S_2O_3 + H_2SO_4 = Na_2SO_4 + H_2S_2O_3$
(ii) $H_2S_2O_3 = H_2SO_3 + S$

The volumetric test is based upon the conversion of sulphite into sulphate by the oxidising action of the iodine, water, as is so often the case, taking part in the reaction.

$$Na_2SO_3 + OH_2 + 2I = Na_2SO_4 + 2HI$$

According to this equation one m. wt. $Na_2SO_3 7H_2O$ (250·38) will react with two atomic weights of iodine (125·9 × 2). The official volumetric solution of iodine is decinormal, and contains, therefore, 12·59 grammes of iodide per litre.

∴ 250·38 grammes $Na_2SO_3 7H_2O$ are equivalent to 20,000 C.c. N/10 iodine solution.

$$\therefore \text{ 1 gramme } Na_2SO_3\,7H_2O = \frac{20{,}000}{250{\cdot}38} \text{ C.c.}$$

$$= 79{\cdot}88 \text{ C.c.}$$

Since one gramme of the pure salt will decolorise 79·88 C.c. of iodine solution the higher limit allowed in the Pharmacopœia (81·7 C.c.) can only be reached by a partially effloresced salt.

Sodii Sulphocarbolas.—The Pharmacopœia now defines this as the sodium salt of *para*-phenol-sulphonic acid. In the previous series the production and relationships of the three phenol-sulphonic acids was described. See *P. J.*, Feb. 26, 1898, p. 204. In order to obtain only the para-acid, the mixture of phenol with excess of sulphuric acid is maintained for some time at a temperature of 100°--110° C. The ortho-acid, which is simultaneously formed at ordinary temperatures by the first action between the phenol and acid is by this means converted into the para variety, because at this temperature the ortho-acid which has been formed, splits up again into phenol and sulphuric acid, and the former is sulphonated again at 100°-100° C. almost entirely into the para-acid. The ortho-phenol-sulphonic acid, which has been used as an antiseptic under the name of "aseptol," is formed in preponderating quantity when the phenol reacts with sulphuric acid at *low* temperatures. The uranium nitrate test has been already noticed under sodium salicylate.

Sodium.—The quantitative determination of purity is best made in the following manner: Cut out with a sharp knife a cubical piece of the metal so that it shall have a bright metallic surface on all sides. After removing adherent naphtha rapidly by means of blotting paper, determine the weight of the selected portion without delay in order to minimise the disturbing influence of the oxidation which occurs as soon as the metal is exposed to air. For the same reason it is better to find the weight of the piece rather than to attempt to take any predetermined weight of metal the exact adjustment of which would necessarily occupy some time. The weighed portion is then cut into small pieces, which are added piece by piece to some water in a dish or beaker, allowing each piece to disappear before adding the next. The vessel is covered by a glass plate while the several pieces of sodium are reacting with the water, in order to avoid loss of solution by spurting. When the reaction is finally completed the glass plate is rinsed with water and the washings added to the contents of the beaker or dish. The weight of sodium taken may be between 0·5 and 1·0 gramme: this quantity added to about 70 C.c. of water and the solution diluted to exactly 100 C.c. may be divided into two equal parts for titration. According to the equation—

$$Na + H_2O = NaOH + H$$

22·88 grammes of pure sodium will produce sufficient sodium hydroxide to neutralise 48·67 grammes ($\frac{1}{2}H_2SO_4$) of sulphuric acid.

∴ 22·88 grammes of sodium neutralise 1,000 C.c. N/1 H_2SO_4

and 1 gramme ,, $\frac{1{,}000}{22{\cdot}88}$ C.c. N/1 H_2SO_4

= 43·71 C.c.

The official requirement that 1 Gm. of sodium shall neutralise 42·6 C.c. N/1 H_2SO_4 corresponds therefore to a purity of not less than 97·46 per cent.

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LONDON: SATURDAY, OCTOBER 14, 1899.

THE TASK TO BE ACCOMPLISHED.

The proceedings at the Council meeting last week were in a twofold sense, especially interesting in regard to the present situation; not only on account of the action taken—in view of the possible revival of the Companies Bill of last Session—to authorise the Law and Parliamentary Committee to define the terms of a clause dealing with company trading as it affects the business of registered chemists and druggists; but also on account of the evidence afforded as to the views held by individual members of the Council in that representative capacity, and of the indications afforded as to the possible existence of some difference of opinion among chemists and druggists in respect to the line of action to be adopted when the proposed legislation comes before Parliament. So far as the remarks of some members of the Council on that occasion may be understood as having lifted the veil from the deliberations of the General Purposes Committee on the previous evening, there seems to be distinct evidence of different tendencies that may fairly be regarded as representing existing differences of opinion even among members of the Society. For the necessary adjustment and removal of any such differences, reliance must be placed upon the Committee which has been entrusted with the task of framing a clause that will—as the President tersely expressed himself—deal with the subject of company trading in a "reasonable and logical way." But attention must be drawn to the fact that on one very important point the discussion at the Council furnishes evidence of a perfect unanimity which should be received with great satisfaction, and not only meet with sympathy, but with the most hearty support from all registered chemists and druggists. Whatever difference of opinion may exist between members of Council as to other details, there is a very distinct determination to defend the right that legally qualified persons have to exclusive use of titles which are indicative of qualification for the exercise of their business and, in order to be of any practical utility, should enable the public to distinguish between qualified and unqualified persons.

The unanimity shown in regard to the defence of chemists' titles may also be taken as defining to a large extent the whole line of action to be taken in dealing with the abuse of company trading as it affects chemists and druggists. As the statutory title is the exponent of statutory qualification—the trademark of a qualified person—the use of it is to be regarded not only as a means by which the main object of the Pharmacy Act, in the public interest, is to be secured, but it should also be the means of securing to qualified persons the privilege conferred by the statutory qualification which is demanded in the public interest. The two things are really inseparable, and unless qualified persons have, and can maintain, exclusive right to the use of the statutory title, the whole structure of the Pharmacy Act must collapse; in fact, the statute would otherwise be a delusion in every sense. If restriction of the use of the title to legally qualified persons is to be of any practical value it must mean that the retailing, dispensing, or compounding of poisons can be lawfully conducted only by persons who are qualified as the Act requires, and the one obvious object of the Pharmacy Act is to place the business thus defined outside "free trade." Everything else connected with the drug trade—and unfortunately also everything else connected with pharmacy—is still left open to free trade without the least restriction. Retailing, dispensing, or compounding poisons is, therefore, the only "pharmacy" to which the Act relates and in regard to which there can now be a demand for free trade, so that the specious advocates of "free trade in pharmacy," who also profess to support restriction of the use of chemists' titles, merely exhibit themselves as marvels of inconsistency, if not as wolves in sheep's clothing. Is it possible that they can be so infatuated with their presumptuous pretensions as to be incapable of perceiving the absolute absurdity of the position they take? or do they think so meanly of the intelligence of chemists and druggists as to suppose that many of them can be gulled and misled by the preposterous and self-contradictory proposition that restriction of the use of titles should be accompanied by free trade in all that those titles represent? When such phantoms are held out as guiding lights to chemists and druggists by truculent mud-slinging critics of the Council and of pharmaceutical leaders, complicity with the pirates may be suspected, and it is time to offer a warning as to the danger of listening to the siren wiles of such fatuous or perverse misleaders.

The natural consequence of the decided opinion expressed as to the use of pharmaceutical titles would be general and uncompromising opposition to the Lord Chancellor's proposal that companies should, under any conditions, use those titles. On that point there cannot be any rational or logical dissent when the circumstances of the case are understood. The idea of a company using a pharmaceutical title is obviously absurd, because a company cannot, as an ideal individual, fulfil the condition of undergoing an examination which is essential for that purpose. Whenever that self-evident proposition is duly considered it may be expected to meet with general concurrence, and to be found unanswerable as a reasonable and logical ground for opposition to the Lord Chancellor's proposition that a company, as such, may use the title of pharmaceutical chemist or of chemist and druggist. The only obstacle to be overcome is the enabling decision of the House of Lords to the effect that companies are outside the scope of the Pharmacy Act, 1868, in the sense that they may lawfully do anything that individuals are prohibited from doing, unless they have the requisite statutory qualification. If that decision conveys a reasonable and logical construction of the Pharmacy Act there would not be any need for the provision that has been

introduced into the Companies Bill to make the use of the titles by companies lawful, and there would be an end of the matter. But that view must be disputed: for, by due consideration of all the circumstances of the case, that decision may be shown to be as inconsistent with the object and policy of the Pharmacy Act as it is with the nature of things. Lord HALSBURY, in his high position, has recently rendered important service in that direction by drawing attention to the legal and common-sense anomaly which has been created as a consequence of the House of Lords' decision, and by expressing, together with the late Lord HERSCHELL, the opinion that the prevailing interpretation of the Pharmacy Act requires corresponding legislative amendment. But the remedy he has proposed is of such a nature that neither the Government nor Parliament could be expected to support it, if the circumstances of the case were thoroughly comprehended. That, unfortunately, is not the case, for the Pharmacy Act is too generally regarded, even by members of Parliament and Government officials, imbued with free trade ideas, as an Act establishing a trade monopoly instead of being really, as it was really intended, a measure having no other object than that of providing for the safety of the public and, only with that object, abridging the liberty of the subject while at the same time conferring on qualified persons a necessarily consequent privilege. Every registered chemist and druggist who has a member of Parliament to vote for, or any other opportunity of exercising influence in educating public opinion, should therefore make a strenuous effort to secure reasonable appreciation of the true meaning and intention of the Pharmacy Act, and of the claim for more correct interpretation than it has yet received.

MONUMENT PELLETIER-CAVENTOU.

REFERENCE was made last week (see page 344*d*) to the fact that the proposed Pelletier-Caventou memorial has not as yet attracted much attention in this country, notwithstanding the publicity given to the matter some two years ago (*vide P.J.*, October 9, 1897, p. 326). Readers may be reminded that PELLETIER and CAVENTOU were the discoverers of quinine, and that it is proposed to erect a monument in Paris, opposite the Paris School of Pharmacy.

Mr. WALTER HILLS, past-President of the Pharmaceutical Society, has now forwarded to us the following subscription list:—

William Martindale, President.
G. T. Wilkinson Newsholme, Vice-President.
Samuel Ralph Atkins, Treasurer.

Charles Bowen Allen,	Walter Hills,
Thomas Bateson,	John Johnston,
Michael Carteighe,	Charles James Park,
Octavius Corder,	Arthur Ledsam Savory,
W. Gowen Cross,	Alfred Southall,
W. S. Glyn-Jones,	David Storrar,
Nicholas Male Grose,	Charles Symes,
J. F. Harrington,	William Warren,
John Harrison,	J. Rymer Young,

Members of the Council.
Total amount subscribed 21 guineas.

Mr. HILLS will be pleased to receive any other contributions from British pharmacists. They should be addressed to him, at 17, Bloomsbury Square, London, W.C. The Committee in charge of the movement is more anxious to obtain a representative list of names than to solicit large subscriptions, and is particularly desirous of securing a fair number of British names.

ANNOTATIONS

THE SLOW EVOLUTION OF IDEAS in connection with the interpretation that was put upon the provisions of the Pharmacy Act by the Law Lords who ultimately decided the case on appeal to the House of Lords, appears almost marvellous to those conversant with the circumstances of the case. But though the potent influences of misconception, deficient appreciation, and prejudice have long operated to prevent recognition of the true principle and intention of the Act, in the same manner that the acceptance of the Copernican theory was retarded by bigotted adherence to tradition, satisfactory evidence has recently been given of an advance towards reasonable interpretation of the Act. Almost at the same time that it was referred to in the House of Lords as creating "a trade monopoly," attention was directed, by two of the highest legal authorities, to the violation of common sense apparent in the fact that, in consequence of the House of Lords' decision, a company could not be made subject to penalties for infringement of the Act in the same way as an individual, and to the further consequence that an individual could, by a simple device, actually evade the statutory personal obligations connected with the business of a chemist and druggist, in such a manner as to defeat the object of the Act, and render its amendment clearly necessary.

THE ADMISSION BY THE LORD CHANCELLOR that these consequences of the House of Lords' decision are undesirable and require to be stopped, has not gone the length of disputing the construction of the Act, but only so far as to allow that the idea of a company, as an ideal personage, practising and undergoing an examination is absurd. That is, however, a very considerable advance beyond the idea that a company can be practically outside the scope of the Pharmacy Act: for if a company be incapable of those personal acts, its disability must extend equally to all other acts which can be performed only by individuals; so that, in regard to all such acts referred to in the statute, the idea of a company performing any of them, consistently with the object, intention, or policy of the statute, cannot cohere with the language of its provisions and, to that extent, a company is, in the nature of things, excluded from the purview of the Pharmacy Act.

THE MANIFEST OBJECT of the Pharmacy Act is to prevent "any person"—unqualified—from selling or keeping open shop for retailing, dispensing, or compounding poisons. For that purpose the word "person" requires, in the nature of things, to be construed as applying to a company—an ideal personage that must be, in regard to the object of the statute, in the same position as a rejected candidate or any other individual without qualification. The decision of the House of Lords is the real anomaly, serving as a legal precedent that enables any unqualified person—rejected candidates or persons convicted of breach of the Act—to keep open shop for the purposes of the Act without being liable to the penalty the Act imposes on unqualified persons. That fact is at length becoming apparent, though still only partially, as is manifest from the Lord Chancellor's proposal to allow companies to use titles indicating qualified ability to keep open shop for retailing, dispensing, or compounding poisons, a proceeding that cannot be in any way justified, and one that would be very inappropriate as a remedy for the evil created by the House of Lords' decision.

THE FALLACY PERVADING that decision is the assumption that the act of keeping open shop, etc., is in any degree more within the legal competence of a corporation than the acts which can be performed only by individuals, for the object and policy of the Pharmacy Act clearly point to the conclusion that in the nature of things all the acts to which that statute relates must be equally personal,

and must, therefore, equally require individual qualification for their lawful performance. That is, indeed, the only view reasonably and logically coherent with the language of the Pharmacy Act, and it requires the absolute shutting out of companies, as such, from the possibility of keeping open shop or performing any of the Acts for which qualification is demanded as "expedient for the safety of the public."

Keeping Open Shop, in the sense of owning the business, is the only act, referred to in the statute, which is physically within the competence of a company. The restriction provided in that respect applies only to the personal acts of retailing, dispensing, or compounding poisons, and in regard to those acts their performance is the only object of keeping open shop which requires to be considered in connection with the question whether a company is reasonably or logically to be regarded as outside the scope of the statute in the sense of the House of Lords' decision. The provision that it shall be unlawful for "any person" to retail, dispense, or compound poisons—unless such person shall be a chemist and druggist within the meaning of the Act and registered under the Act—has been admitted to be applicable only to individuals, and since the performance of the personal acts of selling, dispensing, or compounding poisons is the only respect in which the keeping open shop is restricted, the natural conclusion is that the person competent to keep open shop for those purposes must also be qualified. "Any person" lacking the required qualification would infringe the Act by keeping open shop for those purposes, and should be liable to the penalty provided in the 15th section of the Act, just as much as by performing any of the exclusively personal acts of selling, dispensing, or compounding. The inability of a company to perform any of the personal acts referred to in the statute does not appear to require consideration in regard to its object and policy. It is the inherent disability of a company, as such, to perform any of the more important acts to which the various provisions of the statute relate, that effectually puts companies outside the scope of the Pharmacy Act in every sense: that is an exclusion which is in the nature of things absolute, and cannot by any process of reasoning be made a means of enabling a company to get behind the Pharmacy Act in any way even to the extent of the somewhat absurd procedure, of keeping open shop for performing acts of which it is incapable.

Another Fallacious Argument, that the keeper of an open shop need not be qualified, is founded on the provisions of the 17th section, which, as Lord Selborne thought, must include a corporation, and, in the opinion of Lord Blackburn, show sufficient reason for extending the application of the word "person," but only in regard to that section. That view, however, cannot be sustained, for the person on whose behalf a sale of poison in the first part of the schedule is made must obviously be a natural person, to whom the purchaser can be known or introduced, as well as capable of registering the particulars of sale. The seller referred to in the 17th section is, therefore, as distinctly a person who can possess the individual qualification, and must be qualified to make the sale lawful. The indication that such a sale can be made by an apprentice also points to the necessity of the qualified person, on whose behalf the sale is made, taking such part in the transaction as would fulfil the manifest object of the Act and at the same time relieve the apprentice, or servant, from liability to penalty for breach of the law. Hence the language of this section does not, as has been assumed, indicate, or imply peculiarity of construction for a special purpose; but, on the contrary, it shows that the 17th section must be read with the 1st and 15th—that in regard to the mischief the statute was intended to prevent the person who performs any of the acts referred to, whether as master or servant, must be a person qualified as the statute requires. Here again there is the same absolute exclusion of companies from the purview of the Act, as in all other instances, and similar reason for regarding as absurd the idea of including companies as such among the "persons" capable of performing any of the functions to which the Pharmacy Act relates.

A Crucial Point in the consideration of the question as to the proper construction of the Pharmacy Act was reached when the provision of the 16th section for the continuance of a deceased chemist's business came under review. The statement there made that a person, presumably unqualified, might, in such case, lawfully carry on the business, appeared to Lord Selborne to show that such a mode of conducting a chemist's business was not thought by the Legislature "necessarily inconsistent with the object and policy of the Act." That view seemed to him supported by the further provision that, in such a case, the business should be conducted by a duly qualified assistant. But Lord Selborne failed to make allowance for the important difference between thus continuing a business and starting one without qualification, as would be possible if companies were held to be free from the restriction of the Act: therefore, the exemption provided for executors, etc., who might evidently be unqualified turned the scale against considerations tending in the opposite direction, which—as Lord Selborne said—would have made the argument against a corporation being permitted to carry on the business "extremely strong," but for the safeguard against the sale of poison by any person unqualified, which he thought was provided by the stipulation as to employment of a qualified assistant.

Lord Selborne's Judgment was in fact entirely determined by that consideration. His previously expressed view that, for the efficiency of the Act, the seller or compounder of poison whether the owner of a business or the person delegated to conduct sales, must be such a person as could be qualified, was altogether extinguished. The possibility of separating the qualified seller from the keeper of open shop, apparently afforded by the exemption of executors, proved fatal to the argument as to the manifest object of the Act being that only qualified individuals should keep open shop, or sell, dispense, or compound. Thus the necessity for qualification of the proprietor of a business was eliminated; apparently so as not to prejudice the object and policy of the Act, though in reality so as to afford a basis for complete evasion of all its provisions, inasmuch as a company—if outside their scope—could lawfully do everything that an unqualified individual may not do. Moreover, there is nothing in the Act to compel the employment of qualified assistants; consequently an unqualified and contumacious grocer could convert himself into a company and carry on business as a chemist and druggist in defiance of the law, if the House of Lords' decision be a correct construction of the Pharmacy Act.

Lord Blackburn's Judgment was largely inspired by the idea that the Pharmacy Act was intended to create a monopoly in the sale of drugs. Probably that mistaken impression may account for his declared inability to perceive anything in the object of the Legislature or in the context requiring that the provisions of the Act should be extended to companies; though he was quite clear that, in such case, the word "person" should have the more extended sense. But since that time experience of such consequences of the House of Lords' decision as were submitted to the Departmental Committee of the Board of Trade in 1895 conclusively shows that if the Pharmacy Act was not altogether frivolous legislation, it has a meaning directly opposite to that put upon it by the House of Lords in 1880 and should be otherwise construed.

LORD WATSON'S JUDGMENT was entirely founded upon the presumed inadequacy of the language of the Act, to express the intention that its provisions should apply to companies as well as to individuals. But if the foregoing arguments are reasonable or logical they will show the insufficiency of that reason for Lord Watson's acquiescence in a decision contrary to the acknowledged preponderance of "considerations of policy" in favour of reading the Pharmacy Act so as to give qualified individuals "the sole right to sell drugs"—"or to keep open shop" for that purpose—and, in that respect, altogether to shut out the possibility of defeating the object of the Act in the manner that companies have done.

THE EXEMPTION OF EXECUTORS, which chiefly led to the disastrous decision of the House of Lords, has been spoken of in a maudlin way as a "flaw in the Pharmacy Acts," that few corporations have taken full advantage of, as if it were of no more account than a hole in a Highlander's breeks; but the truth is, that exempting provision has afforded the sole basis of company trading and its interpretation by the House of Lords has been the gateway to the bottomless pit where qualified chemists and druggists, in business on their own account, are now being devoured by their own progeny. Before any hope can be entertained of securing a reasonable and logical interpretation of the Pharmacy Act, the mischief that has been occasioned by that pernicious provision must be counteracted, consistently with the manifest object and policy of the Act. Unquestionably, that will be one of the first steps to be taken by registered chemists and druggists in the task that has now to be accomplished by them.

MORE LOCAL SECRETARIES of the Pharmaceutical Society are required, according to Mr. J. W. T. Morrison (see p. 375), whose idea appears to be that every member of the Society should be directly represented by a district officer of the Society, who should "shadow" the M.P. for that district. The idea has much to commend it, but must be credited to the Vice-President of the Society, rather than to Mr. Morrison. For, in a paper read before the Bradford and District Chemists' Association, in February last (*vide P.J.*, February 25, 1899, p. 164 *et seq.*), Mr. Newsholme urged that the best method of improving local pharmaceutical organisation would be "to arrange that one registered chemist in each Parliamentary constituency throughout Great Britain shall be appointed to communicate with the representative for that constituency on all matters affecting the welfare of pharmacy." It was also suggested by Mr. Newsholme that the registered chemists delegated to perform the specified duty might with advantage be the Pharmaceutical Society's local secretaries, and that by the appointment of about one hundred and seventy extra local secretaries or assistant local secretaries—or one-third more than at present—all the country districts could be as fully represented as the larger towns now are. In fact, in the paper referred to, Mr. Newsholme not only presented a scheme, but also worked out all the details, and it is only owing to the characteristically apathetic manner in which the registered chemists of Great Britain have received his suggestions that nothing definite has yet been done in the matter.

THE SELF-INTEREST OF CHEMISTS was not directly enough touched by Mr. Newsholme's proposals. If he had drafted a scheme whereby registered chemists would have been assured of a fixed income from the day upon which they passed the qualifying examination—whatever their business capacity or incapacity—it might have been received with enthusiasm; that is to say, unless he had asked them to devote a fair amount of time, labour, and money to secure the realisation of the scheme. In the instance under notice, however, registered chemists were merely shown how their admittedly defective organisation might be improved and even perfected. But though engineers, bricklayers, dockers, and many other classes of workers would have jumped at the opportunity, and hailed the scheme with enthusiasm, the average chemist has been content to let the suggestion pass. It did not propose to secure him a monoply of the sale of drugs, a greater return on his invested capital than any tradesman has a right to expect, or any other privilege he is not fitted to enjoy. No! all that was pointed out was how he may best help himself, whereas he prefers to depend upon the provisions of Acts of Parliament.

CHEMISTS ARE ONLY MORTAL, of course, and they are afflicted with a full share of mortal weaknesses. It would be well, however, if they would realise the fact that Parliament is not likely to be influcnced in favour of any class, unless the individuals constituting it show that they are in earnest when they or their representatives ask for reforms. What member of the House of Commons cares in the most infinitesimal degree whether registered chemists are able to retain any portion of their business or not? It would be safe to say none. But no Parliamentary representative dare continue to resist reforms which must obviously tend to insure the safety of the public, and if only the registered chemists of Great Britain will agree to support reasonable demands, based on public requirements, they can soon produce a satisfactory impression. But their support must be active, persistent, and vigorous; it will not suffice to write a letter to a Member of Parliament or the Lord Chancellor, and then do nothing but talk while others work. Neither is it wise to attempt too much, and hamper the leaders of the craft by unwise displays of activity. So far as concerns the members of the Pharmaceutical Society, at least, the course of procedure is obvious. Having duly elected representatives on the Council of the Society, the conduct of affairs should be left in their hands, and not until they suggest the next move should that move be taken. If matters do not progress satisfactorily, then fresh representatives can be elected on the Council in May next.

BUT TO RETURN TO OUR TEXT, apart from what the Council of the Society is alone in a position to do—*i.e.*, negotiate with Government Departments and influential persons—much may be done by perfecting local pharmaceutical organisation. Mr. Newsholme has suggested a practical scheme, having the local secretaryship of the Pharmaceutical Society as a basis; he has also indicated an alternative scheme, based on the existence of local associations and the Federation of such bodies. If Mr. Morrison is in earnest, he might with advantage take upon himself the burden of adapting one or other of the schemes—preferably the first—to the needs of his own county, just as Mr. Newsholme has offered to do for the West Riding of Yorkshire. The response of the Hertfordshire chemists may be as tardy as that of their Yorkshire brethren, but at least something will have been done to familiarise the idea, and perhaps, in the course of time, someone in each of the remaining counties, may be struck with the appropriateness of the same idea. Whether it will be ever realised is another matter altogether, but surely the importance of the possible results is sufficient to justify the attempt being made!

AN AUTHENTIC RECORD of the number of chemists and druggists in business on their own account in different towns and districts throughout the country would, for instance, be a very useful supplement to the official register, and a similar record of qualified persons engaged in the capacity of assistants would also be worth having. For supplying such information, the Society's local secretaries have facilities which would enable them to carry out the necessary work without much trouble to themselves, and with a prospect of rendering good service.

PHARMACEUTICAL SOCIETY.

Donations to the Library and Museum.

At a meeting of the Library, Museum, School, and House Committee, on Wednesday, October 11, the Librarian and Curator, presented the following reports of Donations:—

To the Library (London).

Mr. R. T. Baker, Technological Museum, Sydney:—On a supposed new genus of the N.O. Myrtacæ. On the Cinnamoms of New South Wales, etc.

Mr. J. H. Maiden, Botanic Gardens, Sydney:—Report on the Gardens for 1898. Observations on the Eucalypts of New South Wales.

Royal Society of New South Wales:—Journal and Proceedings, vol. 32.

Dr. L. Planchon, Montpellier:—Plantes médicinales et toxiques du département de l'Herault.

Ecole supérieure de pharmacie de Paris:—Thèses par MM. Lacour, Hérissey, Guéguen, Gaudin, Lenormand et Rouchy.

M. Maurice Duyk, Bruxelles:—Sur la solubilité des huiles volatiles.

Surgeon-General U. S. Army:—Index-Catalogue of Library, 2nd ser., vol. 4.

Dr. Squibb, Brooklyn:—Ephemeris of Materia Medica, etc., vol. 5, no. 3.

University College, Dundee:—Calendar, 1899.

University College, Bristol:—Calendar, 1899.

Mason University College, Birmingham:—Calendar, 1899.

Owens College, Manchester:—Calendar, 1899.

Yorkshire College, Leeds:—Calendar, 1899.

University of Durham College of Medicine, Newcastle-on-Tyne:—Calendar, 1899.

King's College Hospital, London:—Reports, vols. 4-5.

St. Bartholomew's Hospital, London:—Statistical tables of patients during 1898.

Botanical Society, Edinburgh:—Transaction and Proceedings, vol. 21, parts 1-3.

Missouri Botanical Garden:—Tenth annual report.

Director of the Wellcome Research Laboratories, London:—Two papers by S. B. Schryver, one paper by H. A. D. Jowett.

To the Library (Edinburgh).

Editor of the *Chemist and Druggist*, London:—Proctor's Pharmaceutical Testing, 1899.

Ontario College of Pharmacy:—Annual announcement, 1899.

Dr. Squibb, Brooklyn:—Ephemeris, vol. 5, no. 3.

To the Museum, London.

Messrs. Burgoyne, Burbidges and Co., London:—Specimen of pure oil of peach kernels expressed in France.

Messrs. Stafford, Allen and Co., London:—Specimens of Canary Islands, Alicante, Malaga, Valencia, Majorca, Mogador, Sicilian ordinary, and Catanian almonds; specimens of decorticated, pure, powdered white pepper; specimens of Persian and Californian peach kernels, and a specimen of expressed oil of stavesacre seeds.

Mr. E. T. Baker, Technological Museum, Sydney:—Specimens of the barks of Atherosperma moschatum, Beilschmiedia obtusifolia, Cinnamomum oliveri, and Doryphora sassafras.

Messrs. Hearon, Squire and Francis, London:—Specimens of split cardamom seeds.

Dr. B. H. Paul:—Specimens of amber containing insects, ambroid or pressed amber, succinic acid in fine crystals, gedanite and stautienite, obtained from the West Prussian Provincial Museum in Dantzig.

The Editor of the *Chemist and Druggist*:—Specimens of Bahia ipecacuanha.

Mr. E. H. Farr, Uckfield:—Microscopial sections of Cinnamon from Annam.

To the Herbarium.

Mr. H. N. Ridley, M.A., Director, Botanic Gardens, Singapore:—Specimens of Alstonia scholaris, Cnesmone javanica, Dryobalanops camphora, Geophila reniformis, Garcinia cambogiana, Lycopodium casuarinoides, Melastoma leucadendron, Myristica intermedia, Payena leerii, Pleopeltis phymatodes, Prismatomma albidiflora, Strychnos malaccensis, S. tieute, Tabernæmontana peduncularis, Tephrosia hookeriana, Terminalia phyllocarpa, Urceola elastica, Willughbeia coriacea.

Professor Van Eeden, Haarlem:—Specimens of the leafy twigs of the trees yielding the resins Dammar Hitam, D. Kajoe alang, D. Keloekoep, D. Lagam, D. Maksa, D. Moesegah, D. Resak, and D. Tyarmin.

Messrs. Burroughs and Wellcome:—Specimen of Derris uliginosa with fruits.

Mr. G. C. Druce, M.A., F.L.S., Oxford:—Specimen of Cnicus tuberosus.

The Curator:—Fourteen specimens of rare British plants.

EXAMINATIONS IN LONDON.

October, 1899.

MAJOR EXAMINATION.

Candidates examined	15
,, failed	6
,, passed	9

Austen, John
Battle, John Cyril Marfleet
Burrell, Benjamin Lawson
Cornick, Ernest Edward
Evans, William Llewelyn
Gibson, Hubert
Moore, Richard Herbert
Smith, Arthur Richard
Wood, Edward Vivian

MINOR EXAMINATION.

Candidates examined	241
,, failed	171
,, passed	70

Allen, Archibald Clive
Bailey, Daniel Jennings
Barker, William Edward
Barton, Frederick Cooke
Beresford, Arthur William
Bignell, John Henry
Boddy, Ernest Richard
Charnley, Charles
Coltart, John Alexander
Craven, Edgar Ashworth
Downing, Alfred
Drayton, George Selby
Dunkerton, Edward Bernard
Dunn, William Robinson
Elliott, John Johnson
Estlick, Samuel Henry
Evans, Evan Lewis
Finnomore, Horace
Foster, Frederick
French, Frederick Alexander
Gill, Herbert Edward
Godden, William Henry
Greasley, Frederick
Herd, Agnes
Hinks, Frederick Charles Edward
Holborow, Francis Ernest
Hughes, John Henry
Hutchinson, Walter
Jeanes, Richard
Johnston, John William
Jones, David Richard
Kendall, Ernest Henry
Kirkland, Arthur
Kitching, George Charlesworth
Lewis, David
Lloyd, Hugh
Longley, Richard Samuel
McGlinchy, William Owen
Mackenzie, Robert Youug
Mallinson, George Arthur
Mellor, Reginald John
Moss, Sidney John
Newton, Alfred
Old, Herbert Ashman
Palmer, Charles Ernest
Pickering, Samuel Drew
Poxon, Alfred
Price, Edwin Ernest
Quarmby, James Whitticase
Ransom, William Thomas
Rough, Alfred James
Said, Arthur
Sare, Frederick Samuel Thomas
Sharpley, Major
Shellcross, John
Smith, Robert William
Stephens, Ernest Hutton
Stoneman, John Edey
Suddaby, John Edward Stephenson
Taylor, Samuel
Thatcher, Benjamin
Turner, John Henry William Ric
Waldon, John
Wallis, Sydney Wilson
Walmsley, Ernest William
Watkins, Archibald Greenwood
West, Arthur John
Whitehouse, Alexander
Williams, William Eleder
Winckler, Ernest

FIRST EXAMINATION.

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's examination:—

Adams, Frank Richard; London
Allen, Frank Coltman; Dudley
Aplin, John Henry; Trowbridge
Bainbridge, Archibald; Bedale
Billington, L.W.; Newcastle, Staffs
Bonner, Rupert John; Banbury
Buxton, Henry Arnold; Newark
Cole, William Henry; Buxton
Corner, Edward; Whitby
Dietzsch, Theodor; London
Francis, Edward Saunders; Wrexham
Goble, Joseph Harold; St. Leonard's
Griffiths, Richard E.; Haverfordwest
Hall, Sidney H.; Skegness
Hedley, Osborne Janion; Wrexham
Jack, Richard C.; West Hartlepool
Jackson, Ewart G.; Newcastle, Staffs
Jones, W. Bowen; Chipping Sodbury
Miller, Harry Barton; Sheffield
Osborne, William P.; Grantham
Paterson, Alex. G. C.; Scarborough
Payne, Arthur Martin; Market Rasen
Reed, Percy Stanley, Buxton
Rowlands, David Roger; Liverpool
Sandwith, Ralph Bertram; Bracknell
Saunders, Hugh F.; Walthamstow
Sayer, Thomas William W.; Leeds
Sharp, John George; St. Neots
Smith, Alfred E.; Wath-upon-Dearne
Spilman, Thomas W.; Leeds
Thomas, Arthur Reginald; Exmouth
Toy, George Harold; Perry Barr
Waldron, James Joseph; Formby
Warner, Charles Horne; Evesham
Whitehead, Andrew; W. Hartlepool
Wilkinson, Ernest E.; Otley
Willer, William; Ealing
Wilson, Tom; Manchester

EXAMINATIONS IN EDINBURGH.

October, 1899.

MAJOR EXAMINATION.

One candidate was examined and passed:—

Meldrum, Martin.

MINOR EXAMINATION.

Candidates examined 88
,, failed 53
,, passed 35

Airth, William
Boulton, Jesse
Campion, John Ambrose
Carnegie, James
Chatburn, Percy
Cooper, Francis
Cowie, William
England, Thomas
Farquharson, James Hunter
Ferguson, John Douglas
Fraser, John
Graham, Frederick Forster
Halket, James
Hill, John Stableford
Inglis, Alexander
Inglis, Robert
Jeffrey, Alexander Hill
Little, Thomas Anderson
McDonald, Robert
Martin, John Muir
Massie, John
Melling, Alfred Ernest
Nicholson, Agnew
Nicol, George
Owen, Ebenezer Denis
Pirie, Alexander
Pyecroft, Archibald Charles
Sinclair, Donald Morrison
Stevenson, Arthur Llewellyn
Stewart, Alexander Rust
Tipper, Walter
Tolmie, William John
Tully, James Turubull
Williamson, James Anderson
Wilson, William Henderson

FIRST EXAMINATION QUESTIONS.

First Paper.

October 10, 1899, *from* 11 *a.m. to* 12.30 *p.m.*

LATIN.

1. FOR ALL CANDIDATES. Translate into Latin :—

1. They did not plough the fields.
2. Honour the queen, my children.
3. The boys will be taught by many skilful masters.
4. Caesar and his cavalry came with the utmost speed.
5. The thiugs which make life happier are these.

2. Translate into English *either* A (Caesar) *or* B (Virgil).

A.—CAESAR.

1. Itaque prius, quam quicquam couaretur, Divitiacum ad se vocari jubet, et, quotidianis interpretibus remotis, per C. Valerium Procillum, principem Galliae provinciae, familiarem suum, cui summam omnium rerum fidem habebat, cum eo colloquitur: simul commoncfacit, quae ipso praesente in concilio Gallorum de Dumnorige sint dicta, et ostendit, quae separatim quisque de eo apud se dixerit. Petit atque hortatur, ut sine ejus offensione animi vel ipse de eo, causa cognita, statuat, vel civitatem statuere jubeat.

2. Id ne accideret, magno opere sibi praecavendum Caesar existimabat. Namque omnium rerum, quae ad bellum usui erant, summa erat in eo oppido facultas; idque natura loci sic muniebatur, ut magnam ad ducendum bellum daret facultatem, propterea quod flumen Alduasdubis ut circino circumductum paene totum oppidum cingit; reliquum spatium, quod est non amplius pedum sexcentorum, qua flumen intermittit, mons continet magna altitudine, ita ut radices ejus montis ex utraque parte ripae fluminis contingant.

GRAMMATICAL QUESTIONS.

(For those only who take Caesar.)

1. Decline throughout. in the singular, *magna altitudine*; in the plural, *ejus montis*. (Passage 2.)

2. Give the third person singular of the indicative perfect, active and passive, with the English, of *molo, impetro, demitto, decipio, neco, munio, redimo, subtraho.*

3. Give, with examples, the rule for the agreement of the verb when the nominative consists of words of different persons.

4. How must *but* be translated into Latin when it is (*a*) a conjunction, (*b*) an adverb, (*c*) a preposition?

B.—VIRGIL.

1. Quisquis es, haud, credo, invisus coelestibus, auras
Vitales carpis, Tyriam qui, adveneris urbem.
Perge modo, atque hinc te reginae ad limina perfer.
Namque tibi reduces socios, classemque relatam,
Nuntio, et in tutum versis aquilonibus actam;
Ni frustra augurium vani docuere pareutes.
Adspice bis senos laetantes agmine cycnos,
Aetheria quos lapsa plaga Jovis ales aperto
Turbabat coelo: nuuc terras ordine longo
Aut capere, aut captas jam despectare, videntur.

2. Tum sic reginam alloquitur, cunctisque repente
Improvisus ait: "Coram, quem quaeritis, adsum,
Troius Aeneas, Libycis ereptus ab undis.
O sola infandos Trojae miserata labores!
Quae nos, reliquias Danaum, terraeque marisque
Omnibus exhaustos jam casibus, omnium egenos,
Urbe, domo, socias. Grates persolvere dignas
Non opis est nostrae, Dido; nec quicquid ubique est
Gentis Dardaniae, magnum quae sparsa per orbem.
Di tibi, si qua pios respectant numina, si quid
Usquam justitiae est, et mens sibi conscia recti,
Praemia digna ferant."

GRAMMATICAL QUESTIONS.

(For those only who take Virgil.)

1. Decline throughout, in the singular, *mens conscia;* in the plural, *infandos labores*. (Passage 2.)

2. Give the third person singular of the indicative perfect, active and passive, with the English, of *gigno, inveho, muto, addo, capio, circumfundo foveo, prorumpo.*

3. Give, with examples, the rule for the agreement of the verb when the nominative consists of words of different persons.

4. How must *but* be translated into Latin when it is (*a*) a conjunction, (*b*) an adverb, (*c*) a preposition?

Second Paper.

October 10, 1899, *from* 12.30 *p.m. to* 2 *p.m.*

ARITHMETIC.

[*The working of these questions, as well as the answers, must be written out in full.*]

1. Reduce 9,123,400 sq. in. to acres, etc.

2. Taking the railway fares in Prussia at two-thirds of those in England, what will it cost to travel 320 miles in Prussia if it costs £1 2s. 6d. to travel 180 miles in Eugland?

3. Reduce $\frac{9}{11}$ of $\left(\frac{2\frac{1}{2}}{3\frac{1}{2}} \div \frac{4\frac{1}{4}}{5\frac{1}{4}}\right)$ of £15 3s. 10½d. to the fraction of £12 13s. 6d.

4. Divide 1·69 by ·013; and 13·2 by 5·6.

5. I sell goods for £46 at a profit of 15 per cent. What per cent. should I gain by selling them for £42?

6. What amount of stock in the 3½ per cents. will produce the same income as £3,560 Stock in the 3 per cents.?

The following qucstion must bc attempted by every candidate :—

7. Write out the Metric Table of Capacity. How many ares added to 55,372 deciares make 1 sq. kilomètre?

Third Paper.

October 10, 1899, *from* 3 *p.m. to* 4.30 *p.m.*

ENGLISH.

1. Analyse:—
"Well had the boding tremblers learn'd to trace
The day's disasters in his morning face."

2. Parse fully:—"Thou can'st not then be false to any man."

3. Name *two* ways in which primary derivative adverbs may be formed from other parts of speech. Write *two* sentences introducing one such adverb in each.

4. In the following passage, supply the necessary capital letters, and put in the stops and the inverted commas where necessary:—allen had started walking agaiu but the moral degradation of it he snapped out at her over his shoulder i would rather earn the meanest living at an honest trade and be free from it that may be responded sister soulsby but it isn't a question of what you would rather do its what you can do how could you earn a living allen stopped and stared at her

The following question must be attempted by every candidate:—

5. Write a short Composition on *one* of the following subjects:—
(i.) A Visit to a Cathedral or a Castle.
(ii.) The Administration of the Law in England and in France.
(iii.) The Transvaal.
(iv.) Local Attachments.

PHARMACEUTICAL SOCIETY OF IRELAND.

On Wednesday, the 4th inst., the monthly meeting of the Council was held at 67, Lower Mount Street, Dublin, at three o'clock. The members who attended were the PRESIDENT (Mr. R. J. Downes), and Messrs. Grindley, W. F. Wells, Kelly, J. J. Bernard, Simpson, Dr. Walsh, Michie, and P. N. White, J.P. (Sligo).

The PRESIDENT, after welcoming the recently elected member, Mr. Patrick N. White, J.P., read a telegram from Mr. Jameson, another recently-elected member, stating that he had received the notice of that meeting too late to enable him to make arrangements to attend.

ELECTION OF OFFICERS.

Mr. WELLS, in moving that Mr. R. J. Downes be re-elected President, said it was necessary that one who had been in harness should continue on for the ensuing year on account of the work about "company pharmacy" that was going on.

Mr. GRINDLEY seconded the motion, which was put by Mr. Wells and unanimously agreed to.

The PRESIDENT said he was very much obliged for the honour they had conferred on him in electing him for the third time to that office. He had many private reasons why he would have wished to be relieved from office, but the old adage said, "It is not good to change horses when you are crossing a stream." As regarded Parliamentary business, however, he would not be able to undertake the fatigue of lobbying, which would have to be undertaken by someone else. Nor should he be able to give the constant attendance at the evening meetings that he gave last year. He desired that the School Committee should more seriously take that up, for it was their proper work. The President then said it had been customary for the occupant of the chair to propose his Vice-President, and he

thought they could not do better than retain Mr. Beggs in that office. He moved that he be re-elected.

Mr. Michie seconded, and the motion passed unanimously.

Mr. Wells, in moving that Mr. George H. Grindley be re-elected Honorary Treasurer, regretted that he would not allow himself to be nominated for either the Vice-Presidency or the Presidency. He was quite sure that during past years they would have been ready to put him into either of those positions.

Mr. Kelly seconded, and the motion was passed unanimously.

On the motion of Mr. Kelly, seconded by Mr. Bernard, Mr. Simpson and Dr. Walsh were re-elected Auditors.

The various committees were then elected.

In answer to a question from Mr. Bernard,

Mr. Wells said it was not expected that members who resided in the country would come up to Dublin to attend the Law Committee, but they could do valuable committee work in the country, because when inquiries had to be made the papers were sent to them.

Mr. Bernard said he was not talking of the Law Committee, but of the Declarations and the Certificates Committees.

Mr. Wells said the same thing applied to them. Besides, it was desirable that the druggists should be represented on the committees.

Other Business.

A letter was received from Dr. M. R. Whitla thanking the Council for re-electing him as Examiner in Pharmacy, and expressing a hope that the Council would sanction the new method of marking in the pharmacy examination before the next examination came on.

The President said this new mode of marking had been referred to the Privy Council, who declined to sanction it.

Mr. Wells said it was sent to the Privy Council along with some other matters, and all were rejected. He would move at the next Council meeting that this mode of marking should be adopted, and that the Privy Council should be again asked to sanction it. The object was to have separate marks for prescription reading and the British Pharmacopœia. Under the present regulation a man who got no marks in prescription reading might have to be passed.

A letter from the Castle intimated that the Lord Lieutenant and Privy Council, after having fully considered the case of William Carlin, of Moville, who had been fined £5 for selling phosphorus paste without being qualified to do so, and who had memorialised that the fine should be returned to him, had decided that the law should take its course.

Mr. Wells: The man was fined £5, and after we got the money he sent in a memorial.

A donation was received from the Mason University College of a copy of their Calendar for 1899-1900.

On the motion of Mr. Grindley, seconded by Mr. Wells, thanks were voted to the donors.

Messrs. D. N. Stewart, Londonderry, and John Hartrey, Phipsborough, Dublin, were elected members of the Society.

Messrs. Arthur J. Cahill, Dublin; Thomas L. Foster, Belfast; and G. D. Dixon, Mallow, were nominated for membership.

Other business having been disposed of,

The Council adjourned.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.

At the general annual meeting of this Society, held on Thursday evening, the 5th inst., at the Liverpool School of Pharmacy, the President, Mr. Cowley, in the chair, the reports of the Honorary Secretary and the Honorary Treasurer gave evidence of the vigorous condition of the Society. The roll of membership during the year had been very satisfactory, the percentage of members present at the meetings had been larger than in the two previous years, and there was a good balance in the Treasurer's hands. The officers elected for the ensuing year were: President, Mr. Prosper H. Marsden, F.C.S.; Vice-Presidents, Messrs. Catford and Wyatt; Hon. Secretary, Mr. Patridge; Hon. Treasurer, Mr. P. G. Jenner; Council, Messrs. Atkinson, Cowley, H. B. Morgan, Park, Pickering, Smalley, Sutton, Wardleworth, and Wokes. Votes of thanks were then passed to the retiring office-bearers for their efforts to render the year's work the success it had proved to be, and it was announced that the syllabus would be issued shortly, and members desirous of contributing papers or notes were invited to communicate with the Secretary at once. The aim of the Society as regards these papers is to have them as far as possible the work of the members, and to encourage the discussion of any little difficulties of a practical nature occurring during the daily routine of business.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION.

A general meeting of the above Association was held in the Masonic Chambers, West Regent Street, on Friday evening, October 6, when Mr. J. P. Gilmour, President, occupied the chair. In announcing the

Arrangements for the Present Session,

Mr. Gilmour said he felt confident that members would find the programme an unusually inviting one. The Committee had respected the old maxim that "All work and no play makes Jack a dull boy"; but that intellectual interests had not been overlooked was proved by the appearance on the list of the names of pharmacists of standing, like Messrs. J. Lothian, T. Maben, T. S. Barrie, J. R. Hill, and Dr. Coull. He was sorry to learn that an impression was current that this Association had been formed in opposition to the local Association. He warmly disclaimed any such motive on the part of the promoters of the Assistants' Association. Everyone knew that there were special practical difficulties in working a joint Association. It seemed to his colleagues and himself that there was ample space for separate Associations, and that the work of the two bodies ought not to be conflicting but complementary. It might be premature to define the Association's external policy, but he felt constrained to refer to the vexed and vexatious problem of late shop hours, an evil which more than ever harassed both master and assistant in these days when the qualification of the assistant was virtually obligatory. That was a question of immediate practical politics which ought to engage their most earnest attention.

Mr. J. Sturgeon (Treasurer) stated that the finances of the Association were already in a sound and progressive state.

Mr. J. Lothian, Ph.C., cordially welcomed the advent of the Association. He had no misgivings as to its future. The fear that it would clash with the local Association was chimerical. The greatest hindrance to the successful co-operation of masters and assistants in the same society was the constraint felt by the latter in the presence of the former. No doubt that feeling was unreasonable, but it was evidently hard to dissipate it. There were separate Associations in many provincial towns, and these seemed to help rather than interfere with each other. As a teacher he was painfully surprised by the exceptionally late shop hours in Glasgow. While in many English cities evening classes opened at seven, it was difficult to muster Glasgow students for a lecture at 9.15, and they often turned up for practical work at ten o'clock. He was not closely acquainted with the conditions of business in Glasgow, and he knew that the question was an intricate one; but some effort ought to be made to secure partial relief. Before anything could be done they must get a powerful combination both of masters and assistants.

Mr. Boyd (employer), in compliance with a call from the chair, said that he had listened with great pleasure to the statements as to the Association's prospectus. He flouted the idea that it was conceived in enmity to the older Association or that there need be friction between them. He recalled a former Assistants' Association, under the fruitful presidency of the late John Hunter, which did yeoman service to pharmacy. He hoped to see this Association live longer and go farther. He was in full sympathy with the demand for early closing. There might be formidable obstacles in the way of that, but at the very least some arrangement might be made by which employers and employees should relieve one another, so that the working day could be brought within reasonable limits. There was no sense or science in working any man up to the limit of his energy or endurance.

Mr. J. P. Taylor could see no way clear out of the *impasse*. In Glasgow one of the chief causes of late hours was the practice of keeping night bells. In such establishments, although the nominal hour of closing was nine, it was actually eleven, and it was expecting too much of human nature, in these times of desperate competition, to suppose that other shops in the neighbourhood would lock their doors and lose custom.

Mr. MacKay deprecated Mr. Taylor's views as too pessimistic. The night bells in Glasgow could be counted on one's ten fingers. The doctors' shops, with their late consulting hours, were the greatest sinners. In lieu of drastic reform, he welcomed Mr. Boyd's proposal.

The Chairman, in closing the meeting, summed up the discussion by remarking that the consensus of opinion seemed to be that strong combination was a *sine quâ non* to the effective action for the cure of the evil.

EXTRACTS FROM CONSULAR REPORTS.

THE GERMAN PHOSPHORUS FACTORIES, it is reported, are about to form a syndicate. Last year 5,928 cwts. were imported into the country, as compared with 5,831 cwts. in 1897; of this Great Britain sent by far the largest part, 5,121 cwts.

THE PROTECTION OF NATIVE INDUSTRY has been under consideration in Russia, and a scheme has been devised by which, under a law that came into operation on January 1 of this year, all foreign commercial travellers plying their avocation in Russia must, on arrival in the country, provide themselves with a licence, for which the charge is 50r. (or about £5 5s. 6d.). In addition to this they must take out a trading licence at a cost of 500r. (or about £53 4s.) for the person, firm, or company on whose behalf they are travelling. Moreover, these licences cannot be procured for the mere asking and paying. In order to obtain a commercial traveller's licence an applicant must also produce a power of attorney or letter of authority from a person, firm, or company authorising him to travel on his or their behalf; he must further, if representing a British firm, produce a certificate or licence to trade issued by a British Chamber of Commerce. Jewish commercial travellers are practically excluded from Russia, unless they obtain special permission from the Ministers of Interior, Finance, and Foreign Affairs.

THE PENALTY FOR TRADING without the above licences is treble the amount of their cost, or 1,650r. (equal to about £175). The licences in question, procurable on entering Russia from the nearest local treasury, town council, or collector of taxes, are issued for the period of one year, from January 1, and are renewable during the months of November and December for a further annual period. Commercial houses and industrial concerns which have provided themselves with the prescribed licences may employ an unlimited number of commercial travellers, on condition, however, that each such traveller pay the tax of 50r. for his licence. The operation of the new law does not extend to the Grand Duchy of Finland, where such travellers belonging to countries (Great Britain being among these) with which Russia has commercial treaties are exempted from payment of a commercial traveller's tax.

THE BENZINE CONVENTION, after much discussion, is at last stated to be an accomplished fact. According to a recent report on the trade of Germany for 1898, this convention includes thirty establishments in Germany, Belgium, Luxemburg, and Switzerland, and will last three years. It commands a production of 35,000,000 kilos., regulates the amount of production, and rules the prices. This convention is stated to be the outcome of the exorbitant prices demanded by the Standard Oil Company, and the benzine manufacturers hope to keep their prices proportionately high.

A NEWLY-DISCOVERED PROCESS for the production of ammonia is reported from Germany by Consul-General Schwabach. Formerly, gas-meters have been used in the production of the union of hydrogen and nitrogen, but by the new process a calcium metal is heated in nitrogen to 1,200 degrees, the result being a brown slag, from which, by watering, ammonia and slaked lime are obtained. At present, however, the process is too expensive, on account of the high price of calcium, but it is probable that this difficulty may be overcome, as it is considered possible to obtain calcium cheaper by means of the electrolytic process.

THE EXPORT OF SUGAR OF LEAD from Germany is steadily decreasing year by year. In 1896 the export was 1,533 tons, the following year 1,176 tons, and last year 1,119 tons. Its manufacture is also stated to have been unprofitable last year. The main reason for this retrogression is said to be the establishment of new factories in other countries with which the German manufacturer cannot compete on account of the high import duty. The difficulties in the spirit trade have intensified these unfavourable conditions, spirit being the principal raw material in the production of sugar of lead. The enormous rise in the price of spirit in the spring of 1898 caused a rise in the price of sugar of lead of six marks per 100 kilos. A fall in the price of spirits in the autumn brought about a reduction of two marks in the price of sugar of lead, but the present prospects are reported to be very gloomy, as the maintenance of high prices by the spirit "ring" render a profitable production of sugar of lead impossible.

"METHYLBENZOLSULFINID," or "SUGARINE," is a new sweetening substance which is said to be 500 times as sweet as sugar. The process of production is reported to be somewhat complicated.

THE BUSINESS IN SACCHARINE during the first nine months of last year, both in Germany and other countries, is reported to have been satisfactory. There was a slight falling off in prices, however, during the latter part of the year. This fall is attributed to the law regulating the trade in artificial sweetening stuffs which came into force in Germany in October, 1898.

ARTIFICIAL INDIGO, in the opinion of Consul-General Schwabach, is a perfect substitute for the natural product, and it is stated that the most sanguine anticipations of the German manufacturers have been realised, the consumers being convinced of the great advantages which it possesses and of its equality with the natural product. Numerous factories have been established for its production, but, as was recently pointed out by Consul Robinson (see *ante*, p. 197), seeing that the market price of the natural article is less than that of the artificial product, difficulties are likely to arise in the trade.

"CALCIDUM" IS A COLOURLESS LIQUID which is claimed to have the property of lowering the freezing point of water to 56°. It is heavier than water, hydroscopic, non-inflammable, rendering stuff impregnated with it also non-inflammable, and it does not eat into metal. Calcidum, being 500 per cent. cheaper than glycerin, is expected to have much influence on those industries in which it is necessary to work with a liquid which does not freeze. In the manufacture of acetylene gas, for instance, calcidum is likely to prove of importance, especially in Germany, where the police regulations prohibit the generation of acetylene gas in houses or in massive buildings, and consequently it is only in lightly-built sheds in which water easily freezes that its manufacture is permitted. By the use of calcidum, it is stated that the freezing point of water can be lowered to any desired depth, so that the manufacture of acetylene can be carried on in the open air with only a light roof as a protection against snow. Samples of this new substance may be obtained gratis on application to the Patent Bureau of Richard Lüders, in Görlitz.

THE IMPORT OF PALM KERNELS into Germany is reported to have nearly ceased, and the trade in palm oil has diminished by one-half. Although the largest and oldest German firm, Messrs. Gaiser and Co., in Harburg, has ceased to exist, the remaining firms, it is said, cannot do a remunerative trade. The cause of this is attributed to the fact that Great Britain, Spain, and Portugal, countries which formerly received the export of Germany, now have their own factories, which raise the price of the already scarce raw material and provide the German market with comparatively cheap oil-cake. At the present time, it is reported that a petition signed by 160 German oil manufacturers is lying before the Bundesrath praying for an increase of import duty on cotton-seed oil, which competes largely with palm oil.

IN THE HOPE OF RELIEVING THEIR TRADE, the German soap manufacturers petitioned for a decrease of the import duty on maize oil. But it was the opinion of the Chamber of Commerce of Harburg that those who supported the petition could not be aware of the capabilities of the German linseed oil industry, which amounts annually to 165,000 tons. Of the quantity produced in Germany, it is stated that at least 50 per cent. is used in soap manufacture, and should a lower duty be levied on the import of maize oil it would be a severe blow to the German linseed oil industry. The Bundesrath, therefore, declined to accede to the proposals of the soap manufacturers. Later, the combined linseed and palm oil manufacturers presented another petition. They proposed to raise the tax (4 marks) which already exists on cotton oil, a material used freely in many industries. They pointed out that the import of this oil is rapidly increasing, and expressed the opinion that the large supply is an injury to the German oil industry and to agriculture. They have hopes that this request will be granted, inasmuch as Germany imposes a lower duty on the import of cotton oil than most other countries.

SELECTED PRACTICAL FORMULÆ.

Lanolin Creams.

Toellner recommends the following recipes:—(1) Lanolin, 640, white vaseline, 220, are melted together, then mixed with a solution of borax, 5, in distilled water, 135, and the mixture perfumed with rose oil, 1, bergamot oil, 2; (2) Spermaceti, 200, yellow vaseline, 600, are melted together, then wool fat, 800, is added, and water, 1,000, the whole stirred well and finally perfumed with oil of lemon, 5.—*Oest. Zeits. für Pharm.*, **53**, 387.

Boroglyceride Lanolin.

Wool fat, 350, olive oil, 130, are melted together, and gradually a warm solution of boric acid, 20, glycerin, 100, distilled water, 50, is mixed in and stirred until cold.—*Oest. Zeits. für Pharm.*, **53**, 388.

Oily Solutions of Mercuric Chloride with Guaiacol for Subcutaneous Injections.

Lagrange advocates the use of oily solutions of mercuric chloride containing guaiacol in those cases where the internal administration of mercury has been unsuccessful, and where the use of mercurial ointments is impossible. The injection gives a little pain, but the results are prompt. E. Bazin gives further particulars concerning the preparations of such solutions. Olive oil which has been washed with alcohol to remove the free fatty acids is treated with charcoal and filtered. To remove every trace of alcohol it is heated to 100° C., and is then sterilised by further heating to 120° C. The mercuric chloride is powdered and rubbed down with the oil (5 Gm. to 100 C.c. of oil) in a mortar which has been heated by burning alcohol in it. In order to completely dissolve the mixture it is heated from 75° to 80° C. in flasks fitted with rubber corks. After cooling 3 per cent. of guaiacol is added and dissolved by shaking. The finished product is preserved in 1 C.c. bottles which have been previously sterilised at 120° to 150° C. One bottle contains one injection. The solution thus prepared is very stable, but it must be kept from the light; the guaiacol crystals which are used must be dried.

Wine for Gout.

Quinine sulphate, 1·5; alcoholic extract of colocynth, 1; alcohol (95 per cent.), 10; Malaga wine, 80.—*Pharm. Post*, **29**, 392.

Kalodont.

Precipitated chalk, 250; magnesia, 80; glycerin, 500; Castile soap, 150; cinnamon oil, 2; peppermint oil, 2. A rose colour is obtained by the addition of 3 parts of a mixture of carmine, 5, and calcium carbonate, 5, in water, 10 parts. Dahne recommends in place of carmine, blue litmus tincture, which serves the same purpose and whitens yellow teeth.—*Pharm. Post.*, **29**, 393.

Headache Drops.

The following formula is given for Frieser's headache drops. Methyl valerianate, 1; distilled water, 4; syrup of orange flowers, 6. Twenty drops are given every two hours during the attack.—*Pharm. Post.*, **29**, 393.

Seidlitz Powder Tablets.

Powdered white sugar, 60; magnesium sulphate, 18; mucilage of acacia, 7; powdered sodium sulphate, 6; sodium bicarbonate, 6; triple rose water, 2; essence of orange, 1.—*Pharm. Post.*, **29**, 393.

Ointment for Burns.

Capitan prescribes the following ointment for burns: Salol, 5 Gm.; cocaine hydrochloride, 30 centigrammes, vaseline to make 50 Gm. Incidentally, the author recommends a moist compress with a quarter to a half per cent. solution of mercuric chloride, or 2 per cent. boric acid solution.—*Oest. Zeits. für Pharm.*, **53**, 473.

Antiseptic Sticking Plaster.

Koller prepares a plaster by mixing salicylic acid, 1, gum arabic, 45, water, 55, which is spread on paper, and, to prevent the mass separating from the paper, 2 to 3 of glycerin are mixed. The paper is fastened down to a board, and the solution painted on with a broad brush, and then dried.—*Oest. Zeits. für Pharm.*, **53**, 473.

Antiseptic Mouth Perles.

According to Von Rudlauer these may be prepared in the form of cachous, each containing 0·001 Gm. of thymol, menthol, eucalyptol, saccharin, and vanillin. They may be used in place of tooth or mouth washes and gargles, especially in case of children not old enough to use a gargle. For adults, 2 perles are allowed to completely dissolve in the mouth, the solution being swallowed.—*Pharm. Central.*

LETTERS TO THE EDITOR.

The Society's Local Secretaries.

Sir,—Now that the attention of the Council is being directed to this subject, may I be allowed to make a suggestion? It is unnecessary for me to recapitulate the qualifications for the appointment of local secretaries, as they are fully defined on the circular post-card sent to every member of the Society. There are many rural districts containing numbers of chemists where there are no local secretaries. Could not the Council appoint a local secretary for each Parliamentary district, so that every member may have a representative, and every M.P. be shadowed by one? The county of Herts has local secretaries in four towns only. Are there no other subscribers to the Society in the county? If there are others why should they be debarred representation, so to speak, because under existing conditions it is impossible for their respective localities to qualify? Probably at the present time the existing body of local secretaries represents a minority of the Society's supporters for this reason.

Tring, Herts, October 7, 1899. John W. T. Morrison.

A University Degree for Pharmacists.

Sir,—To prevent anyone being misled by the President's remarks about the B.Sc. examination (I presume he means London University) when moving the vote of thanks to Professor Leech, if they will turn, as the President might to have done, to the official regulations, they will find that there is no need to trouble their heads at all about zoology. For the Intermediate Scientific Examination, the candidates must pass in four out of the following six subjects:—1. Pure Mathematics; 2. Mechanics; 3. Experimental Physics; 4. Chemistry; 5. Botany; 6. Zoology. For the Final B.Sc. Examination, three subjects (or under certain conditions two) are necessary out of the following eight:—1. Pure Mathematics; 2. Mixed Mathematics; 3. Experimental Physics; 4. Chemistry; 5. Botany; 6. Zoology; 7. Animal Physiology; 8. Geology and Physical Geography. Thus it will be seen that there is plenty of scope for the candidate without the zoology.

October 6, 1899. Microcosm (2/37).

Ether-Soap.

Sir,—Being by no means ignorant of the connection with both hospitals of the surgeon to whom reference has been made by Mr. White, I was the more careful in my letter to dissociate myself from the slightest appearance of appropriating the formula, assuming that should it prove to have emanated from St. Thomas's, a courteous intimation to that effect, on the part of Mr. White, might reasonably be expected in due course. It may also be mentioned that the surgeon intended to lay no claim to the formula. Mr. White states what he thinks I ought to have done before writing my letter; had he acted upon his own advice he would not improbably have hesitated before lecturing me on professional ethics. Further, I would point out that the "formula for private use" having appeared in what Mr. White considers an improved form the previous week, and hence available for public use, I cannot be said to have published the formula at all. Turning now to the pharmacy of ether-soap, I adhere to my preference for the method there described (uncommunicated to me, be it noted, by Mr. White), notwithstanding the "sufficiently obvious advantages" of the other. On the question of deposit my point needs no defence, for if it be necessary

to make as much as five litres before the amount is easily observable, my contention that there is practically no deposit is justified. Then as regards the temperature of the mass during neutralisation I give the following particulars:—In one case 120 C.c. of acid was neutralised and the increase of temperature was 23° C. In another case 440 C.c. of acid was neutralised, when the increase was 22° C. The temperature was repeatedly ascertained at intervals during neutralisation. Your readers are now in a position to judge as to whether it is more accurate to describe the rise of temperature as "appreciable" or as "considerable," as Mr. White suggests. After all "ether-soap" is not a very wonderful preparation, for it is common knowledge that potassium hydroxide will neutralise oleic acid and that the soap thus formed is soluble in spirit and ether; nor is the idea of dissolving soap in a volatile liquid a novel one, for I prepared a solution of soap in spirit according to a formula derived from a German medical periodical some time before "the formula for private use" fell into my hands.

Evelina Hospital, October 9, 1899. F. A. Hocking.

Federation of Local Pharmaceutical Associations.

Sir,—I should feel obliged to any local secretary who received a circular from me on behalf of the Executive, and who has not yet replied to it, if he would kindly do so by the 21st inst.

James Cocks, *Hon. Secretary.*

Stonehouse, Devon, October 9, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Embrocation for Whooping Cough (A. A. M.—34/18).—Olive oil, 3 fl. oz.; rectified oil of amber, 1 fl. oz.; clove oil, 1 fl. oz. Mix. If so desired, it may be coloured red with a little alkanet root.

Gingerbread Wormcakes (J. P.—34/23).—Treacle, 7 oz.; moist sugar, 4 oz.; butter, 2 oz.; flour, 9½ oz.; calomel, 2½ oz.; powdered jalap, 5 oz.; powdered ginger, ½ oz.; powdered pimento, ¼ oz.; powdered coriander, ¼ oz. Mix the powders together, warm the treacle and the butter, then work it into the mixed powders until a uniform paste results. Divide into 30 grain cakes, and bake for about thirty minutes in a rather slow oven.

Preliminary Examination (L. R. D.—35/2).—The examination you refer to is not at present included in the list of those recognised by the Pharmaceutical Society's Boards of Examiners, and, if it were, the fact that Latin has not been taken as one of the subjects would prevent the certificate being accepted. See page 260 of the Students' Number of the *Pharmaceutical Journal*, also the first paragraph of the article at page 259.

Book on Lacquers (P. J. P.—34/31).—Probably the most useful book for your purpose would be the 'Painters', Gilders', and Varnishers' Companion.' The following are two recipes for brass lacquer which may be useful:—(1) Annatto, 1; turmeric, 4; saffron, 1; shellac, 10; methylated spirit, 64. Macerate for seven days, with frequent agitation; then filter. (2) Shellac, 16; gamboge, 1; wood spirit, 96. Dissolve without heat, decant the clear liquid; mix, when required for use, with eight times its volume of methylated spirit.

Acetanilide in Headache Powders (A. A. M.—34/17).—The formula you allude to is of American origin, and is supposed to represent a certain proprietary preparation. It is supposed that the caffeine tends to lessen the toxic effect of acetanilide. The objection to the latter body is that some individuals exhibit a very marked intolerance towards it; in such cases, a perfectly normal dose will give rise to unpleasant symptoms. In most cases a dose of five grains of the compound powder will have as good an affect as a larger quantity.

Glaze for Gum Sweets (W. M.—34/16).—Soak gelatin in cold water for an hour, then drain off the superfluous water. Put the softened gelatin in a covered pot; stand it on the water bath until it has melted, then stir in rectified spirit, 2, and bottle off for use in a wide mouth bottle. When required for glazing stand the bottle in warm water, and coat the articles by dipping them in the liquid. If required for immediate use and not for storing, omit the spirit and add to the above mucilage of acacia, 1, and freshly boiled water, 1 or *q. s.* to give the desired consistence.

Colours for Antiseptic Solutions (E. N.—34/30).—Methyl violet, malachite green, Nicholson's blue, indigo carmine, and iodeosine have all been recommended for colouring mercuric chloride solution. Phenol solutions may be tinted with fuchsine, eosine, or safranine. Boric acid solution with methyl orange. Silver nitrate solution with fluorescine. If a universal series for colouring antiseptic dressings and solutions were adopted, it would be very convenient and tend to safeguard against error. At present there is no uniformity in the use of colours for the purpose.

Extracting Honey from Comb and Preparing Beeswax (G. G.—34/33).—Honey is separated from the comb by means of a small centrifugal arrangement called an extractor. You can probably obtain this and all other appliances requisite for bee-keeping from James Lee and Son, 5, Holborn Place, W. Wax is obtained by melting the extracted comb in boiling water, allowing the water to cool, then removing the cake of wax which sets on the surface. It is then purified from suspended matter by melting it in a deep vessel and allowing it to stand melted for some time, when all the suspended matter will sink. The pure wax is then poured out into small earthen vessels previously wiped over with a wet cloth: when cold it will separate in cakes. If you employ "foundations" care should be taken that they are made entirely of pure beeswax, otherwise the whole product of the hive will be spoilt, so far as the wax is concerned.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size; clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Alcock, Allenby, Ayrton, Bartlett, Burroughs, Clarke, Cracknell, Davies, Elborne, Ferrall, Fresson, Giles, Gilmour, Godkin, Graham, Gregson, Harrison, Hebb, Hill, Hillyer. Kirkby, Krischke, Lasey, Leadbeater, McGonigal, Maiden, Marshall, Matthews, Michie, Nutt, Platt Prescott, Skerry, Waddell, Whineray.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

DETERMINATION OF VANILLIN IN VANILLA.

W. Busse (*Arb. Kaiserl. Ges.*) does not consider that the vanillin content of a sample of vanilla bears any marked relation to its value as a flavouring agent, the aroma of the pods not being due solely to the vanillin they contain. To determine the amount of that body, a known weight of the pods, crushed with sand, is extracted in a Soxhlet tube with ether, the ethereal extract is shaken out with sodium bisulphite solution; from the latter, the vanillin is liberated by treatment with H_2SO_4, the SO_2 generated removed by a current of CO_2, and the vanillin extracted by shaking out with ether, evaporating the solvent, and weighing the residue. In East African vanilla the author found 2·16 per cent. of vanillin, in that from Ceylon 1·48 per cent., and in Tahiti vanilla from 1·55 to 2·02 per cent. Tiemann and Haarman found in the best Bourbon vanilla 1·94 to 2·90 per cent., and in the best Java vanilla 2·75 per cent. The author attributes the cases of so-called vanilla poisoning to the decomposition of the other ingredients in vanilla-flavoured foods.—*Zeits. für Unters. der Nahr. und Genuss*, **6**, 519.

TESTING OIL OF BERGAMOT.

According to A. Soldani and E. Berté, during fractional distillation of bergamot oil the dextro-rotation of the oil becomes less and less until after half the oil is distilled, when it becomes negative. In bergamot oil adulterated with 2 per cent. turpentine, the dextro-rotation of the first fraction is less than that of a pure oil. In the second fraction the rotation is the same as that of a pure oil. The authors arrive at the following conclusions:—By distilling 15 or 20 C.c. of pure bergamot oil *in vacuo* under 20 M.m. pressure the optical rotation of the first fraction (one-third of the original oil) varies from + 35 to + 45, and a very slightly optically active residue (under + 1°) is obtained. If a bergamot oil contains lemon oil, and the optical rotation of the distillate is less than + 40 C., turpentine is also present. If from 15 C.c. of the pure oil 10 C.c. be distilled off, the residue will give a slight lævo-rotation, but with an oil adulterated with 5 or 2·5 per cent. lemon oil, or as much turpentine, the rotation will be to the right; the presence of lemon oil may be confirmed by Schiff's reaction. If the oil gives a fraction of higher rotation than + 45 the presence of lemon oil is established. In both the latter cases the optical rotation of the residue will be over + 2.—*Zeits. für Unters. der Nahr. und Genuss.*, **6**, 537.

SOME MEXICAN DRUGS.

Schinus Molle.—According to M. Duyk, the leaves, fruits, and gum resin of *Schinus molle* are used in Mexico as drugs. The two former yield, on distillation, a colourless volatile oil, having the sp.g. 0·852, which may be of use in the treatment of gonorrhœa. The gum resin is white and odourless, with a bitter, acrid taste. It melts at 40° C., and forms a persistent emulsion with water. The resin, freed from the accompanying gum, is yellow, at first semi-fluid, but soon becoming hard. It is soluble in alkalis. Toussaint has found that the gum resin, in emulsion in water, is toxic, in doses of 2 Gm., giving rise to gastro-enteritis, vomiting, frequent bloodstained evacuations, followed by a marked lowering of the temperature, and ultimately by death. In therapeutic doses, Orvagnanos finds that it acts as a powerful purgative, and modifies the respiration. He gives it in the form of pills containing 10 centigrammes. Capulincillo.—This drug derived from *Rhamnus humboldtianus*, which grows plentifully in many provinces of Mexico, is a violent poison, analogous to curare, producing paralysis. It has been employed, but with little success, in the treatment of hydrophobia and tetanus. The fruits of the tree contain a non-toxic, non-drying fixed oil, free from taste and odour. A considerable commerce is done with this in Mexico. Coztic patli.—This drug, the root of *Thalictrum hernandezii*, known to the Aztecs as Llamaron Coztic-patli, or yellow root, is employed as a diuretic. It contains, besides the yellow colouring matter, a peculiar alkaloid crystallising in prisms, and a greenish resin with an unpleasant odour. Cuajiote.—The gum resin from several Burseraceous trees is included under this name; the drug is employed by the natives as a remedy for scorpion bites. It occurs in the form of white or yellowish odourless, bitter, and acrid tears or irregular sticks. Given internally, it is a purgative, approaching gamboge in its action. Chilpauxochitl.—This is the odourless, acrid, woody, branched root of *Lobelia laxiflora* var. *angustifolia*; according to Morales, it contains the volatile alkaloid lobeline. The fresh juice causes reddening when applied to the skin.—*Bull. de Pharm. de Brux.*, **43**, 269.

QUINCE SEED OIL.

H. Thoms gives the following characters for the fixed oil of quince seed, which exists in the seeds to the extent of about 15 per cent. The oil from the fresh seeds was yellow, of an almond flavour, the specific gravity was 0·922, it gave the following constants:—Acid number, 31·7; Koettstorfer number, 181·75; iodine absorption (Hubl) number, 113; Reichert-Meissl number, 0·508; Hehner number, 95·2. It contained a fluid unsaturated acid, with an OH group, as represented by the formula $C_{17}H_{32}(OH)COOH$, which was a clear yellow oil, with a feeble taste, and a specific gravity of 0·893. The ethyl ester of this acid $C_{17}H_{32}(OH)COO{\cdot}C_2H_5$ was a colourless mobile liquid of specific gravity 0·886. The oil contained at least two saturated fatty acids, one of which was identical with myristic acid; these acids were present as glycerides.—*Archiv*, **237**, 358.

CINNAMEIN.

According to the researches of H. Thoms, cinnamein consists of benzoic and cinnamic esters of benzyl alcohol and a hitherto unknown alcohol possessing a sweet odour and taste, having the formula $C_{13}H_{22}O$, to which the author gives the name Peruviol. This body was probably the so-called cinnamyl alcohol isolated by Delafontaine, which the author failed to detect in Peruvian balsam, neither could he obtain any iso- or allo-cinnamic acids, but in all the samples examined vanillin was found. Further, he separated an acid having the m.p. 79°-80° C., which is a dihydrobenzoic acid. The ratio of cinnamic to benzoic acid in eight samples of balsam was as 40 to 60.—*Chem. Zeit.*, **24**, 236.

SURINAM COPAIBA.

According to Pool, *Copaifera guianensis* and other copaibas yield a clear yellow, not opalescent balsam, having the consistence of olive oil, known in commerce as Surinam copaiba. The balsam has a sp. g. at 15° C. of 0·942, and is miscible with petroleum ether, ether, chloroform, and carbon disulphide in all proportions, and with absolute alcohol in 4 or 5 parts. Its saponification number = 34. One Gm. of the balsam combines with 94 Mgs. of iodine. The balsam yields 78 per cent. of a colourless volatile oil, having a sp. g. 0·910, boiling at 250°-260° C.; after the distillation of the oil a hard residue remains, from which copaibic acid is obtained by treatment with dilute alcohol, forming crystals which melt at 130° C. It is distinguished from similar thick fluid copaiba balsams by its solubility in petroleum ether. A carbon disulphide solution of the original balsam gives, with a mixture of equal parts sulphuric and nitric acids, a brown-red, not a violet colour. It affords a clear solution with one-third of its volume of ammonia. Bromine in 20 parts of chloroform, gives with the balsam a fine violet colour; lead acetate does not throw down a precipitate. The volatile oil gives with the above bromine chloroform mixture a bright red colour, with concentrated sulphuric acid, a brown, and with chloral hydrate, on warming, a green colour; it does not react with iodine, but evolves heat with chromic acid.—*Pharm. Central.*, **40**, 503.

THE FEDERATION OF LOCAL ASSOCIATIONS AND THE PHARMACEUTICAL SOCIETY.*

BY JOHN SMITH,
Local Secretary for Liverpool.

In the month of October members of the Pharmaceutical Society are requested by the Secretary to nominate persons who will repre ent the Society and undertake certain duties as local secretaries, and I think the present is an appropriate occasion, before the nominations are sent in, upon which to discuss the relationship of the Council to the constituents, and the general question of efficiency or inefficiency of the existing system of local representation of the Society. Whilst on this subject I will endeavour to locate such weakne ses as may exist, and consider if there are any means available which might in some measure, at any rate, supply the remedy.

The Pharmaceutical Society, by reason of its constitution, ought to be one of the finest specimens of effective organisation in existence. I need not take up time by referring to its origin and history. Its functions are administrative and educational. In endeavouring to fulfil the duties imposed upon it by the Pharmacy Act, 1868, the Council has, on the whole, I think, exercised wise discrimination, and there are not many who would deny it appreciative recognition for its efforts in the direction of advancement of knowledge. Successive members of the Council, of great ability and insight into the future, have done what men can to promote and encourage technical knowledge and research, and by raising a more highly-trained body of men in our calling, have done much to raise the status of the registered chemist. While recognising what has been done by our leaders, it is fair to aportion a proper share of the credit for the advancement of knowledge in subjects pertaining to pharmacy to the members of such associations as this. The work accomplished by the Pharmaceutical Society, through its members, should give it an influence and weight that an organisation of a mere trading body could not attain. Another great advantage the Society has is that it is

A Democratic Body.

In practice it is not as much so as it might be, but that is not the fault of its constitution. It is open to every person on the Register, whatever his views may be, to take an active part in the work of the Society, to expound and promulgate those views with all his might and energy and to occupy a seat on the Council if his brethren choose to place him there. The Council consists almost entirely of men who are engaged in retail pharmacy and having the same interests at stake as the rest of us. We have an exceptionally capable Secretary and staff at Bloomsbury Square and an ably conducted Journal which, besides recording the transactions of the Society, provides us with much useful information of a business as well as a technical character and enables us to keep abreast of modern pharmacy.

Notwithstanding the elements of success I have enumerated, can it be said that the Pharmaceutical Society is in the position it should be, or that it is truly representative? Not only is it a fact that the Society numbers among its supporters only a minority of registered chemists; but it must be admitted that many, even of those, are lacking in interest in the doings of the Society, and are imperfectly acquainted with the efforts made on their behalf. It is no part of my duty to claim perfection on the part of Bloomsbury Square; but I do not find that any notable shortcomings are placed to the debit of the Council and officials. I am speaking now of present and recent circumstances; it would be unprofitable to excite contention over real or supposed errors of twenty years ago. We are bound, then, to see how we stand as regards provincial local organisation. Here lies our weakness. Once a year members are requested to nominate a person for the position of local secretary in respective districts. I have no actual knowledge, but I am strongly of opinion that not more than seven to ten per cent. of those nomination cards are filled in and returned. In most cases it is a mere matter of form—the same person is appointed year after year until he wishes to retire. Towards the close of each year of office the local secretary receives a communication, suggesting that he should call a meeting of the chemists in his district to consult as to the most suitable person to be recommended for the office. Does anyone suppose there is sufficient interest in the matter to bring a meeting? Men would not leave their business to discuss this question only. If I am right in concluding that there is a serious

Defect in Local Pharmaceutical Organisation,

due partly to the impression in many minds that the local secretary is the representative of the Council of the Society, rather than the nominee of the chemists in the district, we must endeavour to find the remedy. Following the suggestions of the Council in large towns, there could be no more fitting occasion for the consideration of the nomination of a local secretary than a meeting of the local Association. If notices of the meeting were sent to every registered chemist in the district and only supporters of the Society permitted to vote, the nomination of the chairman on behalf of the meeting should be valid. The Council would naturally recognise the importance of such a nomination and would, no doubt, be more than satisfied in appointing the person named, especially as this would exactly carry out their wishes in having a person nominated by a representative meeting of chemists in the respective districts. The local secretary then would, actually and truly, represent his neighbouring chemists and while he would be the appointed officer of the Society he would also be the chosen of his district. It should be within the power of his fellow chemists then to question him at any general meeting respecting the duties of his office and his fulfilment of them, while he would have an advantage to which I attach great importance—that is, the opportunity of conferring with others and would be encouraged by the knowledge that others in his district took some interest in his official duties.

I do not suggest that this system of nomination could be generally adopted this year, especially as nominations must be in by October 20, and it may be desirable also that we should first have a pronouncement from the Council that a nomination in this form would receive the consideration its importance deserves. The Council could not pledge itself, under all unforeseen circumstances that may arise, to appoint a person so nominated; but a general acquiescence in the principle and an assurance that the nominations from local Associations would be accepted, would be satisfactory. The Federation could render invaluable aid in this matter and it would gladly co-operate with the Council in endeavouring to secure a larger number of energetic local secretaries. Let the Council now, or at any other time, consist of the picked men of the country and organisation at headquarters in London and Edinburgh will be as perfect as human ingenuity can make it. Its state is only rudimentary so long as organisation outside these centres is in the chaotic condition it now is. I dwell on this point. To speak of

The Necessity for Organisation

is to utter a commonplace, but it is one of those commonplaces which, because it is so obvious that it needs no demonstration, is liable to be pushed on one side.

If the Federation cannot do something to bind together, in a common interest, the many local Associations spread over all parts of Great Britain and enable them to work together to protect the rights and further the interests of their individual members, there is no reason for its existence. That is a proposition that will not be contested. Further, as every registered chemist may have power to vote in the election of members of Council and the election is by majority, the Council must be regarded as the representative body of the chemists of Great Britain and it is through them we must be heard. It follows, then, that one of the main objects of the Federation's existence is to

* Read at a meeting of the Liverpool Chemists' Association, October 12, 1899.

Strengthen and Assist the Pharmaceutical Society to the utmost of its power. It is not necessary that the Federation should hand itself over bound hand and foot; it is an essential part of its existence that it should have an independent position. As individuals have diverse opinions, so will Associations; but the Council being an elected body, the electorate consisting of men who are members of the local Associations, the possibility of friction between the Council and these Associations through this Federation may be disregarded. I repeat that it is the function of the Federation, as it is of the Society, to promote the interests of registered chemists: that can only be done effectively by conjoint action. There is no room for two organisations working for the same ends and representing the same persons, unless one is supplementary to the other. If it were otherwise we should find ourselves split up by internal dissensions when unity is most urgently needed. The Federation can be useful in many ways. It is necessary, for instance, to take some action in a Parliamentary election in a distant borough or other division and the assistance of persons familiar with the aspect of pharmaceutical affairs is desired, the Federation through some of its members will supply this assistance. Action in conjunction with such a body would be more weighty than that of a few individuals in the constituency.

Again, we have knowledge of serious divergence of opinion between associations of chemists in different parts on the question of the direction that coming amendments of pharmacy law should take. Without some action being taken by the Federation I do not see how these differences are to be adjusted. There is no other organisation available as a medium of communication between the different associations and until something better is forthcoming, I claim for the Federation that it should receive the earnest support of every local Association or local committee of chemists in Great Britain. I openly appeal also to the Council of the Pharmaceutical Society to make use of the local knowledge we possess and then accept the co-operation we tender in the spirit in which it is offered. As a local secretary of some experience, having no small acquaintance amongst others in the same position, I state my conviction that those officers of the Society are hampered and discouraged by lack of interest, on the part of those amongst whom they work and by the want of proper local support. The President said last week that some of the local secretaries could do with a little more zeal and we hear a good deal about the apathy of chemists; but it is not apathy, only another word for

Imperfect Organisation.

As one who occupies a responsible position in connection with the Federation of Local Associations, I state my belief that we can do something towards bringing the local Associations into something like affiliation with the Pharmaceutical Society and creating interest in the Society and its local representation, by the simple method of the Association nominating the local secretaries and those officers, when appointed, representing their Associations on the Federation. The Federation consists of men whose desire it is to serve the interests of registered chemists and I know none more loyal to the Society that these. Differences of opinion there must be, as long as individuality exists in human nature, but I am certain that whims and hobbies will not occupy too prominent a place.

To briefly summarise, I submit that the success of the Pharmaceutical Society is largely dependent upon local organisation; that local organisation in connection with the Society should be the business of a local Association and not alone that of a single individual appointed from London; that these local Associations should be banded together in one Federation, their representatives being principally men who are also officers of the Society and having at hand the assistance of their Associations and of the machinery of the Federation, provide an infinitely better agency than where the duties rest with isolated individuals. It is possible that the views I have expressed may not be accepted in their entirety by all connected with the Federation; it is also likely that modification and alterations, here and there, might be made with advantage; but, as far as my vision extends, there seems to be a real need for a closer co-operation between local Associations and the Pharmaceutical Society.

In conclusion, I may point out that there has been a lull in pharmaceutical politics in the last two months. The Lord Chancellor's last famous statement was made in the last few days of an expiring Parliamentary session; I believe it was the same day as the August meeting of the Pharmaceutical Council. As the Council does not meet in September, we could not have its views on the matter; but we learn that, at the October meeting, it was resolved to frame a clause for the purpose of getting it inserted, if possible, in the Companies Bill when it is again brought forward. Chemists all over the country, through their associations, have unmistakably stated their wishes and what they believe to be their just claims. The Council has also been made acquainted with those. The Council, also, in the early part of the year formulated or adopted

The Well-known Draft Suggestions.

Many of us believe that in that instance too much was asked for, and would willingly abate our demands to a more reasonable limit; but there does seem to be something underlying those suggestions which may form the basis of a policy. I realise that this is a difficult and thorny question and I have no wish to add to the difficulty. My reason for speaking of the matter is to say that whatever the solution presented by the Council, there will be work for the Federation. In order to be prepared for that, in the last two months of apparent inertia, a very important step has been taken towards organising districts which are at present unorganised. I have received from the honorary secretary of the Federation a communication and particulars respecting replies and letters received in answer to a Federation circular to local secretaries. We have here not evidence only, but, to use the secretary's words, proof of "a great amount of latent enthusiasm in the country" and a justification of the policy we have adopted. The object that the Federation has in hand at this moment is to provide available means for utilising this enthusiasm and ability in the interests of all. If that can be accomplished—a new hope on a fairly extensive scale—it will be an important step forward.

THE ASSAY OF SYRUPUS FERRI IODIDI.

BY F. H. ALCOCK.

It is not possible to precipitate the whole of the iron in this preparation as ferrous carbonate, because of the presence of the large amount of sugar. It may be possible to so add sodium carbonate that little or even no precipitation of the iron salt would take place, this being dependent upon the degree of concentration of the syrup and solution of sodium carbonate.

By proceeding as follows the operator will find that the amount of iron compound in the filtrate will be reduced to a minimum:—Into a graduated 100 C.c. stoppered cylinder 80 C.c. of distilled water are put, and in this the gramme of pure dried sodium carbonate is dissolved, and the volume made up to 90 C.c. with the water; then the syrup is added to the 100 C.c. mark, the whole vigorously shaken and the official quantity, or more, if thought desirable, filtered at once through a dry English filter paper, the texture of which appears to be suitably adapted for iron precipitates. By this plan it becomes an easy matter to filter in a very short time as much as 85 C.c. of clear liquid out of the whole quantity of liquid originally present.

For the purposes of neutralisation very dilute nitric acid should be used, or, better still, diluted acetic acid, and the titration conducted in the usual way, using white dishes in place of glass flasks. It is a good plan to limit the quantity of potassium chromate used, for an undue excess may greatly affect the result. By following the above modifications concordant results were obtained by half-a-dozen different operators. The official expression "for complete precipitation of the iodine" does not rightly express the reaction, but as this is only a "minor" trouble, a reference to it, in passing, may sufficiently satisfy the hypercritical.

THE POSITION AND PRIVILEGES OF PHARMACY AND THE PHARMACIST.*

BY J. RUTHERFORD HILL.

If we search the earliest literature of the Israelites and of the pagan races and inquire into the condition of primitive communities in ancient or modern times, we find that pharmacy is an attribute of the priesthood. The priest combines the three functions of religious teacher, medical practitioner and pharmacist. But the progress of civilisation and the evolution of society gradually lead to differentiation and specialisation which result in separation of functions originally inherent in one individual. In this way the priest gives up his medical and pharmaceutical functions and we next find these embodied in the medical practitioner. The process still continues, and in course of time the medical practitioner drops his pharmaceutical function and pharmacy emerges as a distinct profession in the person of the pharmacist. The process is always a gradual one, attended by the struggle and effort, and conflict which seem inevitable in the progress of humanity towards a higher ideal. The process is well illustrated in the history of our own country by the contendings which marked the early years of the present century before pharmacy, as a separate and independent profession, could be said to have come to birth in Great Britain, when the Pharmaceutical Society was formed in 1842. The legislative title of pharmacy to separate existence and independence is embodied in the Royal Charter of Incorporation granted in 1843. The Pharmacy Acts of 1852, 1868, and 1898 mark other important stages in the evolutionary process. The systems of examination and registration involving special education set up under these statutes have resulted in a more or less clearly defined and perfectly distinct professional function, which we call pharmacy.

The Privileges of Pharmacy?

What are the privileges of pharmacy? Some pessimists will say it has none. With that I do not in the least agree. In the Royal Charter and Pharmacy Acts the profession of pharmacy possesses the fundamental and highly important privilege of recognition by the State. This State recognition of the separate and independent position of the profession of pharmacy is the greatest and most valuable achievement of the wise and far-seeing men who led the pharmacists in the early years of this century. Flowing from State recognition pharmacy has the privilege of State protection. This is a necessary consequence of State recognition. Only those qualified to discharge the special function of the pharmacist are to be allowed to call themselves by a name which certifies their fitness. Some say this State protection does not exist. I do not believe that. It is real and effective but by no means perfect. There can be no State protection of prices, but there ought to be the most perfect possible protection of the practice of pharmacy in the interest of public welfare and safety. In this direction there is room for improvement and at the least there should be the absolute prohibition of the use of any word implying personal fitness by any individual not duly certified or by any association of such persons—for, in the nature of things, no association can possess personal fitness.

Another privilege consequent on State recognition is that of State endowment. Some may ask what State endowment pharmacy enjoys. A study of the Charter and Pharmacy Acts will show that the examination fees are a State endowment. The fees are a compulsory tax imposed, not by the Pharmaceutical Society, but by the State. It is only in virtue of and in pursuance of regulations imposed by Statute that the Pharmaceutical Society is permitted to receive fees. And it is quite a mistake to suppose that these fees are merely intended to cover the cost of examination and registration. The Charter makes it perfectly clear that the State empowers the Society to apply these fees in the promotion of the objects of the Society, that is, to the advancement of pharmacy. The same may be said of the penalties recovered under the Pharmacy Acts. Both fees and penalties are strictly public funds which the State assigns for the endowment of pharmacy.

It is the privilege of pharmacy also to be recognised as a referee in the construction of the national Pharmacopœia. This recognition is not yet placed on a perfectly satisfactory basis, but things are moving in the right direction, and the position already attained makes the ultimate full recognition a practical certainty. It is the privilege also of pharmacy to be consulted by the Imperial Government in poison or pharmacy regulations affecting various parts of the Empire. We had an example of that the other day in the case of the Pharmacy Ordinance for Gibraltar. So much for the position and privileges of pharmacy.

What is a Pharmacist?

We now turn to to the individual pharmacist. What is a pharmacist? Here I shall probably be challenged for the use of the title as a term applicable to every qualified chemist and druggist. In using the word in that sense I know I have the letter of the law at least against me. There is a very curious anomaly in the 1868 Pharmacy Act in this connection, clause 1 of the Act gives every registered chemist and druggist permission to use the title "pharmacist." Curiously enough, clause 16, which is merely meant to provide penalties for infringements of clause 1, takes away this permission and restricts the use of the title to those who have passed the Major Examination. Seeing that clause 1 is the enacting clause, and clause 16 only the penal clause of the Act, it is difficult to avoid the conclusion that the original intention of the Act was to confer the title "pharmacist" on every registered person. Whatever may be the law, in common language the title is now constantly and universally applied to all qualified practitioners of pharmacy, and it is in that broad sense that I use it here.

The pharmacist has been aptly described as "ye physician's cook." His function is subordinate to that of the physician, and his duty is to carry out with absolute fidelity the instructions of the prescriber. This is a position of very great responsibility and honour, and recent advances in medical science have greatly added to its importance and difficulty. The pharmacist is more and more called upon to show the prescriber how the appropriate remedies may best be turned to account in the treatment of disease. But he is also a most important check on the work of the prescriber All of us, I daresay, are familiar with instances in which the dire consequences of a prescriber's slip have been averted by the care and intelligence of the dispenser. In my judgment, this function of the dispenser is one of so much consequence to the public safety that, except in very exceptional circumstances, no prescriber should be permitted to dispense his own medicines, but that in all cases safety should be assured by the intervention of an independent and responsible dispenser, fully qualified for such a position. Some recent examples emphasise the importance of this.

The Pharmacist a Professional Man.

The pharmacist is also, I think, justly entitled to call himself a professional man in the same sense as a clergyman, a lawyer, a medical man, or a dentist. If we had a compulsory curriculum of study this position would be made clearer, though not actually perhaps more real. As a matter of practice, a curriculum is now universal, and the special training and education which a pharmacist must possess fairly entitle him to rank as a member o a learned profession. Moreover his duties as a pharmacist are purely professional, and pharmacy itself, as now evolved, is distinctly and unmistakably a learned profession. Pharmacy is in no sense a trade. We confuse things that should be separated when we say it is. The confusion arises from the fact that in almost all cases the

* Address delivered at a meeting of the Glasgow Chemists' and Druggists' Assistants' and Apprentices' Association, on Friday, October 13, 1899.

pharmacist is more than a pharmacist. He is a trader or commercial man as well as a pharmacist. We would not call the pharmacist in a large hospital or infirmary a trader, and yet he is in every sense of the word a pharmacist. But it remains true that most pharmacists are engaged in trade, and that is a condition which will probably continue for a long time to come.

This is an aspect of the pharmacist's position which receives too little attention. The tendency of a professional curriculum is to draw away the attention from the importance and necessity for a thorough equipment in the theory and practice of commercial enterprise. There is even a tendency in some quarters to despise and regard as unworthy and dishonourable everything that savours of commerce. My observation leads me to say emphatically that I believe a great many of the evils at present acting prejudicially towards the position and prospects of the pharmacist are due to a prevalent and undesirable neglect of the study of commercial principles and methods. Napoleon spoke in scorn of the "Nation of Shopkeepers," but it is our pre-eminence as traders more than anything else that has raised us to the front rank among the nations of the world. I would, therefore, say: To your professional equipment be sure to add a thorough grasp of the principles of commerce, for both conduce to the highest success of the pharmacist.

When I think of the position of the pharmacist I am impressed by the wideness of the field that is open to him, and the many directions in which his special training and knowledge give him distinct advantages over his fellows.

Trades Allied to Pharmacy.

In every community there is a large and constant demand for the class of goods generally designated as drysaltery. Many of those engaged in supplying this demand are ignorant, untrained, and badly equipped for such work. The pharmacist, on the other hand, is peculiarly fitted to do such work with intelligence, efficiency, and success. Many, to my knowledge, do a large and lucrative trade without in the smallest degree interfering with their higher duties as professional pharmacists.

There is also, in our time, a very widespread and constant demand for chemicals for scientific and technical purposes. Many pharmacists are fully alive to this sphere of activity, and take effective advantage of the special facility which their chemical knowledge gives them in meeting such demands, and again without, in the slightest degree, interfering with their distinctly professional work as pharmacists.

There is another public need so closely allied to pharmacy proper, that it seems almost naturally to fall within the sphere of the pharmacist. I refer to the supply of spectacles and other instruments usually included in the optician's art. The pharmacist necessarily acquires a knowledge of physics in studying for his qualification, and this knowledge gives him a distinct advantage in meeting the public demand for spectacles, etc. The sphere of the pharmacist and the optician are so close, that several instances of opticians dispensing prescriptions for eye drops as well as spectacles have come under my notice, and this is a practice which ought not to be allowed. It seems not unnatural that when a physician writes a prescription for an instrumental as well as a medical remedy for disease, the whole prescription should be dispensed by the pharmacist. I observe that many pharmacists have recently passed the qualifying examination of the Worshipful Company of Spectacle Makers, and I do not hesitate to say that it is well to do so, and previous study for the Minor makes it comparatively easy, and this line of business may be appropriately and successfully worked alongside a high-class pharmaceutical practice.

There is also another class of trade that is often most successfully cultivated by the professional pharmacist, and in which his pharmaceutical education and training give him a distinct advantage. I refer to the trade in photographic and scientific apparatus. I see no reason in the world why a very large and preponderating amount of the large volume of trade, represented by the varied public wants above referred to, should not pass through the hands of the pharmacist. I do not suggest that everyone should cultivate all these departments, but I do say it is well to have them in view, and cultivate those which circumstances and opportunities may indicate as likely to be successful.

The Pharmacist a Man of Science.

It seems to me that the pharmacist is also entitled to rank himself as a man of science. It may be that the elementary knowledge required to pass the Minor Examination is hardly sufficient to justify any great claim to such a position. But he has, at least, got a foothold, which makes it very easy for him to push forward to a knowledge that will command general respect. This he may do either on the side of botany and biology, or on that of chemistry and physics. By his training and education, the pharmacist is peculiarly fitted to occupy such a position.

Our educational status is now, or will shortly be, such that the pharmacist, like the schoolmaster, the clergyman, and the doctor, will be singled out as an educated man in any community in which his lot may be cast. This is no small honour, and gives the pharmacist many opportunities for honourably discharging many public duties and, thus, earning the esteem and respect of his fellow men. This condition is largely due to the steady and determined efforts made in recent years by the Pharmaceutical Society to raise the educational and professional status of the pharmacist. To the young pharmacist, who may yet have to face the examination ordeal, this effort may seem harsh and uncalled for. But its importance and abiding value are indisputable. It has done more than anything else to establish and protect the position of the pharmacist. This result is largely due to the courage and determination of Mr. Michael Carteighe, and it is not the least of the many services he has so conspicuously rendered to the cause of pharmaceutical progress.

Has the Pharmacist Any Privileges?

Having said so much as to the position of the pharmacist we may now ask, has he any privileges? Again, the pessimist will say he has none. But I am not a pessimist, and entertain no gloomy view as to the future of pharmacy. If we are wise, courageous, and united, things will go all right. The pharmacist possesses the statutory right to the exclusive use of certain professional titles. I know that for the moment the arrangement known as "company pharmacy" appears to infringe this monopoly. But the privilege is so obviously reasonable, and so much in the public interest, that I have little doubt we shall get the existing partial defect suitably amended. The pharmacist has also the exclusive right to sell poisons. This right is not infringed, and I do not think it can be in any way whatever without punishable breach of law. If the pharmacist is a wise man, and takes a sensible view of his position, he will associate himself with his fellows in what is the only State recognised Association of Pharmacists. By doing so he acquires the privilege of regulating the conditions under which poisonous substances are to be stored, dispensed, and sold. He also shares the privilege of determining what substances should be scheduled for exclusive sale by pharmacists. He also has the privilege of determining the conditions under which persons are to be admitted to the right of practising pharmacy. It is well to remember that it is neither the Board of Examiners nor the Council who impose the regulations for examinations. They have no power at all apart from the body of Associated Pharmacists. In England the pharmacist has the privilege of exemption from jury service if he passes the Major Examination. Perhaps in time a more just arrangement may be reached, by which all pharmacists will be placed on an equality in that matter.

The pharmacist has, in a limited and imperfect way, the privilege of dispensing medicines. This is attempted to be secured in

the Pharmacy Act, 1868, by a restriction of the title chemist and druggist. It works fairly well in bringing the public to the pharmacist to have prescriptions dispensed. But it is entirely inadequate, and we should never cease to urge that the spirit and policy of the 1868 Act should be extended by a specific enactment limiting the dispensing of prescriptions to registered chemists. There is another privilege of the pharmacist which I sincerely trust no one of this audience will ever require to exercise. I mean the right to participate in the Benevolent Fund of the Pharmaceutical Society. That is a most important and valuable fund, and I have known instances of pharmacists who had known better times receiving timely and most grateful relief in dark and difficult days. But I trust it will be your privilege to be a contributor and not a beneficiary.

So much then for the position and privileges of the pharmacist. I have by no means covered the whole ground. What I have said may furnish food for thought.

How Position and Privileges are Threatened.

There are two directions in which the position and privileges of the pharmacist are threatened. The abortive Poisonous Substances Bill of the Government last year is one. That Bill was constructed in absolute disregard of what has been the fundamental principle of poison legislation in this country ever since 1868. That principle had to be strenuously fought for, and it is not going to be lightly given up. The principle is that the education and training of the seller is the only safe basis for a Poison Bill. It is to be hoped that has been made so clear to the permanent officials that no Bill will ever again be introduced on such retrograde lines. The other direction in which there is danger is that of so-called "company pharmacy." Here, also, we may hope that matters are beginning to clear up. All must have noticed that the Council of the Society is determined to grapple manfully with the situation, and I doubt not that some satisfactory solution will ultimately be arrived at. But all these matters will require intelligent and active interest on the part of all pharmacists. We must consolidate and close our ranks, and stand shoulder to shoulder in any action that may be necessary. It is nothing short of folly to do otherwise. But let me close with one word of warning. While giving all due attention to the matters I have referred to, I would earnestly say, do not spend too much time or look too constantly in the direction of any possible legislative enactments. These, experience tells us, are too often mere "will-o'-the-wisps," on which much time and energy may be fruitlessly wasted. Some men think success depends on smartness, others place confidence in push, while some try the hazard of roguery; but the wisdom and experience of all the ages go to show that all real success is founded on morality, and that it is character alone which ultimately wins the prize. This is true of every calling. It is pre-eminently true of the profession of pharmacy. The best protection lies in steady, high-class professional work and invincible integrity. The pharmacist who thus gains the confidence of the community he serves will have established an impregnable position in which no "store" can touch him. I say this deliberately, because I have seen many proofs of its absolute truth, and it is just here that I believe security and success will be most certainly found.

A Compound for Preserving the Teeth.—A useful body for preserving the teeth is obtained by the combination of tannin and chloral hydrate in the presence of strong acids. To a hot watery solution of tannin, sulphuric acid is added until the tannin is thrown out, then a concentrated solution of chloral hydrate, which will combine to form a pasty mass. The precipitate is washed and dried; it forms a greyish brown amorphous powder which is soluble in hot water, but separates out as a fine precipitate on cooling. The solution gives an olive green reaction with ferric chloride solution. The product is the subject of a patent.—*Oest. Zeits. für Pharm.*, **53**, 429.

THE COMPANY PHARMACY PROBLEM.

BY AN ORDINARY PHARMACIST.

At the present time registered chemists are being favoured with innumerable interpretations of, and comments upon, the Pharmacy Acts, but the one solid fact which presents itself to the unprejudiced observer is that, whilst the undoubted intention of those who framed the Acts was to restrict the ownership of pharmacies to duly registered individuals or natural persons, unregistered persons without due qualification have been enabled to filch a large proportion of the business of chemists and druggists by taking advantage of the facilities afforded by the Companies Acts. For some time past a difficult problem has presented itself for solution to those who would end this anomaly, but, so far, little has been done in the matter beyond recognising that the anomaly exists.

The Intentions of the Acts.

The intentions of those who framed the Pharmacy Acts have been quoted again and again, until most of us are tired of hearing about them and, after all, no one has been able to say anything better in that respect than is clearly stated in the preambles of the Acts themselves. Thus, the preamble to the Pharmacy Act, 1852, commences with the statement that it is expedient for the safety of the public that persons exercising the business or calling of pharmaceutical chemists should possess a competent practical knowledge of chemistry and other branches of useful knowledge, and be duly registered; the preamble of the Pharmacy Act, 1868, opens in like manner with the statement that it is expedient for the safety of the public that persons keeping open shop for the retailing, dispensing, or compounding of poisons, and persons known as chemists and druggists, should possess a competent practical knowledge of their business and also be duly registered. Those statements cannot be interpreted as implying anything short of the due qualification and registration of all proprietors of pharmacies, and the fact that subsequent legal interpretations of the provisions of the two Acts have left matters in a very different position simply proves that those who framed the Acts and those who added them to the Statute-book were alike lacking in ability to perceive what loopholes they were leaving for evasions.

Public Interests Insufficiently Safeguarded.

Whilst insisting, therefore, that it was orginally recognised by the Legislature that all proprietors of pharmacies ought to be duly qualified and registered, we are compelled by the stress of circumstances to acknowledge that the interests of the public were not sufficiently safeguarded when the Pharmacy Acts were passed. For what do we find? Any individual who has been proceeded against and fined for infringement of the provisions of the Acts may avoid further penalties, whilst continuing his illegal practices, by resorting to the simple expedient of associating with himself six other unqualified persons, and securing registration under the Companies Acts. He is not even obliged to engage duly qualified persons to conduct the transactions which the law prohibits any unregistered individual from carrying out; the penalty for not conforming with the requirements of the Acts cannot be enforced against him and his associates, but only against the unqualified servants actually engaged in the illegal transactions.

How the Public Safety may be Assured.

The problem that presents itself, therefore, is how the safety of the public may be insured by fulfilling the intention of the framers and makers of the Pharmacy Acts. What is obviously necessary is to insist upon the proprietary qualification which was thought to have been rendered necessary so long ago, and the fact that such a result may tend to the benefit of registered chemists affords no sufficient reason for shirking the issue. For more than half a century dispensers and sellers of poisons have done their utmost to fit themselves in an especial degree for the important duties which devolve upon them, and for

more than thirty years they have been legally compelled so to do. Why, therefore, should there be anything anomalous in their request that the functions for which they have especially adapted themselves—at great personal inconvenience and expense—in the public interest should be restricted to them? The word "monopoly" is freely used in this connection by opponents of the registered chemist's claim, but why should not he—a legally qualified person—have the same privilege of practising his calling as lawyers, medical men, and dentists? As matters stand, we are told that not even his title is secure—can anything more monstrous be conceived? Here we have an individual who has devoted the best years of his life to the acquirement of a proper knowledge of his business, supplemented by fulfilment of onerous legal obligations, and yet the title which it has cost him so much in time, labour, and money to procure may be freely assumed and used by any association of seven ignoramuses who may choose to register themselves as a joint-stock company.

All Compromise to be Avoided.

To such an extent has the evil grown that we find some persons in our own ranks who would compound with the devil and recognise the right of such companies to carry on the business of chemists and druggists, and also to usurp our titles. Others, again, would prevent companies using the titles, but would register and regulate associations of unqualified persons in the same manner as legally qualified persons now are. But what a deplorable frame of mind is indicated in either case—what a strange aberration from true free-trade principles and sound logical deductions! It is whispered that some of our representatives on the Council of the Pharmaceutical Society incline to those heterodox views; but, if it be so, such views are none the less fallacious, and to press them would be neither more nor less than betrayal of the interests of registered chemists and of the public at large. It is not clear from the report of the last Council meeting whether any—and if so, which—members are inclined to throw up the sponge and leave the field in undisputed possession of the enemy. It would hardly be a creditable thing to do—despite the premature jubilations of the conductors of trade journals, whose chief desire seems always to have been the extinction of the professional element in pharmacy—but I hope to find ere long that the confidence reposed by the members of the Pharmaceutical Society in their elected representatives is thoroughly justified. The Council, of course, has a free hand for the time being: but in the event of the promised clause for the next Companies Bill indicating any intention of recognising companies of unqualified persons, which carry on business as chemists and druggists, the ill effect of such action would probably be very marked before the end of May next.

The Companies Bill Not a Pharmacy Bill.

It must be recognised that the task before the Council is one of extreme gravity and difficulty; but even if the hope of fulfilling the intention of the Pharmacy Acts were of the very faintest, it would be better to fight to the bitter end and lose, than to acknowledge defeat before a blow has been struck. The task may be simplified by deciding to attempt as little as possible in connection with the Companies Bill, and reserving further efforts for the promotion of another Pharmacy Bill. For instance, it may be found expedient to seek only to defend our titles in the Companies Bill, though, in the event of success crowning such an effort, there are many in our ranks who would not hesitate to assert that, if more had been attempted, the result would have been even more satisfactory. But we must not lose sight of the fact that a Companies Bill is not a measure to regulate the practice of any particular profession or trade; all details affecting pharmacy should be embodied in a Pharmacy Bill. Personally, I am disposed to deprecate undue modesty, as it is a matter of common knowledge that, in parliamentary affairs, what is secured is, more often than not, less than was asked for. We should, at least, have no hesitation in claiming all that the Pharmacy Acts were intended to secure to duly qualified persons.

Companies should not be Recognised.

In any case, however, I most strongly protest against any proposal being advanced on our part to register and regulate drug-stores owned by companies of unqualified persons. Such a proposal would be extremely repugnant to a large and influential section of our body, and that idea cannot be too forcibly condemned or too persistently opposed. To recognise companies in any degree would be equivalent to giving away our case entirely, and the whole edifice so carefully raised on an educational basis during the past fifty years would tumble about our ears like a house of cards. We must insist just as strenuously upon the absolute restriction of all pharmaceutical titles to duly qualified persons, and I would humour the Lord Chancellor—in his desire to place companies upon a similar footing to natural persons—to the extent indicated in the following suggested clause for the Companies Bill:—

Suggested Clause for the Companies Bill.

"It shall be unlawful for any company to assume or use the title of pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or chemist, or druggist, or dispensing chemist or druggist, or any other title implying registration under the Pharmacy Acts; and in all other respects a company shall be amenable to the provisions of the Pharmacy Acts in the same manner as an individual or natural person; and if any company of persons not registered under the Pharmacy Acts shall assume or use any title implying registration under the said Acts, or in any way infringe the provisions of the said Acts, it shall be liable, on summary conviction, to a penalty not exceeding five pounds for each day upon which such offence happens."

Reforms Imperatively Demanded.

This clause may not please everyone, even of those in our own ranks, but it appears to me to have the merits of simplicity and clearness. Whatever we propose for inclusion in the Companies Bill should be brief and to the point, and other matters—such as modification of the "widow's clause," imposition of a compulsory curriculum of study, etc.—which are not dealt with in the foregoing clause, will be more appropriately treated in a Pharmacy Bill. For, whatever happens in connection with the Companies Bill, we look to our leaders to advance in the way of reform by promoting another Pharmacy Bill as early as circumstances may permit. We have great confidence in their discretion, and trust that it may not prove to be misplaced. But the demand for progressive reforms is imperative and must be satisfied. The world needs highly-educated and well-trained pharmacists more than at any previous period, but the modern pharmacist also needs to be assured with regard to his position, and I sincerely hope that the statesmanship of our representatives may prove equal to the occasion which now presents itself.

Silver Printing on Fabric.—The piece of silk, satin or linen is first thoroughly washed to get rid of finish, while it is drying prepare the following solutions:—(*a*) Tannin, 4; water, 100. (*b*) Sodium chloride, 4; arrowroot, 4; acetic acid, 12; water, 100. The arrowroot is made into a paste with a little water, the rest of the water is then mixed with the sodium chloride and acetic acid and heated to boiling. This is added to the arrowroot, after the latter has dissolved, mix in the solution two solutions (*a*) and (*b*). The fabric is immersed in this cold mixture, then dried, and is then sensitised by passing through the following solution: Silver nitrate, 12; water, 100. This fabric will print, tone, and fix in the same manner as Aristo paper.—*Amat. Photograph.*, **13**, 102.

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PROCEEDINGS UNDER THE PHARMACY ACT.

Pharmaceutical Society of Great Britain *v.* Whittle.

At the Dewsbury County Court, on Tuesday, October 17, before His Honour Judge Cadman, the Council of the Pharmaceutical Society of Great Britain brought an action against Nathaniel Whittle, carrying on business at 24, High Street, Heckmondwike, for the recovery of two penalties of £5 each for infringements of the Pharmacy Act of 1868, by selling morphine contained in a preparation known as Kaye's Compound Essence of Linseed, on two separate dates, namely, July 25 and August 3, 1899, he not being a registered chemist.

Mr. R. Vaughan Williams, barrister, instructed by the firm of Messrs. Flux, Thompson, and Flux, solicitors to the Society, appeared for the plaintiff Society, and defendant was represented by Mr. T. Mitcheson, solicitor, of Heckmondwike. By consent of all parties the action was referred to the Registrar, Mr. Chadwick.

Mr. Vaughan Williams in opening the case said the Society caused inquiries to be made by an agent, who went to the shop of the defendant on July 25, and purchased a bottle of Kaye's Compound Essence of Linseed, which contained a preparation of "Morphine." He called again at the shop on August 3, and bought another bottle of the same substance, and that formed the substance of the second offence. On the second occasion, the agent also purchased some liniment, which, if it contained what it purported to contain, should contain opium, which was a constituent of laudanum. On being analysed, however, the soap liniment did not contain opium at all. He would therefore abandon that part of the claim. A letter was written by the solicitors to the Society to the defendant, informing him that by the sale of poison as contained in Kaye's Compound Essence of Linseed, he had incurred two penalties of £5 each, and stating that they were instructed. as the solicitors to the Society, to collect the same, otherwise proceedings would be taken for the recovery of the amount. No reply was received to that letter, and accordingly these proceedings were instituted. A further letter was then written to the defendant suggesting that to avoid the costs of bringing an analyst from London to prove the contents of the essence, he should admit that the articles were in fact what they purported to be. No answer was received to that, and the Society had the purchases analysed.

Evidence to prove counsel's statement was then called.

Arthur Foulds, an inquiry agent, carrying on business at Manchester, said that acting on the instructions from the Registrar of the plaintiff Society he called at the shop of the defendant on July 25. He bought a bottle of castor oil and a bottle of Kaye's Essence, and was supplied by the defendant himself. The castor oil bottle had on the label, Nathaniel Whittle, Homœopathic Stores, Heckmondwike.

Mr. Williams interposing, said the bottle containing Kaye's Compound Essence had on a label which stated that it was a preparation of chloroform and morphine, and was therefore labelled poison. On the other side there was also a blank space for the name and the address of the vendor, which was not filled in, and which, in point of fact, was another infringement of the Act, which rendered defendant liable to another penalty.

Mr. Foulds, continuing, said he took the bottles to his office, and afterwards handed them over to Mr. Moon, clerk to the Pharmaceutical Society of Great Britain. On August 3 he visited the same premises again, and purchased a bottle of glycerin, a bottle of Kaye's Essence, and asked for two-pennyworth of soap liniment mixed with two-pennyworth of laudanum, and defendant supplied him. Those purchases he also handed to Mr. Moon.

Cross-examined by Mr. Mitcheson, witness said when he purchased the goods from the defendant he did not tell him what he wanted them for. Defendant got the bottle of Kaye's Essence out of a case containing half a dozen or eight other bottles. Defendant's labels were on all the bottles he bought with the exception of the bottles containing Kaye's Essence.

Mr. Harry Moon, clerk in the office of the Registrar of the Society, proved receiving the bottles from the last witness, and sending them to be analysed. He also produced authority of the council of the Society to take these proceedings.

The order of the council of the Society authorising the proceedings was dated Aug. 2, and Mr. Mitcheson raised the point whether the Society could proceed on an order which so far as the second offence (Aug. 3.) had not, when the order was made, been committed.

The learned Registrar said this was a point upon which he would have to take the opinion of the Judge.

Mr. Vaughan Williams said it was the usual custom to leave it in an open form. They (the Council of the Society) ordered the Registrar to take proceedings, but they did not specify the dates of the offence, because the offence was conjectural, and because they were not offences until proved so.

The Registrar: They may pass a resolution on January 1 to operate throughout the year.

Mr. Williams: That is so, sir.

The Registrar: Well, we will consider that later.

Mr. Moon, examined by Mr. Mitcheson, said the bottles from the time he obtained possession of them until they were handed over to the analyst were locked up in his cupboard.

Mr. Ernest John Eastes, F.I.C., deposed to having analysed the bottles containing Kaye's Essence of Linseed, and also the bottle of liniment. They were opened by Mr. Moon, and he (Mr. Moon) kept the wrappers. The bottles of Kaye's Essence contained two scheduled poisons, namely, chloroform and morphine. The liniment contained no laudanum.

Mr. Mitcheson, for the defence, denied the whole of the plaintiffs, case, and urged, *inter alia*, that the purchaser had not even said, after he had got the samples, what he wanted them for.

The Registrar: The preamble of the Act says it is expedient for the safety of the public that samples should be taken. I don't think that should be thrown in his face.

Mr. Mitcheson said he thought if he had mentioned the matter to the defendant before he left the shop, he would have had a better chance of meeting the charge.

Mr. Nathaniel Whittle, the defendant, residing at High Street, Heckmondwike, was then called, and said when he received the letter from the solicitors asking for payment of the penalty he came to the conclusion that it was a blackmailing business.

The Registrar having read the letter which was sent to the defendant he asked him if he really meant to say that he considered it a blackmailing letter.

Witness: Yes, sir, and I can tell you why.

The Registrar: No, I don't ask your reasons.

Continuing, witness said he received another letter on September 28 in which he was asked to make certain admissions, but he had not done so, because he had nothing to admit. Up to the time of receiving the second letter he had not received any summons. He had not sold the bottles of Kaye's Compound Essence of Linseed on July 25, or any other date to anybody. He had never had a bottle of it in his shop at all. He had been asked for it, but he had always told them that he did not keep it. James Midwood, of Chappel Lane, Heckmondwike, had asked for it. The soap liniment he made himself, but he did not add any laudanum to it. The agent (Mr. Foulds) had not been in his shop to his knowledge. If he had the articles purchased would have his labels.

In answer to the Registrar, witness said he put his label upon everything he made himself.

That is your invariable rule?—Yes, sir, nineteen times out of twenty. Ninety-nine times out of a hundred.

In the course of a long cross-examination by Mr. Vaughan Williams, witness said Mr. Foulds would get his label when he purchased anything which he (witness) sold him that he made himself.

Do you remember selling glycerin on August 3?—If any glycerin had gone out of my shop it would have the label on.

Do you remember selling it or not?—I remember selling no glycerin in August.

Do you admit selling that glycerin?—I did not sell it. If it came out of my shop my name would have been upon it.

Did you make liniment?—Yes.

What did you make it with?—That's my business.

I don't want to pry into your trade secrets, but roughly speaking, what is in it—soap?—Yes, there is soap in it.

How did you colour it?—It could be coloured in making.

Is the process so dirty as that?—If you came to my place for a soap liniment, I should not get a clean measure to make it with.

Your suggestion is that it is made up in a dirty measure?—If you came to my shop and wanted some making up, and I had been using camphorated oil, I should not clean the measure.

Answering further questions, the witness said he did not know the colour of laudanum, and had never seen any in his life, while admitted having poppy-heads in his shop, which he boiled down

with marsh mallows. He had never seen any preparation made from poppy-heads alone.

You suggest that the colour is due to dirty measures. I put it to you that it is colouring matter used to give it the colour of laudanum?—No, sir.

Do you remember selling it?—I don't; because I have many score bottles like it.

Do you deny that you were asked to put twopennyworth of laudanum into the liniment?—He may have asked me to do so, but he would have been told to go elsewhere for it.

Do you suggest that the colouring has been put in by the agent of the Society?—I suggest nothing as to what they do. I have nothing to do with them. It is what I do that affects me.

Do you deny that on July 25 and August 3 you sold these bottles of Kaye's Essence of Linseed?—If I sold them there would be a bill with them. I deny that I sold them.

Do you say you have never had Kaye's Essence of Linseed on your premises?—No, never.

Not at any time?—No, never.

Not during the whole of your career as a herbalist at Heckmondwike?—I have never had any of it, and would not sell it.

Why?—Because they told me when I asked about it that it contained poison.

Do you know, then, that to sell it would be an offence?—I know that where there is poison it would be neither good for you or me.

Do you know that you would be liable to legal proceedings if you sold things that contained poison?—They told me it was so.

If Mr. Foulds swears that he bought these two bottles (Kaye's Essence) from your shop, is he swearing that which is untrue?—I never sold them.

Do you say he has come here to perjure himself?—I could not tell you that.

Is it your suggestion that he is saying an untruth when he says he bought these bottles at your shop?—I say I did not sell them.

The Registrar: I think you may leave that, Mr. Williams.

Do you admit selling poppy-heads, pursued Mr. Williams?—Yes, answered witness, to anybody that comes in and asks for them.

Do you know that you would be committing an offence against the Pharmacy Act if you did?—No, I did not know that.

Answering further questions, defendant said he sold patent medicines, and had a licence to do so. He did not know Mr. Gledhill, of Nelson Street, Dewsbury, nor did he know that he had come to his shop for Kaye's Essence. If a gentleman of that name said he came into his shop and bought a bottle he should say that it was untrue.

Martha Whittle, wife of the defendant, said she had never seen any bottles of Kaye's Essence of Linseed in the shop, and she knew all the things that were on the premises.

James Sylvester Midwood, of Chappel Lane, Heckmondwike, said he had applied to Mr. Whittle for a bottle of Kaye's Compound Essence of Linseed, and was told that he did not keep it.

The Registrar recalled Mr. Foulds, and closely requestioned him, but in no way was the witness's evidence shaken.

At the suggestion of the Registrar, Mr. Robert Gledhill, chemist and druggist, local secretary of the Pharmaceutical Society for Dewsbury and district, and Secretary of the Dewsbury and District Chemists' Association, was called by Mr. Williams. He stated that in July last he called at the defendant's shop and purchased a bottle of Kaye's Essence.

The Registrar: From whom?—Mr. Whittle.

Are you quite sure about it?—Oh, yes, sir.

Where was it got from?—From a glass case by the counter.

Cross-examined by Mr. Mitcheson, witness stated that he went because he heard that defendant was infringing the Act, and went there purposely to get a bottle.

Did you report the circumstance?—I think I reported it the same day.

Mr. Whittle was recalled, and denied that he sold the last witness a bottle of Kaye's Essence.

The Registrar, in giving judgment, said this was entirely a question of fact, and he felt no doubt about it. Mr. Foulds' statement was positively contradicted by Mr. Whittle, and inferentially contradicted by Mrs. Whittle. If he was to believe Mr. Whittle or Mr. Foulds he thought nobody would be surprised that he believed Mr. Foulds. He saw nothing throughout which called for any comment. He thought he had behaved in a perfectly straightforward way. If he did not believe Mr. Whittle, he had only himself to thank for it. Mr. Gledhill, however, put the matter beyond doubt. Mr. Whittle had come there to tell what he knew was not true. He (the learned Registrar) was perfectly certain that he had been in the habit of selling poisons, and he must pay the penalty. Turning to Mr. Williams, Mr. Chadwick asked whether he pressed for the second penalty for the offence incurred on August 3. If he did, he should consult with the judge to see whether the authority of the Pharmaceutical Council, given on August 2, covered the subsequent offence.

Mr. Vaughan Williams said he thought it was desirable for his clients to press for the second penalty, so that they would be able to see whether the order of the Council as at present drawn up ought to be amended.

Mr. Chadwick left to consult with His Honour, who was sitting in another part of the building, and soon returned to say that Judge Cadman was clearly of the opinion that there was no innovation, and judgment was then given for the plaintiffs for the two penalties and costs.

THE PURITY OF FOOD AND DRUGS.

Municipal Milk for Babies.—It is reported that the St. Helen's Corporation has opened an Infants' Milk Depôt for the sale of sterilised and humanised milk, which is mixed with cream, sugar, water, and salt. This preparation is put up in bottles with air-tight stoppers, and placed in a steriliser which heats the bottles to 109°, steam from a small boiler ascending through perforated platforms. It is stated that no microbes can exist ten minutes in the temperature thus created. The medical officer has prepared a table of quantities to suit babies of different ages, and the Corporation expects that the business, besides saving child life, will yield a profit.

Formaldehyde in Milk.—A test for formaldehyde, which has been in use in the laboratory of the Board of Health, Massachusetts, for some time past is given in the *British Food Journal* as follows:—10 C.c. of hydrochloric acid (sp. gr. 1·2) is added to an equal amount of milk in a porcelain dish. A drop of dilute ferric chloride solution is added, and the mixture heated to just below the boiling point and vigorously stirred. The presence of formalin is indicated by a violet coloration varying in depth with the amount present. It is stated that by this test 1 part of formaldehyde in 500,000 parts of milk is readily detected before the milk sours; after souring, the limit of delicacy is about 1 part in 50,000.

Retailer v. Wholesaler.—According to *Food and Sanitation*, a Birmingham grocer recently sent a sample of white pepper for analysis to Dr. A. Hill, public analyst, who found that it was adulterated with 25 per cent. of ground ginger. On receiving the certificate he commenced proceedings in the county court against the wholesale dealer who supplied him with the pepper, but withdrew the action on being paid £20 damages. If all retailers of food and drugs followed this example adulteration would probably not be practised to the extent it at present is.

Lead in Food.—Dr. C. P. Worcester, of Massachusetts, has examined the metallic foil used in packing food, and the metal stoppers of certain kinds of bottles and jars in which preserved fruits and aërated waters are sold. He found that lead was present in the form of an alloy in amounts varying from 93·5 per cent. to 0·2 per cent. of the alloy. The contents of twenty-eight metal-stoppered bottles of fruit syrups and beverages were analysed, and lead was found in all the samples. The maximum amount found was 1·05 milligramme of metallic lead per bottle, and the minimum 0·05 milligramme. The percentage of lead in the stoppers of the bottles varied from 3·5 to 50·7. While the amount of lead found in the contents of the bottles was in no case very large, Dr. Worcester thinks it is sufficient to condemn the use of lead in the manufacture of stoppers.—*British Food Journal*, **1**, 208.

Preserved Bread.—Henry A. Sevigne, of Boston, U.S.A., has taken out a patent for a method of preserving bread. The process, according to the *North-Western Miller*, is to heat the bread in an oven to a high temperature, and allow it to cool until it is at a temperature of 90° F. Each loaf in then placed in an air-tight and waterproof wrapper before the temperature of the bread has fallen to the temperature of the surrounding atmosphere. The edges of the wrapper are closed and secured upon the loaf, thus enclosing the bread in a flexible, sealed, air-tight, and waterproof wrapper, which is sufficiently transparent to enable the contents to be visible.

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.

Spirits.—The official spirits which consist of simple alcoholic solutions of essential oils have been altered in strength for 1 in 50 to 1 in 10, with the exception of spirit of juniper, which is made 1 in 20. In alcohol of 90 per cent. strength, oil of juniper is not sufficiently soluble to yield a one in ten solution. The two "essences" of the 1885 Pharmacopœia are also omitted, and are practically replaced by the two spirits of the same name in the present edition.

Spiritus Ætheris Nitrosi.—This preparation was fully dealt with in the former series, *P. J.*, March 12, 1898, p. 266. The student should verify the official statements with regard to the correspondence of 5 and 6¼ volumes of nitric oxide to 2 and 2½ per c of ethyl nitrite. This he should be able to do by the aid of the article referred to above, remembering that the mean sp. gr. is now 0·840, and that the atomic weights are given more exactly in the 1898 than the 1885 Pharmacopœia.

The aldehyde test is due to caustic potash causing polymerisation of any aldehyde present to a brown substance of unknown but probably high molecular weight, which is called aldehyde resin. It is important to observe that spirit of nitrous ether is not unduly acid, as this indicates careless manufacture, or hydrolysis—and consequent loss—of ethyl nitrite.

Spiritus Ammoniæ Aromaticus.—Note that the sp. gr. has been slightly lowered by the use of the slightly stronger rectified spirit. Titration with sulphuric acid, using methyl-orange as indicator, gives total ammonia, *i.e.*, free ammonia and ammonia as carbonate. According to the official statement 100 C.c. of aromatic spirit of ammonia will neutralise 127·5 C.c. of N/1 sulphuric acid.

Now 1 C.c. N/1 H_2SO_4 = 0·01694 grm. NH_3
∴ 127·5 ,, ,, = 0·01694 × 127·5 ,,
= 2·16 grammes.

Taking the specific gravity of the spirit as 0·8905, *i.e.*, the mean of the official limits, 2·16 grammes in 100 C.c. is equivalent to 2·16 grammes in 89·05 grammes or 2·425 per cent. The barium chloride test is intended to show that a due proportion of the total ammonia is present as ammonium carbonate. The metric quantities given in the official formula for the preparation of the spirit will yield very nearly 4,000 C.c. Therefore, assuming that no loss of ammonium carbonate has taken place during manufacture, the 20 C.c. taken for analysis should contain 0·5 gramme, of the official salt. Let us assume that this is composed of carbamate and acid carbonate in equimolecular proportions, which by solution in presence of excess of ammonia yield the normal carbonate. Then:—

$$\underbrace{NH_4HCO_3,NH_4NH_2CO_2}_{156{\cdot}04} + NH_3 + HO_2 = 2(NH_4)_2CO_3$$

and

$$2(NH_4)_2CO_3 + \underbrace{2(BaCl_2,2H_2O)}_{485{\cdot}08} = 4NH_4Cl + 2BaCO_3 + 4H_2O$$

From this it follows that 156·04 of ammonii carbonas will require for complete precipitation 485·08 grammes of crystallised barium chloride.

∴ 1 gramme will require $\frac{485{\cdot}08}{156{\cdot}04}$ grms, $BaCl_2,2H_2O$,

and 0·5 ,, ,, ,, $\frac{485{\cdot}08 \times 0{\cdot}5}{156{\cdot}04}$,, ,,

= 1·554 grammes.

The quantity of barium chloride solution to be used for the official test is 16 C.c. Since each C.c. of this solution contains 0·1 gramme (*vide* B.P. Appendix, p. 405) the 16 C.c. will contain 1·6 gramme $BaCl_2,2H_2O$.

The student should carefully note the details for the performance of this test. In the usual scheme for qualitative analysis the metals of the barium group (Ba,Sr,Ca) are precipitated as carbonates. The complete precipitation of these carbonates takes some time in the cold. It is, however, hastened by *warming*, but the precipitation mixture should *not be boiled*, for at this temperature the reaction is partially reversed, and a portion of the precipitated carbonates go into solution again as chlorides.

Spiritus Ammoniæ Fetidus.—This contains the volatile constituents of asafetida only, the gum and resin being rejected by the distillation. The neutralisation test is stringent, for it allows of hardly any appreciable loss of ammonia during manipulation or storage. Thus, 25 C.c. of the fetid spirit of ammonia will contain 2·5 C.c. of strong solution of ammonia. The sp. gr. being 0·891, this volume should weigh 0·891 × 2·5 = 2·2275 grms. Now, by reference to B.P., p. 173, we find that 1 gramme of liquor ammoniæ fortis should neutralise 19·1 C.c. of N/1 H_2SO_4

∴ 2·2275 grammes should neutralise 19·1 × 2·2275 C.c. N/1 H_2SO_4
= 42·55 C.c.

The Pharmacopœia requires that the equivalent volume of fetid spirit shall neutralise 42·5 C.c. N/1 H_2SO_4.

Spiritus Rectificatus.—The student should refer to the article on rectified spirit in the previous series (*P.J.*, March 26, 1898, p. 310). Also to an article by Bird in *P.J.*, May 21, 1898, p. 500. The strength of spiritus rectificatus has been raised from 56 to 58 overproof, *i.e.*, every 100 volumes of the spirit contain as much real alcohol as 100 + 58 volumes of proof spirit. Proof spirit, which is used as a basis for calculation of duty for Excise purposes, has been omitted from the present Pharmacopœia, and four strengths of diluted alcohol introduced. The student should carefully note that the strength of these diluted alcohols is referred to the *percentage by volume* of real alcohol which they contain.

Strychnina.—The comparative solubility of strychnine and its commonly used salts (hydrochloride, nitrate and sulphate) in water is very different. This point is of great importance in dispensing, for strychnine is frequently given with an alkali (aromatic spirit of ammonia, sodium bicarbonate, etc.) in water, or an aromatic infusion. In such cases the strychnine is usually prescribed in the form of liquor strychninæ hydrochloridi, which is easily soluble in the proportion of water or aqueous vehicle in the prescription. If an alkali is prescribed also, then a condition of things arises which may have serious consequences. For the strychnine liberated by the free alkali acting on the strychnine hydrochloride is very sparingly soluble in water (not more than 1 in 7,000); therefore if the weight of strychnine prescribed relative to the vehicle exceed this proportion, the excess will be precipitated—probably not immediately but on standing some time, so that an excessive quantity of strychnine may be taken in the later doses of the mixture. The proportion 1 in 7,000 corresponds in round numbers to 8 minims of liquor strychninæ hydrochloridi per fluid ounce for

7,000 : 1 :: 437·5 : 0·0625

That is, if the quantity of strychnine exceed the proportion of 0·0625 grains per fluid ounce, then a precipitate of strychnine will be produced. Now 110 minims of the liquor contains 1 grain of the hydrochloride, which is equivalent in round numbers to 0·8 grain of the free alkaloid—

∴ if 0·8 grain strychnine is contained in 110 minims

1·0 ,, ,, ,, $\frac{110}{0{\cdot}8}$,,

and 0·0625 ,, ,, ,, $\frac{110 \times 0{\cdot}0625}{0{\cdot}8}$,,

= 8·59 minims.

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

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THE PHARMACY ACT.

That unhappy legislative enactment known as the Pharmacy Act, 1868—the joint product of irrational discord among chemists and druggists, and the exaggerated popular panic prevailing at that time as to the dangers of poison—has long been made abundantly an object of various kinds of abuse and of censorious criticisms, having little better foundation than uninformed prejudice or misconception. At its inception the Act was, for a time, opposed by some medical practitioners, who feared that their professional interests might be prejudiced by the proposed new qualification of chemists and druggists; the Act has since been condemned, on the one hand, as creating a trade monopoly, and on the other as inflicting great hardship upon chemists and druggists. From the point of view of the educated pharmacist the insufficiency of the Act, as a means of regulating the practice of pharmacy, has always been apparent and, in that respect, it has been suitably described as a "wretched poisons act." At the hands of judicial authorities the Act has fared even worse, having been regarded as ambiguous, confused and unintelligible as to its language and object, besides having had a construction put upon it which entirely defeats its original intention. That such should have been the fate of the Pharmacy Act was probably to some extent a consequence of the chaotic condition existing when the Act was passed; when it was thought that the majority of the persons who then sought to obtain "the druggists' franchise" by incorporation under the Pharmacy Act were a "motley host of traders" a kind of rabble of chandler shopkeepers, stationers, perfumers and others, who dabble in death-dealing substances.

But looking backwards, the Pharmacy Act, with all its defects, may be regarded as having some redeeming points. It has been the means of incorporating and giving statutory recognition to persons engaged in an occupation requiring, even as a trade, more than ordinary knowledge of the articles dealt in and, in its more professional aspects, considerable scientific and technical training: it has established a legal qualification for the exercise of the business of a chemist and druggist, a test of fitness for carrying it on; a register which serves as an official means of ascertaining who are so qualified, and a titular description which enables the public to distinguish persons qualified from those who are not. The very essence of the Act, however, is poison, and though better things, such as pharmaceutical education, examination and certified competence are to some extent associated with the more predominant central idea of protection against poison, they are overshadowed by it and appear, as it were, only in the background, as comparatively subordinate objects. But even in the wretchedly attenuated dimensions of a mere Poisons Act the statute has some points which deserve consideration in regard to the question whether its intention and principle may not, even now, be carried out in a manner more conducive to the public interest and to the advantage of persons who have acquired vested interests under its operation. The work of formulating means to remedy the evil of company trading, upon which the Law and Parliamentary Committee are now engaged, will offer favourable opportunity in that direction and encouragement may be gathered from the fact that, in the past, the provisions of the Act have been found adequate for dealing with the sale of poisons in the form of secret remedies and patent medicines, in a manner that was not at one time thought possible.

Perhaps the worst treatment that the Pharmacy Act has received has been at the hands of chemists and druggists who have not thought enough of its provisions as capable of being made a means of protection, by establishing a sharp line of demarcation between themselves and other traders. Though the prohibitory provisions of the Act apply to only a small part of the practice of pharmacy, their strict observance by registered chemists and druggists should be the means of making those provisions the palladium of the chemist and druggist's statutory privileges to a much greater extent than has been the case. From the very first the regulations as to the sale and dispensing of poisons have been, on the contrary, in many instances regarded rather as hindrances of trade; the adoption of regulations as to the keeping of poisons has been too long resisted and the necessity of employing legally qualified assistants in branch shops was formerly too much neglected. Among other defects more inherent in the nature of the Act itself is the want of provision as to dispensing of medicine generally, for amendment of which the time should now be ripe; the loose nature of the provision for continuing the business of a deceased chemist and druggist also requires amendment. The latter defect has been the cause of that "breakdown" of the Pharmacy Act by which it has become possible to ignore altogether the demand for qualification to carry on the business; so that any unqualified person has the opportunity of setting the provisions of the Act at defiance. One of the most pressing necessities at the present time will be to devise suitable means of removing that defect which has given rise to such disastrous consequences. Now that the majority of registered chemists and druggists are qualified by examination, the desirability of such a mode of protecting their interests should carry greater weight than could be expected when that was not the case.

THE BENEVOLENT FUND.

THOSE who take an interest in the Benevolent Fund (and that should include every registered person), are invited to consult carefully the advertisement columns of the present issue, where is presented an official list of the six approved candidates for an annuity, together with a brief statement of particulars relating to each candidate. One of the objects in publishing thus early a *precis* of the circumstances of the respective candidates is to furnish subscribers with an opportunity of checking, as it were, the choice of the Council, so far as the cases in question are concerned. That body, like other human institutions, is not entirely free from liability to err, and is certainly not proof against misrepresentation, hence, while such things as plausible tales and unworthy but subtle applicants exist, it is unwise for any governing authority charged with the care of charitable funds to cultivate too exclusive an atmosphere of infallibility. The greatest care is taken by the Pharmaceutical Council in the investigation of applications for assistance which come before it, and in the selection of candidates for an annuity, especially, no pains are spared to ensure the adoption of the most deserving and most urgent cases. Notwithstanding those facts, however; in spite of the conscientious "sifting" process, there is still a possibility that someone among the subscribers may possess a fuller knowledge of certain of the candidates than the Council or its advisers can have. The Council is anxious to guard against the possible election of an undeserving person, and has decided that safety lies in taking all the subscribers into consultation in the manner adopted this week through the medium of the *Pharmaceutical Journal*.

INSTRUCTIVE READING.

ATTENTION may be directed to four communications, appearing in this week's Journal, which require, under existing conditions, most careful consideration by every registered chemist and druggist. The first is the paper by "An Ordinary Pharmacist," in which the evil that is causing so much dissatisfaction throughout the country is dealt with: next the report of the address delivered by Mr. AVERILL, at the meeting of the North Staffordshire Association, which deals with the same subject and points out that if chemists desire a remedy for the evil they will have to do something more for themselves than listen to and applaud speeches: third, the excellent address delivered to the Glasgow Chemists' Assistants' Association by Mr. RUTHERFORD HILL, in which he points out the privileges already possessed by chemists, as well as the possibility of making better use of them: lastly, the paper read by Mr. SMITH, the Society's local secretary for Liverpool, and Chairman of the Federation of Local Associations, which shows how chemists throughout the country could and should defend and promote their common interests much more effectively than has been the case hitherto. If those papers are duly digested there should be before long a very vigorous and general movement on the part of chemists and druggists for improving their position.

ANNOTATIONS.

THE PHRASE "COMPANY PHARMACY" has of late been freely bandied about, together with a superfluity of inept babble of a distracting nature. What may have been the real object of many of the lucubrations on that subject is somewhat difficult to understand; the more so as they have chiefly been conspicuous for the absence of any intelligent meaning. So far as the art of pharmacy is, in itself, capable of being the subject matter of company organisation, there does not appear to be much opportunity for disputatious discussion as to the applicability of company machinery for the practice of the art, since the primary requirement in that respect is fitting pharmaceutical qualification of the individuals so engaged, and, that being ensured, there appears to be no reason whatever against any possible advantages of company organisation being enjoyed by legally qualified persons in that business, as it need not involve damage to the manifest object and policy of the Pharmacy Act.

IF SEVEN LEGALLY QUALIFIED CHEMISTS AND DRUGGISTS found that they could carry on their business more profitably, or otherwise better, under a memorandum of association, constituting them a company with limited liability, there does not appear to be any reasonable ground for objecting to such a company carrying on the business in that way. But the matter takes a totally different aspect when the idea of shareholders is introduced, in the ordinary sense of company organisation, and the absurdity of such a position in regard to a business requiring individual qualification, both technical and legal, becomes as obvious as the absurdity of a company, or other ideal personage, practising pharmacy or undergoing an examination, for the purposes of being tested as to technical knowledge and obtaining the requisite legal qualification. Any question as to the admissibility of company pharmacy is, therefore, reduced to very narrow limits.

THE BONA-FIDE CONDUCT of the business of a company, constituted of persons legally qualified as chemists and druggists, would, in such case, be in the hands of the owners of the business—the only *bonâ-fide* managers conceivably consistent with the manifest object and policy of the Pharmacy Act or with the language of its provisions. If such "company pharmacy" be desirable, either in the interests of the public, or in the interests of legally qualified chemists and druggists, no possible objection can be raised against it, nor does it require either recognition or regulation beyond such as is already afforded by the provisions of the Pharmacy Act, rationally interpreted. Propositions as to any other kind of "company pharmacy" are therefore extraneous, and really serve only as red-herrings to confuse the simple issue as to whether or not the provisions of the Pharmacy Act are to have the application intended by the Legislature, in the interest of the public and with those consequences that are essential for their efficacy in that respect.

THE "COMPANY PHARMACY" to which legally registered chemists and druggists are entitled to object is of that spurious kind which carries on the business in violation of the Pharmacy Act and in direct opposition to its manifest object and policy. A company constituted, as the late Lord Herschell stated in the House of Lords, essentially of a person unqualified under the Pharmacy Act —who, after having been subjected to penalties for infringement, avoids the statutory obligations attaching to the business of a chemist and druggist, by associating with himself several members of his family, as nominal shareholders, so as to obtain formal regis-

tration under the Companies Acts and then continues to carry on the business as a "bogus" or one-man company—is nothing less than a fraud in every sense. There are many such existing, as a consequence of the judge-made law which has served as a legal precedent overriding the Pharmacy Act. By such "company pharmacy" the salutary provisions of the Act for public safety are defeated and the interests lawfully acquired by some 15,000 registered chemists and druggists are unjustly prejudiced. The question is not at all one as to free trade or monopoly in the sale of drugs—and if the facts of the case were properly represented to and comprehended by Parliament, there is every reason for believing that the iniquity of so-called "company pharmacy" would be promptly put an end to.

"Company Pharmacy" of the piratical kind above referred to—carried on in unnatural association with the general trade of more or less gigantic "stores"—finds its chief support in the mistaken assumption of the late Lord Selborne that its inherent inconsistency with the Pharmacy Act could be compensated by legally qualified persons acting in the capacity of assistants or managers for unqualified proprietors. Under the deluding influence of that fallacy many persons, legally qualified to carry on business as chemists and druggists on their own account, have been beguiled into participating in the brigandage that would, even now, be impossible without their aid.

Enemies within the Ranks of persons qualified under the Pharmacy Act, will therefore add to the difficulties that will have to be dealt with in attempting to remedy the evil of company trading by which the general interests of chemists and druggists are prejudiced. Though the exigencies of existence may be pleaded as some excuse, they cannot be held to justify the action of qualified persons who thus lend their services, to the detriment of the body to which they belong. Hope may, therefore, be entertained that when the question of legality of "company pharmacy" is definitely raised, a sense of loyalty will be awakened that will support the action taken in defence of chemists' privileges.

Compromise of any Kind should, however, be utterly out of the question for any but those who seek to serve their own purpose by helping "companies" to filch the small decimal fraction of professional privilege in the practice of pharmacy, which was supposed to have been secured by the Pharmacy Act and protected against the monopolising tendency of mercenary trade interests. If the failure of the broken-down Pharmacy Act must of necessity be admitted to have been so thorough that the public and the Government are disposed to regard the burglarious inroad of "company pharmacy" as more adapted to the "safety of the public" than support of the legislative provisions which were deemed "expedient" for that object: if it be held that long possesssion of stolen property constitutes, for the thieves, a respectable vested interest, there will then be nothing left for registered chemists and druggists but to join with trade journals in a chorus of exultation that, after more than forty years' struggle to obtain a professional position, the doctrine of "free trade in physic" has prevailed, and that they have again been reduced to the level of a mere "trading community." The evolution of pharmacy, imagined by Dr. Leech as desirable, would in such case be relegated to the narrow range of voluntary action, in which selfish interest of individuals would preponderate, while the interests of pharmacy as an art and the interests of every other body connected with it, would be left to whomsoever it might concern.

The Position and Privileges of Pharmacy and the pharmacist are probably as clearly explained by Mr. J. Rutherford Hill, in the address printed in this week's Journal (see p. 380), as it is possible for them to be. He shows that pharmacy is recognised and endowed by the State, and argues that a necessary corollary ought to be the most perfect possible protection of the practice of pharmacy, in the interests of public welfare and safety. To a limited extent State protection already exists, but there is room for improvement and, at the least, there should be absolute restriction of the use of any title implying legal qualification by any unregistered person, whether alone or in association with others. State regulation of prices is not asked for, but it is essential, in the public interest, that the object of the Pharmacy Acts should be fully realised. At the least, as Mr. Hill remarks, there should be protection of all pharmaceutical titles; but the public also has a right to demand that poisons shall only be dispensed and sold in shops owned by duly qualified individuals. A further benefit would be conferred upon the public if the dispensing of all medical prescriptions were restricted to pharmacists, but legislation in that direction can hardly be asked for until the medical profession and the public have been better educated on the point. The enforcement of a compulsory curriculum of study in pharmacy would doubtless hasten the desired end; but it is a question if the time is yet ripe for that.

The Pharmacist is a Professional Man, as Mr. Rutherford Hill points out, but only in the same sense as a medical man or a lawyer. That is to say, so long as the pharmacist practises pharmacy proper he is a professional man, but in other respects he is a mere trader and is likely to continue to be so for some time to come. The compounding and dispensing of medicaments are strictly professional functions, and even the retailing of crude drugs and chemicals may be removed from the category of purely commercial transactions. At most, the element of commercialism need not exist to a greater extent in pharmacy than in the case of a medical man who dispenses his own medicines and makes a charge for the same to his patients; but even to that extent it is not an essential accompaniment of pharmaceutical transactions. Properly conducted, the retailing of any quantity of the most ordinary drug or chemical may be classed as a form of dispensing, the pharmacist continually bringing to bear the results of his special training and education, and so maintaining his right to be regarded as a professional man. A thorough grasp of commercial principles is, of course, imperative, even in the case of a professional man, and in the case of the pharmacist—who is virtually compelled, under existing conditions, to engage to some extent in trade—it is particularly desirable.

Why That is So does not need explanation here, as the address under consideration may be referred to for any explanation that is not already sufficiently obvious. It is enough to say that the pharmacist ought to be, and usually is, much better fitted to supply drysalteries, chemicals for scientific and technical purposes, optical goods, scientific apparatus, etc., than any mere trader. But, apart from that, the position of the pharmacist is a privileged one in many respects. He possesses, as a rule, a much better knowledge of scientific matters than his neighbours, and he ought to find but little difficulty in securing for himself a peculiar position as one of the best educated men in the community amidst which his lot is cast. He should neglect no opportunity of sharing the burden of public duties in his district, and cannot then fail to reap a rich reward in the esteem and respect of his fellow men. It is not necessary to dwell further upon this subject of the pharmacist's position and privileges, but reference may usefully be made to Mr. Hill's warning that both are threatened. What has been gained by steady persevering work during the past fifty years may be gradually filched away unless pharmacists show a united front and sink all minor differences in the determination to protect them-

selves. Reliance upon the State will prove of no avail if the spirit of self-help is lacking, and, after all, the best protection of the pharmacist lies in "steady, high-class professional work and invincible integrity."

THE PHARMACEUTICAL SOCIETY ought, according to the local secretary for Liverpool, to be one of the finest examples of effective organisation in existence, and there is no doubt that his opinion is a correct one. But the position of the Society is far from being what it ought to be; it is not truly representative of the registered chemists of Great Britain, though it now includes a majority of those in business on their own account. The Society's weak spot is its defective local organisation, and Mr. Smith suggests as a remedy that the method of appointing local secretaries should be modified. Instead of depending upon nomination cards sent in by members of the Society, he would call meetings of the whole of the registered chemists in the respective districts, whether they happen to be connected with the Pharmaceutical Society or not. Everyone present would be permitted to take part in any discussion that might take place, but only members of the Society would be entitled to vote in deciding the claims of the proposed nominees. The person receiving the greatest number of votes would then be formally nominated by the chairman of the meeting, and probably elected by the Council of the Society in due course. By this means, it is thought, a local secretary would more truly represent his district than is now the case. At the same time, Mr. Smith promises the co-operation of the Federation of Local Pharmaceutical Associations, of which he is chairman, in endeavouring to secure a larger number of energetic local secretaries.

THE LOCAL SECRETARIES, when appointed, would also become the representatives of their respective associations in the Federation which, as Mr. Smith points out, exists only for the purpose of binding together, in the common interest, the numerous local pharmaceutical associations scattered throughout the country, besides supplementing the work of the Pharmaceutical Society. Unless it can enable the associations to work together to protect the rights and further the interests of the individual members, no sufficient reason for its existence remains. At the same time, though it is necessary that the Federation should occupy an independent position, one of its main objects is to strengthen and assist the Pharmaceutical Society to the utmost of its power. That can be largely done by bringing the local associations into an informal affiliation with the Society, and by helping to create an interest in the affairs of the parent body. One effect of that would be to make the local association responsible for the local organisation upon which the success of the Pharmaceutical Society is largely dependent, instead of leaving the whole business in the hands of one individual, who is frequently unable to cope fully with the work. Inasmuch as the representatives of the local associations in the Federation would also be local secretaries of the Pharmaceutical Society, there would be a very effective connecting link between the two bodies, and in Mr. Smith's opinion that would allow of a closer co-operation between local associations and the national Society.

THE COUNCIL OF THE ROYAL PHOTOGRAPHIC SOCIETY has decided to institute a monthly meeting specially devoted to illustrated lantern lectures. The meetings will be held on the first Tuesday in each month from November to April inclusive, and will commence at 8 o'clock p.m. The first lecture of the series will take place on Tuesday, November 7, at the Gallery, 5A, Pall Mall East, when Mr. J. J. Vezey will give a lecture upon "Some Mediæval towns of Germany," illustrated by lantern slides by Commander C. E. Gladstone, R.N. The Council wishes it to be understood that lady visitors are specially welcome on these occasions; tickets may be had on application to the Assistant Secretary, Mr. A. W. W. Bartlett, 66, Russell Square, London, W.C.

MUCH INTEREST has been excited among registered chemists and druggists throughout the country by the announcement that the Council is about to draft a clause embodying the general desire in regard to company trading. Among other indications of activity, in that direction, a correspondent has supplied the following suggestion as to the purpose which should be conveyed by a clause suitable for replacing the second clause of the Companies Bill, which was before the House of Lords last session:—

> That, in pursuance of the Pharmacy Acts in force in the United Kingdom, a company may not, as a corporate body or ideal personage, take, use, or exhibit the title of Pharmaceutical Chemist, or the title of Chemist and Druggist, or any other title indicating registration under the Pharmacy Acts, and a company shall otherwise be subject to all the provisions of the Pharmacy Acts in the same manner as individual persons.

This suggestion appears to cover all that need be attempted in connection with a Companies Bill. The proposal, in the second clause of the Companies Bill, to legalise the use, by companies, of the titles in question, obviously implies that such use of those titles is now unlawful, and that further legislation is needed only for the purpose of making the provisions of the Pharmacy Acts in that respect more effectual than they have been. Any further requisite regulation of the practice of pharmacy by persons associated together for that purpose would be more appropriate matter for amendment of the Pharmacy Acts.

THE CHEMISTS' ASSISTANTS' ASSOCIATION, having commenced the serious work of the session at the meeting last week, held the first of its social meetings on Thursday, and on November 2 the annual smoking concert will be held at the Holborn Restaurant. The chair will be taken at 8.15 p.m. by Mr. P. W. Squire, and Mr. William Warren will officiate as vice-chairman. Tickets (1s. 6d. each) may be obtained from any member of the Council of the Association, or from Mr. C. Morley, 3, Bucklersbury, London, E.C.

ANOTHER PRESCRIPTION CASE was heard at the West London Police-court last week, when a chemist was charged under the Sale of Food and Drugs Act with supplying a six-ounce mixture containing an excess of thirty-six grains of potassium iodide. The quantity ordered in the prescription was four drachms, and the analyst engaged by the defendant found that the mixture had contained an excess of nineteen grains only. A third sample was sent to the Government laboratory and the Government analyst certified that there was an excess of twenty-three grains only, instead of thirty-six as certified by the Fulham Vestry analyst. Under the circumstances, the magistrate—Mr. Rose—decided to dismiss the summons. He said there was no evidence of fraud or carelessness, and the excess of iodide present was immaterial. The magistrate also repeated what he had said on a former occasion (see *ante*, p. 257), to the effect that Section 7 of the Sale of Food and Drugs Act, 1875 does not apply to the sale of medicines dispensed by chemists from prescriptions, and containing a trifling and harmless excess of one ingredient.

DURHAM UNIVERSITY COLLEGE OF SCIENCE is to be completed, at a cost of £50,000. The College, as is well known, is situated at Newcastle-on-Tyne, and stands next to Owens College, Manchester, in point of number of students. A comparison of the cost of work, read by Earl Grey at a recent meeting over which he presided, showed that Newcastle averaged £28 per student, as against an average of £51 per student at other colleges in Britain. It is no longer possible to provide accommodation in the existing buildings of the college for the increasing number of students, and Earl Grey appealed to firms on the Tyne, Wear, and Tees to follow the example of Birmingham in contributing from their profits. He expressed the hope that before the year is out £100,000 may be raised. Subscriptions to the amount of £9,500 were announced at the meeting.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.

The first meeting for the session of this Association was held on Tuesday last, when the President, Mr. H. G. Rogerson, occupied the chair, and delivered an

Introductory Address.

In this he alluded to the position of the Lord Chancellor in relation to the grievances of qualified chemists, and said that it behoved chemists to maintain an attitude of vigilance and hopefulness, remembering and acting upon the old adage,

"God Helps Those Who Help Themselves."

The moment the promised signal was given by the Council of their Society, preparations should be made to circularise and interview every member of the popular Chamber. From the first it had been his conviction that the issue depended on the manner in which they impressed their Parliamentary representatives with the soundness and justice of their cause. An appeal to every member of the House of Commons by the Council should be followed by a brief circular from each local association to its Parliamentary representative, pressing home the matter of the Council's appeal, and asking for an early interview between each member and not less than three of his chemist constituents. The question of

Doctors Dispensing

their own medicines had lately been the subject of controversy both in the medical and pharmaceutical press, and had aroused much warmth of feeling. It was an abstract proposition. Few would deny that division of labour in regard to those important and responsible duties was desirable; but they had first to educate the public as to the wisdom of tolerating a little extra expense in order that their medical compounding might be performed in a more deliberate, careful, and expert manner than it had hitherto been performed—generally by an untrained compounder, and not infrequently by a menial dependent. Referring to the swelling list of

Proprietary Medicines,

which are assiduously thrust under the notice of prescribers as so many palpable improvements on the formulæ of the British Pharmacopœia, the speaker said that exploiters of those nostrums do not rely wholly on their powers of persuasion as advertisers in the medical journals. The magnitude of their trade enables them in many instances to secure the services of qualified medical men as travelling touters and persuaders of their medical brethren. Those touters presumably found this rôle more remunerative than that of their legitimate occupation. As a result, the document that was quite commonly brought to the pharmacy and handed to the embarrassed dispenser in place of the orthodox medical prescription was a signed order for a bottle of the latest proprietary fad, a typical specimen probably of what was termed poly-pharmacy, and one which any skilled prescriber ought to be able to think out for himself. This was described as a lamentable and paradoxical decadence in the art of prescribing. Happily, there are some signs of a reaction against this humiliating state of things, as the doctor discovers sometimes that his quondam patient, satisfied with the proprietary tablets prescribed for him, goes in for

Self-Medication

on the reappearance of his troubles, and also thrusts his panacea under the noses of his friends. In this way the simple-minded prescriber loses both his immediate and his prospective patients. But anything in the nature of radical reform can only be looked for in such an amendment of the medical curriculum as should recognise the necessity of a thoroughly practical acquaintance with the pharmaceutic art. Dealing next with

The Position of the Pharmacist,

the Council of the Society was alleged to have allowed to pass many opportunities of bettering the prestige of the great body it represented. It had been felt by many influential members of their body that in comparison with other scientific organisations, the Society which granted them their diplomas, and licences, and a practice, had but a barren and commonplace title to present to its graduates. They could hardly help contrasting the announcement on the pharmacy signs and labels of English pharmacists, "members of the Pharmaceutical Society," with the titles authoritatively assumed by members of bodies which could hardly claim precedence to their own in importance and dignity. He trusted that the movement for the amendment of the title would be revived when a suitable opportunity offered. It should be part of the chemist's duty to act as

Instructor to the Unwary

in regard to the great proprietary medicine traffic, and when the opportunity suggested itself, point out how each Government medicine stamp bore the words, "This label implies no Government guarantee." This vast proprietary medicine traffic was responsible for the evolution of the horde of unskilled bogus druggists who were in all the large cities and towns, taking the bread out of the mouths of the trained and duly qualified chemists. The moral to be drawn from this was that if the chemist was to maintain public respect and support he must assert himself as being something

More than a Mere Trader

and distributor of the ready-packed parcels of the advertiser. The vast majority of these quack medicines had long been a source of perplexity and embarrassment to the pharmacist. But on the part of the educated classes there was a strong reaction setting in against the absurd appeals of the ubiquitous quack advertiser. As to

Cutting the Prices of Drugs,

it seemed incredible that a qualified man should fail to realise that he thus literally gave away his status as a graduate in pharmacy, and lowered himself to the common ruck of unqualified traders. With regard to

Counter-Prescribing,

he was convinced that there were really few of them who would have the temerity and folly to treat medically a person applying to them with any semblance of a serious ailment. A pharmacist who did that was a traitor to his craft.

NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION.

The third annual meeting was held on Wednesday evening, October 11, at the Hotel Metropole, Newcastle-on-Tyne. Mr. T. Maltby Clague presided, in the absence of the retiring President, Mr. F. Schofield. Mr. W. Kerse, Hon. Treasurer, read his report which showed a balance in hand of £1 5s., as against £8 10s. last year, the large difference being caused by heavy expenses in connection with a "Social" which had been held during the year, and which was a great success. Mr. F. Gilderdale presented the Secretary's report, which showed that six ordinary meetings had been held, the Social, the Smoking Concert, the Annual Dinner, whilst an excursion in the summer had been indulged in, besides the usual Council Meeting. An abstract of papers, discussions, etc., read before the Association during the late session showed that a fair amount of work had been got through. The Treasurer and Secretary were heartily thanked for their reports, which were very satisfactory. The election of officers was then proceeded with and resulted as follows:—President, Mr. Charles Ridley; Vice-Presidents, Mr. T. Maltby Clague, Mr. J. D. Rose, Mr. F. E. Schofield, Mr. G. F. Merson; Treasurer, Mr. W. Kerse; Secretary, Mr. F. Gilderdale; Auditors, Mr. R. Wright, Mr. G. Whitehead; Council, Mr. F. R. Dudderidge, Mr. Geo. Duncan, Mr. W. Pescod, Mr. W. Buckley, Mr. R. Cubey, Mr. W. Atkins, Mr. R. Brand, Mr. R. Graham.

The Parliamentary Committee was also re-appointed. The members present agreed to nominate Mr. T. Maltby Clague as local secretary of the Pharmaceutical Society.

Mr. Chas. Ridley, the new President, in a speech which was well received, commented on the standardisation of various drugs which the new Pharmacopœia had brought about. With regard to the new poisons regulations he considered that the same was a step in the right direction, but thought that it should be extended to doctors' surgeries, where in many cases dispensing was done in a very erratic manner. Speaking of the recent prosecutions amongst grocers for selling inferior drugs, he was pleased to see that in many cases wholesalers who had supplied the same had been heavily fined. This had caused a healthier tone in the trade and, at any rate, if these people could still sell them, they must at any rate sell the pure articles, which made competition fairer than before, where in so many instances adulterations had been sold to the public to the detriment of the chemist.

CHEMISTS' ASSISTANTS' ASSOCIATION.

The first meeting of the session 1899—1900 was held on Thursday, October 12, in the Association's rooms at 73, Newman Street, London, W. There was a fair attendance, the President (Mr. F. W. Gamble) in the chair.—The Secretary (Mr. J. Evans) having read the minutes of the last meeting, the President explained that since the election of the Council of the Association Mr. Barlow had left London, and that Mr. Currie had been elected in his place.—Ten new members were nominated, and the President then delivered the

Inaugural Address.

Mr. Gamble commenced his address by referring to the fact that until this year no President of the Association had been re-elected for a second year since 1885, and expressed a desire to know wherein he had been at fault that he was again put into the pillory. He then went on to say that he should do his utmost to place the present session on a plane with the most successful of those preceding, but pointed out that his efforts would be of little avail without the individual help of the members. He was sorry to have to relate that the roll of membership was below the average length; that the Association was, in fact, a little run down—literally, and, as those present might perhaps have noticed, to a small extent critically. The membership now stood at about one hundred, whereas it should have been at least one hundred and fifty. The cause of this decrease he believed to be, principally, that sufficiently extensive efforts had not been made to introduce new members. To maintain their tale they must have new members for old. The Association was in need of workers—it had no place for drones. He then asked for entries for the Association prizes, pointing out that last year none were received. He deplored the absolute sterility that had overtaken a previous fecundity of original work, the reason for which appeared to be that the members of the Association were more generally engaged in retail business than formerly, and so had less opportunities for original work. To so great an extent was this the case that research workers in retail pharmacy must now indeed be placed among the *rarœ aves*. Nor was this state of things confined to Great Britain, for, according to Dr. Thoms, the same tendency was at work in Germany. It was perhaps not so much that pharmacy produced fewer workers, as that a smaller number of the workers remained in pharmacy. Paradoxical as it might seem, an explanation of this might be found, to some extent, in the levelling up of education. The pharmacist, to tower above his fellows, must now reach a higher level than formerly, and it required but a short further climb to the rarefied atmosphere of science and medicine; what was more natural, therefore, than that the effort should be made. The removal of these sources of illumination should, however, encourage the lesser lights to remove their bushel, and he hoped to see some revelations during the present session, and some efforts made to remove the stigma and reproach that the Association did no original work. The President next referred to certain criticism of the Association's work, which alleged that the scientific was being subordinated to the social. He showed that but one additional night in each session had been transferred from the scientific to the social side of the programme, the chief alteration being in the character of the social evenings, and personally he could not see that the members were guilty of a heinous crime because they occasionally danced instead of eternally singing. He believed that the work of the Association was not a whit less useful, when providing for the amusement of its members than when providing mental pabulum in the shape of a scientific disquisition. Of the future of the Association he was confident, if the members were true to themselves. They must put energy and enthusiasm into the work, that they might merit the confidence of the outside world of pharmacy, which had so far been theirs. He concluded by thanking those who, by thoughtful suggestions and kindly acts, had helped him in the discharge of his duties during the past session, and expressed his intention to rely on their assistance in the future. He extended a hearty welcome to new members.

Mr. C. J. Strother (Treasurer), in proposing that a hearty vote of thanks be accorded to the President for his very pleasant, eloquent, and genial address, pointed out that the roll of membership does not always constitute the actual number of those connected with the Association. There was a considerable number of assistants who joined the Association and attended its meetings, but omitted to pay their subscriptions. He hoped these would rectify that omission, and thus increase the roll of membership to its proper dimensions.

Mr. Currie seconded the proposed vote of thanks, and congratulated the Association on having retained Mr. Gamble in the chair, because he possessed that rare combination of great technical ability and social capacity.

The vote was carried by acclamation, and in reply the President said the extent of the Association was far larger than its members. Many had left London, but were still in touch with the Association, and in this fact lay its strength. The energy of the members was latent; it merely wanted developing. If they could stimulate it from the latent to the active during the coming winter, they would have done well. It was quite as difficult to maintain a reputation as to make it, and it was the duty of every member to strive to maintain the reputation the Association had gained in the past.

NORTH STAFFORDSHIRE CHEMISTS' AND DRUGGISTS' ASSOCIATION.

A meeting of this Association was held at the Roebuck Hotel, Stoke-on-Trent, on Thursday evening (the 12th inst.). The President, Mr. J. Averill, J.P., of Stafford, presided, and the other members present were:—Messrs. Weston Poole (Treasurer), Edmund Jones (Hon. Secretary), W. Mason, Stafford; E. H. Croydon, Newcastle; T. H. Jenkins, Stone; R. G. Emery, W. Allison, and — Bates, Stoke; T. Charles and — Waddingham, Burslem; W. Hartley and J. B. Blades, Leek; T. Bentley, J. H. Bates, and — Bottomley, Hanley; F. A. Bloor, Longton.

The President, after a few introductory remarks, said the subject of company trading and the assumption of the title of "chemists" by drug companies, which he had selected to address them upon, was an old one, although more alive to-day than at any previous time.

The Main Object of the 1868 Act

was the safety of the public, and it was thought expedient that persons keeping open shop for the retailing, dispensing, or compounding of poisons—known as chemists and druggists—should possess a competent, practical knowledge of their business. The Act, therefore, provided that all persons not already engaged in such a business should, before commencing such business, be duly examined as to their practical knowledge. That was the main principle of the Act. Section 1, said "From and after the 31st day of December, 1868, it shall be unlawful for any person to sell or keep open shop for retailing, dispensing, or compounding poisons, or to assume or use the title of chemist and druggist, or chemist, or druggist or pharmacist, in any part of Great Britain unless such person be a pharmaceutical chemist or a chemist and druggist within the meaning of this Act and be registered under the Act." Upon that section there was a wide diversity of opinion. He, with many others, thought that a common-sense view of it and of the Charter of Incorporation and the Act of 1852, was that the intention of the Legislature and of the framers of the Act was that no persons should, individually or associated, assume the title of chemist and keep open shop for retailing, dispensing, or compounding poisons unless those persons had passed the qualifying examination and had been registered. But the construction which had been put on the word "person" by the Law Lords and upheld by the present Lord Chancellor, was that the word person should not be extended to a corporation. Although a company consisting of seven or more unqualified persons could not be qualified, those persons might practise as a company without qualification. With all due respect for the noble Law Lords, a more ridiculous construction could not, in his opinion, be conceived. If an individual was to be restricted, why should not an association of seven? Surely an Act of Parliament, passed in the interests of the public and providing that it should be unlawful for "any person" to do this or that unless he were qualified, could not be construed so as to make it legal for seven persons—by forming themselves into a company—to do that which was denied to an individual. Hence company trading had been a bone of contention for a long time: he also thought there was a general feeling that the question had not been sufficiently fought out and that there had been too much waiting for events. The Council of the Pharmaceutical Society was their representative, and thanks were due to the Council for undertaking the arduous duties which fell to its lot; but, at the same time, he was of the opinion that the Council should be urged to take immediate action

For Preventing the Assumption of Titles

and the practice of pharmacy by those who undoubtedly had no legal right to either. They did not ask, nor had they any right to ask for, restriction of the mixed portion of their business; but they had a right to ask for the privileges connected with that part of the business which constituted pharmacy proper. In order to accomplish that object they would have to do more than merely say, "Hear, hear." There must be no apathy; but every chemist and druggist in the country should join in providing a fund for the purpose and make every effort for securing the object in view. If that were done he had little doubt that their just claims would be recognised. If not, it appeared to him that they might as well do away with the Pharmaceutical Society and cancel the Act of Incorporation for the simple reason that neither will be any longer of use to those who have spent their time and money in obtaining a title which could be assumed by several unqualified traders forming themselves into a company. He saw from the Journal, which the Secretary had put into his hands, that the Council intended to take action in framing a clause to be introduced into the Companies Bill. However that might be, he thought that what he had said would only show that chemists in North Staffordshire were in earnest in what they were about, and that they wanted to urge upon the Council the necessity of taking steps in defence of their interests, so as to stop those who were practising illegally and to the detriment of chemists' interests. Previous to moving a resolution on the subject he invited discussion.

Mr. Poole said that no doubt all chemists were making up their minds to work for one end; they were determined not to allow any tinkering with their titles by outsiders. Some people seemed to think that if they got themselves included in a Companies Bill it would look as if they, as chemists, were taking companies under their wing, so to speak. He thought they ought not to allow companies to pursue the practice of pharmacy at all. It was not right that a number of persons who had not passed the examinations should be able to run a business which in the case of an individual would require years of study and preparation. He thought they would be quite

Wrong to Allow Companies to Practise Pharmacy

at all until all the members were qualified individually. He thought pharmacy should be practised only by individuals, and certainly only by legally qualified persons. Some thought they would meet much opposition in Parliament, and that they would not have any chance of getting what they asked for. But if they backed up the Society strongly and in the manner they ought to do, putting the case clearly before Parliament, showing that they do not wish to stop general trade, he was sure Parliament would see that it was not fair for a man to go to the expense of qualifying and then a body of men who had not gone to that trouble and expense should be allowed to enjoy the privileges of qualification. He thought Parliament would perceive that to be grossly unfair, and that such proceeding had also the effect of hoodwinking the public. He thought it was scandalous that people should be allowed to advertise as chemists when they were only a company of moneyed bookkeepers. The public wanted educating to the fact that all those people were not chemists. Doctors would not like a company of merely moneyed men setting themselves up as "cash doctors."

Mr. Jones said that at the present time the questions as to the misuse of titles and as to the construction of that clause in the Act of 1868 dealing with "persons" were the main pharmaceutical topics. Those questions ought to be firmly and energetically taken in hand by the Council. He had come to the conclusion that unless the Council took up those two points and dealt with them forcibly and enthusiastically the Society would be in a very dangerous position. They read from time to time, from week to week, in the journals that Associations in different parts of the country were considering those points and felt very strongly in regard to them. Perhaps some members of the Council did not feel those matters so keenly as chemists in practice outside London and in less favoured situations. But it was evident and should be patent to everyone that the irregular practice of drug companies was endangering the very life of pharmacy and that the object of Parliament in passing that Act of 1868 was being completely nullified. If the Society and the whole of the pharmaceutical body were to take up this matter earnestly they could make an impression upon Parliament which would result in their deriving more benefit from the Pharmacy Acts that they did at present. It seemed to him a farce that men had to work hard and make enormous sacrifices to pass the examinations, whilst others, unqualified and untrained, were allowed to carry on a chemist's business or a drug store by simply having a registered man in charge. He was glad to notice in last week's Journal that the Council is now coming to some definite conclusion as to the urgent necessity of dealing with these important questions. He was delighted to think that in Mr. Young, Mr. Glyn-Jones, and a few others they had some really progressive men on the Council, who were stirring up the Council into taking energetic action in regard to those vital points which so seriously affected chemists in the practice of their business. He hoped that other associations would also express their

Appreciation of the Action of the Council.

He thought it would not be a bad plan if the Federation of Associations would convene a meeting in some central place to discuss important topics like these. He thought they would thus get to know more definitely the opinions of the various associations and support more strongly the Council in dealing with those questions. He was beginning to feel with other members that it was really time that the Council took the bull by the horns and substituted this kind of work for educational work, at least, for a time. It was all right to carry education to a certain point; but in the present state of things they were very much discouraged that there was so much education with increased difficulties at examinations and so little attention given to matters which really affected their very existence, upon which they were dependent for their bread and cheese, so to speak. He hoped that Association, at least, would continue to support the Society, and urge upon the Council activity in reform and progress.

The President then moved, "That this Association protests against the combination of unqualified persons to usurp the rights of qualified persons by means of the evasive procedure of signing a memorandum of association under the Companies Act, and urges the Pharmaceutical Council to promote such legal action as will prohibit absolutely the practice of pharmacy by associations of unqualified persons as well as the assumption of titles by such corporate associations.

Mr. Poole, in seconding the motion, said he wished to emphasise the point that he did not think it fair for any person who was not qualified, to reap benefit, directly or indirectly, from the practice of pharmacy. If seven of his audience wished to form themselves into a company it would be all right, because they were qualified; but, on the other hand, it would not be right for seven unqualified men to form themselves into such a company. If unqualified capitalists wished to run a drug store they would very likely get seven qualified men to put their names down as directors, whilst it would be the shareholders, the capitalists, who would be receiving the direct benefits from the practice of pharmacy. It was not right that they should give the benefit of their brains to a lot of moneyed men.

Mr. Charles: Qualified men should not work for the companies.

Mr. Poole: And then there would be no companies; but I am afraid professional etiquette is not up to that yet.

Several other speakers spoke in similar terms, and eventually a question of supporting the Society in a practical form was talked over, Mr. Blades subsequently moved the following resolution, which was seconded by Mr. Emery, supported by Mr. Charles, and carried unanimously:—"That this Association is most anxious to render every assistance to the Council of the Pharmaceutical Society in such legal action as it may think fit to take in the interests of the chemists and suggests that a fund be established towards which every registered chemist be invited to subscribe."

Three new members were admitted.

At the conclusion of the meeting Mr. Jones said he desired to make a proposition which he felt sure would meet with their cordial sympathy and support. They had noticed that their esteemed Secretary and Registrar, Mr. Bremridge, had quite recently suffered a sad bereavement in the death of his wife. He believed that an expression of sympathy from a meeting of members of the Society would tend to lessen the pangs of his sorrow and be appreciated by him. He, therefore, moved that a vote of condolence be sent to Mr. Bremridge and his family in their affliction.

Mr. Averill said he was glad Mr. Jones had thought of this, and he willingly seconded it, though with a feeling of regret. The name of Bremridge was inseparably associated with the history of the Pharmaceutical Society, and justly held in high esteem. He had pleasurable recollections of the elder Mr. Bremridge, and he felt that they had a worthy successor in his son. He endorsed Mr. Jones's words of sympathy, and he was sure that everyone would cordially support the vote, which was unanimously carried.

LIVERPOOL CHEMISTS' ASSOCIATION.

The first meeting of the winter season took place at the Royal Institution, Colquitt Street, on Thursday, October 12, the senior Vice-President, Mr. J. Bain, in the chair.

Two new members were elected, Messrs. A. E. Killon and A. H. Lodge.

Reference was made to the bereavement under which their respected President, Mr. Edward Evans, was suffering, and a vote of condolence was unanimously passed, at the suggestion of Mr. Bain, seconded by Mr. R. C. Cowley.

The circular from the Pharmaceutical Society respecting the election of local secretaries was alluded to, and it was resolved that the appointment of Mr. John Smith should be supported by all members of the Association, considering the good work he had already accomplished and the study he had made of the duties devolving upon holders of that honourable office.

Mr. John Smith proposed that Mr. Anthony S. Buck as President for the ensuing session, 1899-1900, having regard to the interest he had always shown in the Association and the work he had done, both as a member and as secretary. This was seconded by Mr. Hocken, and carried unanimously.

A paper was then read by Mr. John Smith on "The Federation of Local Associations and the Pharmaceutical Society." (*See* p. 378)

In the discussion following, the President said that the conjoint action of the local Association and the local secretary seemed a reasonable and workable method of perfecting their political machinery, and bringing the latent power chemists possessed more to a focus upon such subjects as might from time to time occupy their attention. He was glad to learn that the aim of the Federation was to assist and support the Pharmaceutical Society, for he had held the opinion—erroneously, perhaps—that it was at fir t rather antagonistic to the Society. However, now that the Federation was going the right way, he hoped it would have their support, and he had pleasure in proposing a vote of thanks to Mr. Smith for his paper.

Mr. R. C. Cowley seconded the proposition, which was supported by Mr. Wyatt and passed amid applause.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.

The annual meeting of this Association was held on Wednesday, October 11, the President, Mr. C. J. Park, in the chair. The Secretary, Mr. G. Breeze, presented the

Annual Report,

which stated that the membership was fully maintained, the attendance at meetings during the past session had been good and interest in all matters affecting the trade had been well sustained. The visit of the British Pharmaceutical Conference to Plymouth had been a red letter week in the annals of the Association, a larger demand having to be made upon the members for time and work, and these were most freely and heartily given. During the year many subjects affecting the trade had been discussed, amongst others the necessity of increasing the membership of the Pharmaceutical Society so that it might more fully represent the entire trade. Resolutions in favour of supporting the action of the Society in making the present bye-laws for the compulsory storage of poisons were passed by the Association. Sir John Lubbock's Shop Hours Regulation Bill had also been considered, and a petition in favour of its being made to include in its regulations chemists as far as public necessity would allow was carried. The members had also considered the desirability of shortening the long hours of business observed in the locality and obtained a large amount of information on this point from other towns. Recognising, however, that different localities had different needs, they could not advise that a fixed hour for closing should be observed everywhere alike, but were, nevertheless, of opinion that every effort should be made by individual chemists to shorten the hours of business. Two very interesting lectures had been delivered by Messrs. J. D. Turney and F. R. Talbot to members of the Junior Section, both of which were much appreciated. The year was commenced with a balance in hand of £7 13s. 9d. The income had been £33 14s. 11d., and after all expenses had been met there was a small balance left. Classes had been conducted in Organic Chemistry, Pharmacy, Materia Medica, and Botany by Messrs. H. M. Morgan, O. A. Reade, and F. Hooper.

On the proposition of Mr. J. Davy Turney, seconded by Mr. Lamble, the report was unanimously adopted.

The following new members were nominated: Messrs. S. Gregory, J. M. James, J. Penrose, and W. C. Retallack, bringing the total membership up to 141.

Election of Officers.

The election of officers for the ensuing year resulted as follows:—President, Mr. F. Maitland; Vice-President for Plymouth, Mr. J. Davy Turney; Vice-President for Devonport, Mr. Lamble; Vice-President for Stonehouse and District, Mr. Downing (Launceston); Committee: Messrs. Condy U'Ren, Freeman W. Hunt, and J. Barge (Plymouth), H. D. Davey, and C. T. Weary (Devonport), J. Cocks (Stonehouse); Hon. Treasurer, Mr. W. H. Woods; Hon. Secretary, Mr. G. Breeze; Auditors, Messrs. H. P. Hearder and W. H. Austin. Committee to represent Junior Section, Messrs. H. M. Morgan and Osborne.

On the proposition of Mr. Lamble, seconded by Mr. Palmer, a cordial vote of thanks was passed to the officers for their services during the past year, and the compliment was acknowledged by the Chairman and the Honorary Secretary.

The following were appointed on the Educational Committee:—Messrs. Weary, Park, Maitland, Turney, Morgan, Barge, and G. Breeze.

Mr. F. Maitland returned thanks for his election as President, promising to do his best to forward the interests of the Association, and expressing the hope that the members would work together as comfortably and successfully in the future as they had in the past.

The following votes of thanks were passed:—To Mr. C. J. Park, for a glass presentation case; Mr. J. Maurice, for the weekly journals; Dr. John Attfield, for his framed portrait, and the British Pharmaceutical Conference handsome collection of books.

SUNDERLAND CHEMISTS' ASSOCIATION.

The annual meeting of the above Association was held on Thursday, October 12, in the Grand Hotel, Bridge Street. The President, Councillor Thompson, was in the chair, Mr. G. P. Fairman in the vice-chair; others present were Alderman Harrison and Messrs. C. Rankin, J. Mitchinson, R. Robinson, M. J. Todd, H. J. Turnbull, jun., E. R. Cherrett, R. G. Robson, A. W. Golightly, T. Walton, and R. H. Bell, Secretary.

The minutes having been read and confirmed, the Treasurer read the balance sheet, which was very satisfactory.

The Secretary reported that the committee recommended that all mineral acids and caustic poisons be only sold in poison bottles.

Alderman Harrison said that the committee which had the subject before it had come to the conclusion that, although the law demanded that scheduled poisons be sold in poison bottles, it would be a further protection to the public if the chemists themselves would undertake to comply with the committee's recommendation. After further discussion the matter was left in the hands of the Council to see if all the chemists of the town would agree to carry out the recommendation. It was decided to write to the Board of Trade and ask that they take steps to see that all ships going to sea be properly fitted out with medicines according to the regulations of the Board, and suggest that inspectors be appointed to carry out the work, also that such inspectors be competent men, and qualified under the Pharmacy Act.

Mr. Walton said he was very glad the Association had taken this matter up, as it was shameful the condition in which some ships went to sea. In one case he knew of, the chest was used for the captain's clothes, with only one or two bottles at the bottom.

Alderman Harrison said it was very desirable that all ships going to sea should carry medicines according to the scale of the Board of Trade. They had inspectors to see that they had a proper supply of lifebuoys on board of ships, and as medicine was as necessary as lifebuoys, some supervision ought to be exercised by the Board of Trade.

Mr. G. P. Fairman was elected President, Mr. Walton, Vice-President; Mr. J. Mitchinson re-elected Treasurer, and Mr. R. H. Bell re-elected as Secretary.

Votes of thanks to the retiring President and other officers for the past year brought the meeting to a close.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

The annual general meeting of this Association was held at the Westbourne Restaurant, Craven Road, Paddington, W., on Wednesday, October 18. There was a large attendance of members, the President, Mr. J. F. Harrington, in the chair.

The President, in opening the proceedings, expressed the hope that members had come up to the first meeting of the session with a good appetite for work, as there was a great deal to be done in matters pharmaceutical.

The minutes of the last meeting having been read and confirmed, the President proposed that Mr. W. S. Glyn-Jones be elected a member of the Association, and expressed the opinion that he would make a very useful member. The Hon. Secretary, Mr. H. Cracknell, seconded the nomination.

Mr. C. Young was also elected a member of the Association.

In the absence of the Treasurer the Secretary submitted the balance-sheet for the past year, showing a balance in hand of £2 8s. 5d. He said he had great pleasure in reading this report, as it recorded the highest number of subscriptions ever received, namely, 123; he regretted, however, that the balance in hand was less than in previous years. The report was adopted.

Election of Committee.

The following gentlemen were then elected as the Committee for the coming session:—Messrs. Andrews, Bowen, Cracknell, Gulliver, Harrington, Hyslop, Martindale, Mathews, Parker, Philp, Smith, Taplin, Warren, and Worsley.

Mr. Marsh next proposed, and Mr. Philp seconded, "That in future ladies be admitted to the Annual Dinner of the Western Chemists' Association." After a lengthy discussion, Mr. Mather proposed as an amendment "That the matter be referred to the Committee to bring before the next general meeting in December." Mr. Andrews seconded this, and after being put to the vote the amendment was lost by seven to twelve. The original motion was then put, four voting in favour and the majority of those present against the motion.

Messrs. Marsh and W. P. Robinson, on the motion of the President, were then appointed auditors.

Mr. Taplin then inquired if anything had been done by the Committee in regard to engaging a more convenient room in which to hold the meetings of the Association.

The Secretary, in reply, stated that the matter had not been overlooked by the Committee, but nothing definite had been done. There was rather a difficulty in getting a suitable room, and also a difference of opinion amongst the members of the Committee as to where it would be best to hold the meetings. He might say, however, that a more commodious room would certainly be engaged for the smoking concerts.

Votes of Thanks.

Mr. R. A. Robinson then proposed a very hearty vote of thanks to the President and officers of the Association for their services during the past year. They had done a great deal of good in the past, and would have to undertake very responsible duties in the coming year.

Mr. G. S. Taylor seconded, and the motion was carried unanimously.

The President and the Vice-President, Mr. Worsley, and other officers replied, the Hon. Secretary, Mr. Cracknell, remarking that he had served seven years as secretary, and it had been a labour of love but, owing to increasing calls upon his time, he was afraid his term of office was drawing to a close. He had satisfaction, however, in knowing that the Association would have an excellent substitute in Mr. Philp.

Mr. Taylor then said that, as reference had been made to the absence on holiday of the Hon. Treasurer, Mr. J. H. Mathews, he might say that he was thoroughly enjoying himself in the company of another member of the Association, Mr. S. Weston, whom he had last heard from as being at Tangiers.

The Annual Dinner.

The President announced that the Annual Dinner would be held at the Café Royal, Regent Street, W., on November 15. The price of the tickets would be 7s. 6d. each.

EXTRACTS FROM CONSULAR REPORTS.

The Systematic Planting and Cultivation of Kola Trees in the Colony of Sierra Leone, according to a recent report, gives promise of being remunerative, there being a large export trade in kola, which is an indigenous product. The cultivation of the rubber tree is also stated to be remunerative. At present the proper methods of collecting and preparing rubber for the market are unknown to the natives of the Protectorate, who, in their ignorance, cut down trees and vines in the process of collection, and so crude are their methods of preparation that the value of the rubber is said to be much depreciated.

The Two Most Important Chemical Works in Bosnia (Austria-Hungary), Consul-General Freeman states, are the "Holzverwerthungsfabrik" at Teslié, and the "Elektricitätswerke" at Jaice. At the former, methyl alcohol, acetone, pyroligneous acid, acetate of lime, tar, and charcoal are produced; railway sleepers and building timbers are also chemically impregnated to preserve them from rot. A considerable portion of the machinery in the works is at present being reconstructed, as a new patent process hitherto employed did not prove successful, and at the same time the works are being considerably enlarged. About 400 workmen are employed, their pay ranging between 70kr. and 3fl., or 1s. 2d. and 5s. per diem. When the enlargement of the works is complete it is expected that double the number of men will be required.

The "Elektricitats-Actiengesellschaft" at Jaice, it is reported, has obtained from the Government the exclusive right to employ the water power of the famous Sliva waterfall, from which, it is said, 30,000 horse-power can be obtained without detriment to the beauty of the fall. At present only 10,000 horse-power is being utilised for the production of electricity, which is employed as the motive power in large chemical works producing chiefly calcium carbide. The process employed in making the calcium carbide is a secret, and access to the works, said to be the largest calcium carbide works in Europe, is reported to be very difficult.

LETTERS TO THE EDITOR.

Percentage Solutions in Prescribing.

Sir,—In a couple of able papers on "Percentage Solutions" which have recently appeared in your columns, Mr. Upsher Smith, demonstrator of pharmacy in the Society's School, practically commends on grounds of utility the official recognition of, for solids, "grains in 100 minims," whereas Mr. Harold Wilson most strongly protests against such procedure as being little short of heresy, doing away with "that uniformity between the British and metric systems which must pave the way for the complete adoption of the latter in this country," Mr. Wilson recommending "grains in fluid grains" (practically equivalent to grains in 110 minims). The question at issue is consequently conventional utility *versus* Science. Now, the end of science as applied to medicine and pharmacy and all other arts is unquestionably utility, the particular end of pharmacy being the safety of the public as regards accuracy in the administration of medicines; and, inasmuch as affairs have to be judged by their ends, if in British medicine and pharmacy, where grains and minims by long-established custom are well understood, and where liquid medicines are invariably measured instead of weighed, if the end attained in prescribing by conventionally regarding a percentage solution of a solid as "grains in 100 minims," be attended with great accuracy and greater convenience in administration, then any attempt at innovation in the name of science likely to cause confusion becomes an unscientific procedure; and so long as grains and minims possess the field, and so long as physicians in their prescriptions *intend* by a percentage solution "grains in 100 minims," which they do, so long does it become the dutiful handmaid of medicine to so regard it too. To blame the grain and minim which, in spite of it, still bear unscathed the heat and burden of the day, is a procedure not far removed from that of the workman, say a carpenter, quarrelling with his tools, with his "straight-rule," because its straightness is not the straight line of the geometer (length without breadth lying evenly between its extreme points), with his "compasses" be-

cause their points are not points without parts or magnitude. The particular end of the Pharmacopœia being safety, uniformity, and convenience as regards the preparation of medicines, so long as medicines are prescribed in grains and minims, so long ought the preparations of the Pharmacopœia to constitute the means to the end, and be so framed as to best facilitate its attainment (prescribing and dispensing). For a Pharmacopœia to ignore such requirements is but to bring itself into contempt. If a medical man prescribe, say, a two per cent. solution of cocaine hydrochlorate, 2 grains of the salt made up to 100 minims with distilled water is surely the preparation intended; and by a 1 per cent. solution of acetic acid would be implied 1 minim of acidum aceticum, B.P., diluted to 100 minims with distilled water, and not the 1 grain of absolute acetic acid made up to 100 grains with water on a balance, as required by anyone else outside the pale. William Elborne.

Peterborough, October 16, 1899.

Percentage and Other Solutions.

Sir,—In my recent paper on the above subject (*ante*, p. 358, 2nd column, line 9 from top), read "nearly one-tenth stronger" for "more than one-tenth stronger."

London, October 16, 1899. Harold Wilson.

The Study of Visual Optics.

Sir,—Knowing that some readers of your valuable paper are interested in the classes held at Northampton Institute, in connection with the Spectacle Makers' Company examination, and seeing that the class for visual optics is held at 7 o'clock on Tuesday evenings, I should be glad to hear from anyone who would prefer a later class, of say, 8.30 to 10, as it is very inconvenient for many to attend at the earlier time. I might mention that Professor Walmsley, of the N.I., will do his best to provide a class, providing that I can get him twenty names of those who are desirous of a later class. Thanking you in anticipation,

57, *Beaconsfield Road, S. Tottenham,* T. Gardner.
October 16, 1899.

The Society's Local Secretaries.

Sir,—I am obliged by your notes in the Journal of the 14th inst., and as an earnest of the interest I feel in the matter, I enclose you a list of chemists in business in the County of Herts (excluding those in towns having local secretaries), from which you will see that there are thirty-nine chemists who (unlike Mrs. Weller, senior) have no shepherd, and twelve only of those are members of the Society. I am of opinion that the appointment of a local secretary for each Parliamentary division might bring many of these strayed ones into the fold. Local associations are all very well, but I need not tell you that chemists are a peculiar people, and I venture to think that any attempts to unite them in harmonious bonds would have greater power if it came direct from the parent Society, and certainly an official representative of the Society would have greater weight with an individual member of Parliament than one who was merely the spokesman of a local association.

Tring, Herts., October 17, 1899. John W. T. Morrison.

Sir,—In your Annotations last week you refer to Mr. Newsholme's local organisation scheme, and I regret that as yet nothing definite has been done in the matter. Mr. Newsholme not only presented, but also worked out, many details connected with it, and it is hardly to be expected that he should personally visit or write to all local secretaries to invite their co-operation in proposals that would be of immense benefit to all concerned; his time is fully occupied as Vice-President, in London and elsewhere, for the Society's benefit. Let all local secretaries in large centres take the matter up, and get one member of the Society in each parliamentary division to promise to act as assistant secretary, then notify the fact to the Secretary of the Pharmaceutical Society; the Council will then no doubt move in the matter. As soon as the Council is prepared to support the scheme we are ready to organise the West Riding of Yorkshire, and in Sheffield gentlemen have already promised to act as assistant local secretaries in each parliamentary division. As to the proposed meeting of local secretaries in London during the Conference week next year, if anything definite is arranged on the lines of Mr. Newsholme's local organisation scheme, delegates could be appointed and a very representative meeting can be got together, and good work will be accomplished.

Geo. Squire,
Sheffield, October 18, 1899. *Local Secretary.*

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Botanical (G. P.—35/8).—*Physalis alkekengi.*

Glyconin, U.S.P. (F. G.—35/7).—Rub together 45 parts by weight of the fresh yolk of egg and 55 parts of glycerin.

Apothecaries' Hall (B. and C.—35/12).—There is nothing in the Act you refer to that affects the question.

Major Examination (A. W. H.—35/13).—The examination extends over three days. The practical part comes first.

Microscopic Lamp (G. P.—35/9).—We are not acquainted with the lamp you mention.

Sale of Oxalic Acid (A. F. C.—35/11).—The law makes no special provision for such a case, and unregistered persons would be well-advised not to sell the preparation.

Hair Wash (W. J. L.—34/34).—The wash is a solution of silver nitrate, to which an excess of solution of ammonia has been added. The colour of the solution is apparently due to the presence of a very small quantity of a copper salt.

Association of Lady Dispensers (R. K. S.—35/10).—We do not know of any association of the kind you mention, and doubt whether it would be possible to attract a sufficient number of persons to form one. If, however, you were to publish an open letter on the subject in the Journal you might be able to base an independent opinion on the replies you received.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

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COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Allen, Atkins, Barrett, Bartlett, Beckett, Bell, Bevan, Breeze, Brown, Chesterton, Corder, Corfe, Downes, Eldred, Ewell, Ferrall, Gifford, Gilderdale, Gill, Hewlett, Hudson, Jones, Krischke, Leach, Meldrum, Mitchell, Mohn, Morley, Murray, Pickles, Powell, Reid, Shuttleworth, Spencer, Stokoe, Whineray, Williams.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PILOCARPUS RACEMOSUS.

A new source of jaborandi, described by Rocher, is *Pilocarpus racemosus*, a native of the French Antilles. The leaves are stated to be rich in alkaloids, containing 1 per cent. of total bases, of which 0·6 per cent. is pilocarpine and 0·4 per cent. jaborine. The leaves also yield a greenish, very aromatic, essential oil, which is under investigation.—*Repertoire* [3], **11**, 439.

ADVENTITIOUS TREE-BUDS.

M. Casimir de Candolle finds a constant difference between the normal and the adventitious buds of trees. The first leaves of a young plant often differ in form and appearance, and even in structure from all the later leaves; and the first leaves of shoots from adventitious buds always have the same character as the young leaves of the species. M. de Candolle therefore regards such buds as new individuals, or as apogamic embryos. An illustration is afforded by the different kinds of leaf in *Eucalyptus globulus*. In the walnut the pinnæ of the young leaves are denticulate, while those of the adult tree are quite entire. In the horse-chestnut the first two leaves have the same form as those which succeed them, but always differ from them in the absence of intramedullary xylem in the larger veins. The leaves of the hornbeam present a similar variation.—*Arch. Sci. Phys. et Nat.*, 1899, p. 100.

RUBBER AND GASES.

D'Arsonval has observed that pieces of rubber tube immersed in CO_2 under a pressure of one to fifty atmospheres, swell considerably and absorb large quantities of the gas. The augmentation of volume is sometimes equal to ten or twelve times the original bulk, and the consistence is changed, the rubber becoming more gelatinous, and less elastic. On being exposed to the air, the dissolved carbonic acid is gradually given off in small bubbles, which give rise to a distinct sound. CO_2 at atmospheric pressure rapidly passes through a rubber bladder, and escapes still more rapidly from a rubber bicycle tyre. Oxygen, under like conditions, was found to behave in a similar manner. The air from a bicycle tyre kept at constant pressure by means of an air pump was examined and found to be practically free from oxygen, and to consist solely of nitrogen. It is known that oxygen traverses thin sheets of caoutchouc much more readily than nitrogen, so that by simple filtration of atmospheric air, a gas containing 40 per cent. of oxygen may be obtained. The author concludes that CO_2 passes through rubber by entering into solution with it, that oxygen does the same, but more slowly, while nitrogen remains longest under pressure in a rubber chamber.—*Comp. rend.*, **128**, 1,545.

CAUSE OF CEREBRO-SPINAL FEVER.

The subject of cerebro-spinal fever has recently been dealt with in an exhaustive manner by Dr. Osler in the Cavendish Lectures. This disease occurs epidemically in certain waves or periods of which the fourth during the present century is now prevailing in the United States. In intervals of epidemic prevalence sporadic cases occur. Weichselbaum described a *Diplococcus* with special cultural peculiarities in this disease, and the observations on the cases in Dr. Osler's clinic fully bear out the specific nature of the *Diplococcus intracellularis*, and its ætiological relation to cerebro-spinal fever. Out of fourteen cases it was found during life (by lumbar puncture) in thirteen, the fourteenth being doubtful. The organism has usually a *Diplococcus* form, and lies within the polynuclear leucocytes. It grows best on Löffler's blood serum, on which it forms round, whitish, shining, viscid-looking colonies, which attain a diameter of 1-1·5 Mm. in twenty-four hours. It can also be cultivated on glycerin-agar, but soon dies out. It does not stain by Gram's method. Sporadic cases of cerebro-spinal meningitis may also be caused by the *Pneumococcus*, but they differ in many essentials from the epidemic cerebro-spinal fever.

FORMATION OF PIGMENT BY BACILLI.

A number of experiments have been carried out by Boland on the formation of pigment by the *Bacillus pyocyaneus* (*Centr. f. Bak.*, xxv., p. 897). He finds that this organism forms only two pigments, a fluorescent one, apparently identical with that formed by many other bacteria, and the blue pigment pyocyanin, which by oxidation becomes converted into a reddish-brown pigment, pyoxanthose (pyoxanthin). A blue chloroform solution of pyocyanin becomes quickly changed to a green by sunlight. A blue watery solution of pyocyanin is likewise changed by chlorine. The green chloroform solution treated with dilute (1 : 3) sulphuric acid becomes a deep yellow; with dilute hydrochloric acid (1 : 3). The former mixture on being neutralised with an alkali again gives a green solution on shaking with chloroform, the latter by the same procedure yields a blue solution.

FORMALDEHYDE DISINFECTION.

Formaldehyde disinfection is carried out in an extremely simple manner in Chicago (*Bull. of the Dep. of Health, Chicago*, May, 1899). The room to be disinfected is sealed and prepared as usual for sulphur disinfection. All its surfaces are exposed as much as possible, cupboard doors opened, clothing hung on lines, mattresses set on end, etc. For every 1,000 cubic feet of space an ordinary cotton bedsheet (2 by 2½ yards), is suspended by one edge from a line stretched across the middle of the room—as many sheets as necessary being used and hung at equal distances. Properly sprinkled, each sheet will carry without dripping, 5 ounces of formalin—the 40 per cent. solution of formaldehyde. The operator, with a damp cloth tied over his mouth and nose, then rapidly sprinkles each sheet with this amount of formalin, by means of a special spray producer. Commencing at the sheet furthest from the exit, the spraying has to be done expeditiously, as the air becomes irrespirable in about three minutes. The room is closed and left so for not less than five hours.

EVIDENCE OF SEWAGE POLLUTION.

Some experiments have been made by the Chicago Health Department on the presence of Klein's *Bacillus enteritidis sporogenes* in water as evidence of sewage pollution. Klein and Clowes found this organism to be always present in sewage, and suggest therefore that its presence in drinking water may become one of the most delicate and valuable evidences of the sewage pollution of potable water. Dr. Gehrmann, of the Chicago Health Department, examined forty-two specimens of sewage, one hundred and thirty of city drinking water, sixteen of milk, eight of garden earth, and one of cheese. Bacteria of the species described by Klein were found in all the specimens of sewage. With the drinking water the results were practically negative, even during a recent pollution in which the *B. coli communis* was abundantly demonstrated. The method, therefore, does not seem to be of great value for the examination of drinking water. The *B. enteritidis sporogenes* was not found in the milk (*Bull. of the Chicago Health Dep.*, July, 1899). [The writer believes that the *B. enteritidis sporogenes* is a widely distributed organism and is not unfrequently present in the normal intestine. As regards the presence of this organism in milk, the writer's experience agrees with that of Klein, viz., that it can be demonstrated in a large proportion of samples.]

THE COMPANY PHARMACY PROBLEM.—II.

BY AN ORDINARY PHARMACIST.

As I explained in a former contribution (*ante*, p. 382), it was, beyond question, originally intended—both by those who framed the Bills which became the Pharmacy Acts and by the Legislature—that all proprietors of pharmacies should be duly qualified and registered. But, by the accident of judicial interpretation, it has been assumed for the past twenty years that only the actual sellers of scheduled poisons—whether proprietors or assistants—need be legally qualified, and that even they have no exclusive right to the titles which were formerly supposed to be protected by the Acts. I say advisedly "by the accident of judicial interpretation," for I think there is little reason to doubt that if the actual seller employed by the London and Provincial Supply Association had not been a duly registered person, and if all the circumstances of the case had been fully considered, the result of that case would have been the reverse of what it really was.

The Judicial Opinions.

As things were, the judges who first had the case before them, in the Queen's Bench Division, were strongly of opinion that there was nothing inconsistent in interpreting the word "person" in Sections 1 and 15 of the Pharmacy Act, 1868, so as to apply to artificial persons created by law, as well as natural persons. They also held that the danger sought to be guarded against by the Act was the keeping open shop for the compounding, dispensing, or retailing of poisons by other than registered chemists, and that it was immaterial whether the unqualified proprietors of shops were natural or artificial persons so far as liability under the Acts was was concerned. But the judges who next had the case before them, in the Court of Appeal, were just as decided in the view that there was no need for making the word "person" in the Pharmacy Act include artificial persons. They held that individuals alone could be intended by the term "person" in Sections 1 and 15, and that the danger sought to be guarded against by the Act was the actual compounding, dispensing, or retailing of poisons by individuals who were not registered chemists. With regard to the judges who heard the final appeal, in the House of Lords, they appear to have been quite of the opinion that, if the individual actually conducting the business for the company had not been legally qualified, considerations of policy might have rendered it desirable to prevent the company carrying on the business of a chemist and druggist. They seem, however, to have been unduly impressed by the fact that the actual sale was effected by a duly registered person, and they gave the fatal judgment against the Pharmaceutical Society, under the mistaken impression that the public safety was, thus, sufficiently safeguarded, their sole justification being that it was not specifically stated in the Pharmacy Act of 1868 that the word "person" should be held to include artificial persons created by law as well as natural persons.

The Resulting Position.

It seems to me, therefore, as it has probably occurred to others, that if this test case had been brought against a company which did not employ a legally qualified person to retail scheduled poisons, the House of Lords decision might have been very different. The apparent safeguard provided by the handing over of the poison by a duly registered individual would have been non-existent in such a case, and the red-herring it provided could not have been drawn across the judicial path. But it is useless to cry over spilt milk, and we have to recognise the fact that the judgment of the House of Lords was so far-reaching that companies are apparently absolutely excluded from the operation of Sections 1 to 15 of the Pharmacy Act, 1868; that is to say, of just those Sections which were formerly supposed to restrict the use of pharmaceutical titles and the sale of scheduled poisons to registered individuals. In other words, laws adopted—in the interests of the public safety—with the expressed object of preventing any but duly qualified individuals from using certain titles and keeping open shop for the compounding, dispensing, or selling of poisons, have been judicially interpreted to imply that seven unqualified individuals can combine to do what one may not, and that, by fulfilling certain trifling formalities, even an unqualified individual can occupy a position which is absolutely identical with that acquired by registration under the Pharmacy Acts in everything but the legal qualification they require.

The Question of Invested Capital.

Apologists for this state of affairs protest that it does not differ essentially from that implied in the case of a registered chemist who commences business with borrowed capital. Such, however, is far from being a reasonable view of the position. For the borrowing of capital is an affair which concerns no one but the lender and the borrower; it does not, in the least degree, affect the manner in which the chemist's business is carried on. The lender, whatever interest he receives on his money, does not share the profits of the business. If he did, that fact would constitute him a partner in the concern and, if not legally qualified, he could be proceeded against for infringement of the Pharmacy Acts. But shareholders in a company are the actual proprietors of the business carried on; they do not receive a fixed and unvarying interest on their invested capital, whether business has been good or bad, but a proportionate share of the profits, whatever those may be. Each shareholder, in fact, is in the same position as the individual proprietor of an ordinary business, and is recognised by the law as being such for all purposes except those of the Pharmacy Acts. The absurdity and unfairness of the latter position should be obvious to all unprejudiced persons.

A Qualified Manager Not Sufficient.

It is needless to say that I do not grant that the public safety is as efficiently safeguarded by a qualified manager as by a qualified proprietor. The latter has the control of the business absolutely in his own hands; he need consult no one with regard to what he may or may not sell; and he will usually be found to give full consideration to public interests, altogether irrespective of his own personal profit. A manager, on the other hand, acts under control; is not at liberty to decide upon what lines the business shall be conducted; his chief aim is to give satisfaction to his employers, increasing the business turnover at all costs and considering public interests no more than is absolutely necessary. No manager ever is, or can be, the same as the proprietor of a business, and in a case where the professional element prevails to the same extent as in pharmacy, the difference is not only one of degree but also essentially one of kind. The public interest suffers, in fact, in direct proportion to the lack of attention a pharmacy receives from its proprietor; in the case of a company carrying on the business of a chemist and druggist, it is, of course, an absolute impossibility for any personal attention whatever to be given by unqualified proprietors.

The Suggestion of Vested Interests.

Turning next to the suggestion of vested interests, we are told that such interests have been created by companies of unqualified persons, trading as chemists and druggists during the past twenty years, and must of necessity be recognised. But surely the fact that—through an oversight on the part of the Legislature or a judicial misinterpretation—an evil has existed for even twenty years is no sufficient reason for calling wrong right and, now, legalising what existing Acts of Parliament were meant to suppress—in this instance, the practice of pharmacy by unqualified persons. Moreover, we must not ignore the fact that, if the public safety in regard to the sale of poisons is sufficiently safeguarded by placing a business belonging to seven unqualified persons under the control of a qualified manager, it cannot be less satisfactorily cared for if a business belonging to a single unqualified individual is carried on under the same conditions. Those in our own ranks who now advocate recognition of companies of unqualified persons, as competent to carry on the business of a chemist and druggist, usually fail to see

how far their arguments lead them. What is right for seven individuals to do, cannot be wrong for one, and if the principle of proprietary qualification be once abandoned, we may as well ask for the repeal of the Pharmacy Acts straightway. Let us be consistent and have free trade in pharmacy, absolute and unqualified, if necessary, but do not impose obligations on individual pharmacists which are not otherwise equally binding.

A Proprietary Qualification Essential.

The pharmaceutical qualification must be an individual and proprietary one, or else fade out of existence as a legal necessity. Before Pharmacy Acts were, pharmacists occupied an honourable position in the land and, in spite of perverted Pharmacy Acts, pharmacists occupy a similar position to-day. Indeed, it is not too much to say that the leaders of our craft are men who can afford to despise all opposition, whether of companies, of drug-stores, or of any other description. Personally, I should be quite content to have my title protected; for the rest, I am prepared to depend upon my professional training and business capacity. But several thousands who have been induced to select pharmacy as a career, have done so in the full belief that the use of the titles they had to work so hard to obtain would be restricted to themselves and similarly qualified persons; they have also been imbued with the idea that, once qualified, they would be able to do what no unqualified person could do. They thought, and were justified in thinking, that the Pharmacy Act of 1868 was intended to prevent any but duly qualified individuals from using pharmaceutical titles or keeping open shop for the compounding, dispensing or retailing of poisons. In such cases, of course, a rude awakening has come; but the fact remains that the State is morally bound to do something to indemnify those persons, and the very least that can be done is to make the provisions of the Act applicable as they were originally intended to be.

What is Required.

No amount of hair-splitting by any number of legal authorities ought to be allowed to nullify the common-sense interpretation of a Statute, even if badly drawn. But if it should appear that, under present conditions, neither titles nor the practice of pharmacy can be restricted to those who have acquired the qualification required by law, the sooner the defect is remedied the better. But that must not be at the cost of concessions on our part in favour of companies of unqualified persons. Modify the "Widow's Clause" by all means; insist upon the due qualification of wholesale dealers in poisons; in fact, repeal Section 16 of the 1868 Act in its entirety if necessary; but let us, at least, endeavour to realise the ideal embodied in the preambles to the Pharmacy Acts. If care for the public safety requires no more, it certainly requires that. The suggestions for a draft Pharmacy Bill, which were submitted to the Lord Chancellor, covered much more than those preambles, but such as those suggestions were, they had the approval of all our representatives on the Council of the Pharmaceutical Society, except Messrs. Martindale and Glyn-Jones. The latter was not a member of the Council when the suggestions were agreed to, and our present worthy President was travelling abroad at the time. But nineteen out of the twenty-one members were, thereby, committed to the principle of proprietary qualification; five of them may reasonably be regarded as having been re-elected in May last on the assumption that they would continue to maintain that principle. I would be one of the last to suggest that a member of Council is a mere delegate, elected to say and do what his supporters require of him; but I am decidedly of opinion that not a single member would be re-elected to-morrow if, in offering himself as a candidate, he proposed to support a movement to register and regulate companies of unqualified persons trading as chemists and druggists.

The Irreducible Minimum.

By all means let us be content with the restriction of the use of titles if nothing more can be secured; but we must not overlook the Lord Chancellor's desire to bring companies—as ideal persons—within the law. From the pharmacist's point of view that can only be done by providing—as actually proposed by the Lord Chancellor and embodied in Clause 2 of the Companies Bill—that, in all respects, a company shall be amendable to the provisions of the Pharmacy Acts in the same manner as individuals now are. The public safety would thus be properly safe-guarded, there would be nothing to prevent a properly-constituted company from carrying on the business of a chemist and druggist, and the intention of the Pharmacy Acts would be fully realised. As I have previously stated, there is no occasion to attempt more than that in connection with the Companies Bill. But we should afterwards require to set our own house in better order, and an undertaking might well be entered into with the Government, by our leaders, to draft a Pharmacy Acts Amendment Bill which should provide for the removal of all anomalies now existing. For the present, however, our chief aim should be to prevent the recognition of the pretended right of companies of unqualified persons to assume and use our titles, or in other ways to evade the provisions of the Pharmacy Acts. Companies of duly qualified persons need not be interfered with, and even where, owing to family arrangements, part of the capital invested in such companies belongs to unqualified individuals, it ought not to be impossible to devise some generally satisfactory means of overcoming that difficulty. It may even be rendered possible for existing companies of unqualified persons to bring themselves into line by some such means; but, in such an event, no unqualified person must be permitted to enjoy any advantage from the use of our titles, nor to exercise any control over the conduct of the business. And, in any case, whether the clause to be inserted in the Companies Bill should be similar to the one I have suggested (*ante*, p. 383) or not, we must insist upon the imperative necessity—in the public interest—of preventing any unqualified person or persons from using pharmaceutical titles or carrying on business as a chemist and druggist.

SOME ANCIENT HISTORY RELATING MORE OR LESS TO "COMPANY PHARMACY."

In view of the fact that the House of Lords' decision in the case of the London and Provincial Supply Association, Limited, enabled a company, necessarily without qualification, to keep open shop for retailing, dispensing, or compounding poisons—thus providing a means by which any individual associating with himself six dummy shareholders could carry on that business without the qualification the Act requires—the circumstances which chiefly led to that decision required especial consideration by the Committee that was then charged with the preparation of an amending Bill. Those circumstances were:

First, the exemption in reference to the continuance of the business of a deceased chemist, as provided in Section 16 of the Act, and commonly known as the "Widow's Clause."

Secondly, the proviso that a business carried on under that exemption should be *bonâ fide* conducted by a person registered as a chemist and druggist under the Pharmacy Act.

The conclusion of the Judges was that such a condition would be, in any other case, sufficiently in accord with the object of the Act.

The Draft Pharmacy Bill prepared in 1881 therefore comprised a provision for limiting the period during which a deceased chemist's business could be carried on by executors, etc., who would presumably be unqualified persons. Another clause provided that the Registrar should have power to call for the names of persons keeping open shop for retailing, dispensing, or compounding poisons, or exhibiting any title implying registration under the Pharmacy Acts, and that persons failing to supply the information should be liable to penalty. A third clause specifically provided that the word "person" in the Pharmacy Act should extend to corporate bodies, and that the persons on whose behalf any assistant or apprentice acted, should be liable for the acts of their agents.

Lastly, the application of the Pharmacy Act was extended to the retailing, dispensing, or compounding of all medicines.

Those provisions struck at the root of the grievance of company trading as it affected chemists and druggists, in consequence of the House of Lords' decision, and the enactment of those provisions would have been the means of putting an end to the unfair competition of unqualified persons made possible by evasion of the Statute in that way. The importance of supporting such amendment of the Act was pointed out at the time in the Journal, as well as the necessity of impressing upon the Legislature the fact of the natural connection between the effect of that amendment and the statutory demands made upon chemists and druggists, in order to counteract the prevailing tendency of Parliament to look with disfavour upon any measure supposed to be in any degree antagonistic to free trade principles. The further necessity of making individual views subordinate to the general interest, for the sake of overcoming difficulties arising from difference of opinion within the trade and external antagonism, was also pointed out, as well as the circumstance that the contemplated appeal to public opinion, as expressed by Parliament, meant war to the knife with company trading and the simulations of co-operative stores, in regard to the practice of pharmacy and to the practical significance of the Pharmacy Acts.

The expression of opinion at that time, in correspondence and otherwise, is in many respects interesting to revert to, since it frequently shows a defective appreciation of the conditions which are most essential in the interests of chemists and druggists, as members of a privileged body, and much want of disposition to adjust differences to mutual advantage.

The first letter that appeared on the subject after the House of Lords' decision was from

JOSEPH LEAY, objecting to the practice of keeping branch shops, as an encouragement to stores.

"NO JUDGE" pointed out that while the Act requires a qualified master, and does not require qualified assistants, the judgment reversed that position for the illogical reason that a corporation cannot qualify.

"MAJOR" spoke of the practice of keeping branch shops in the charge of unqualified assistants as an effectual barrier to the proposal that only legally qualified persons should be allowed to carry on the business.

G. N., *Wandsworth*, suggested that the decision had been arrived at from a point of view too much neglected by chemists and druggists, viz., that the personal qualification of individuals engaged in dispensaries, etc., was the chief thing of importance to the public.

"WEST END" took the same view, and expressed the opinion that legal qualification was as necessary for assistants as for the owner of a chemist's business.

W. T. TUCKER, *Kilburn*, pointed to the inconsistency of allowing widows—unregistered -to carry on business while expecting legislation to prevent other unregistered persons from doing so.

Strange to say, these were the only comments on the House of Lords' decision : but, after the draft of a Bill had been adopted by the Council and published in January, 1881, a considerable number of letters appeared on the subject. The views therein expressed may be gathered from the following précis :—

G. W. SANDFORD objected to the proposed amendment of the 16th section of the Act, because it would "spoil widows' houses," and suggested as more reasonable that the exemption should apply to widows, as widows, and not to executors.

EDWARD SMITH, *Torquay*, suggested that the intention and provisions of the Act required better definition—that the Council should be relieved from the duty of adding to the poison schedule, since that invidious position afforded opportunity for imputations of bias in favour of trade interest.

JOHN TERRILL objected to the proposed amendment of the Widow's Clause as condemning to poverty the children of all chemists who die before they have been able to make adequate provision for their families.

"SEMPERVIRENS" lamented the absence of provisions compelling proprietors of branch shops to employ legally qualified assistants and making the Preliminary Examination compulsory before apprenticeship.

W. S. T. suggested that legal qualification of wholesale chemists was desirable, since it is necessary for the preparation of medicinal articles as well as for their sale.

THOMAS GREENISH (then President of the Society) suggested that it would be a mercy to the widow of a deceased chemist to be compelled to dispose of the business soon after the death of her husband—that the "Widow's Clause" permitting a qualified assistant to conduct a business, was at variance with the spirit of the Act implying personal qualification of the proprietor—the stumbling-block making the administration of the Act crooked, illogical and suicidal—a provision that opened the door for assistants to conduct a business, the owner of which was not qualified—that would be a stumbling-block in the future.

"The safety of the public, the advance of medical science, and the progress of pharmacy, with the well-being of the pharmacist, can be secured only through the personal qualification of the owner of the business being insisted upon, and this personal qualification can only be obtained by evidence of fitness shown in the examination room ; a qualified assistant is only a subordinate, and cannot as such be considered a free agent."

CHARLES SYMES urged that since the main feature of the Pharmacy Act is the safety of the public, individual proprietors of chemists' shops should be qualified—if that principle was lost sight of, the Act was not worth a straw and the chance of benefiting the trade would disappear. The writer added "The legislature is surely not so blind as to believe that the public are protected by (an unqualified) widow or executor carrying on a chemist's business by means of a qualified assistant for an indefinite period, and are not protected if a corporate body does the same thing."

W. WILKINSON, *Manchester*, supported Mr. Sandford's view out of sympathy for widows : but, with exception of the jury clause, thought the Bill would not be of any advantage to chemists and druggists, whilst adding to the vexations and annoyances they were already subject to. The writer thought the real evil to be remedied, viz., the selling of drugs and medicines by co-operative stores, grocers, etc., would not be touched, while the restrictions imposed by the amended Act would be vexatious to the chemist and druggist without being protective.

GEORGE BROWN suggested for consideration a draft clause "that it shall be unlawful for an unregistered person or partnership or body corporate to supply by retail, or to employ any servant, agent, or deputy, to act as a dealer in any of the poisons enumerated, or to compound any medical or veterinary prescriptions or private recipes containing any of the aforesaid poisons, under a penalty of five pounds for each offence. The exemptions in favour of medical men and veterinary surgeons to remain as at present."

GEORGE MEE asked whether the sympathy exhibited for widows was sincere ? and suggested that Mr. Weller's advice should not be lost—that business conducted by widows of deceased chemists was a terrible farce—that the demand for personal qualification, on the one hand, and interested laxity on the other, had made the Acts, abortive and would continue to do so until a bishop was translated and the Government took the matter in hand.

G. J. GOSTLING, *Stowmarket*, supported Sandford and widows but suggested that no branch shop should be carried on without a registered person in charge, his name to be reported to the Registrar annually, or as changes might require.

THOMAS BLACKMAN, *Stow in the Wold*, supported Sandford and

widows, suggesting also a bye-law that any chemist taking service with a co-operative society should be struck off the Register.

E. B. Vizer, *Brighton*, could see no practical good in the suggested amendments, that would improve the Act. While supporting Sandford as to widows, he doubted whether the other amendments could be considered beneficial to the general interests of the trade, and that conclusion had been supported by a canvass of the chemists of Brighton, thirty-seven out of forty-two having signed a memorial to that effect.

Henry Long considered that a deceased chemist's business ought to be continuable, if conducted under proper management, and that in every business assistants ought to be legally qualified.

M.P.S., *North Staffs.*, failed to see any plan of dealing effectually with stores; but suggested as a suitable clause that from the date of the passing of the Act no person or persons should sell or deal in drugs or chemical compounds unless such person shall be a duly registered pharmaceutical chemist or chemist and druggist within the meaning of the Act.

P.M., assistant, considered the omission of provision to deal with branch shops a mistake, and stated that out of thirty shops of druggists and doctors in his town, fifteen were in charge of—in fact, kept by—unqualified persons. Hence he suggested that there should be at least one qualified person in each shop before seeking to repress the wickedness of co-operative pharmacy.

Barnard Proctor, *Newcastle*, expressed regret that a "narrow and selfish tone" was apparent in the correspondence: agreed that public safety requires owners of pharmacy to be qualified, though legislation in favour of druggists could not be looked for or asked for—that neither widows nor co-operative stores should be allowed to carry on the business, and that if a qualified assistant was a sufficient safeguard in the one case, it should be in the other; but in any case every branch shop should have a qualified person in charge.

G. S. Woolley, *Manchester*, held that "wives" houses' were also to be considered—if executors might carry on business, there was no reason why a company should not. To ask the one and disallow the other would ruin the chance of an amended Act that would satisfy the trade.

C. B. Allen, *Kilburn*, regarded the antagonistic feeling within the Council on a vital point as not reassuring—the difference of opinion as unaccountable and likely to be disastrous, since the Act had been practically annihilated, and the proposed amendment seemed likely to share the same ignominious fate. To the general public the widow of a deceased chemist is of no importance, and the softest-hearted judge might be easily persuaded that a business could be conducted better by a miscellaneous corporation under a qualified manager than by a widow in a like position.

Fred Taylor, *Tiverton*, supported the proposed amendment of widow's clause.

Stafford thought the Bill not bold enough, and that to be consistent, all branch shops should have qualified assistants.

M. P. S. ridiculed the inconsistency of prohibiting companies or other unqualified persons while allowing widows to carry on business without qualification.

Warwickshire suggested that there might be proper means of using the name of a predecessor without actually trading under it—Employing a qualified manager, registered and represented to be the proprietor—Would compel registration of persons in business, whether alone or in partnership, and exhibition of their names over shops—Inconsistent that unqualified widows should be allowed to carry on business, since women are admitted to qualification and membership. The philanthropic view is extraneous to the consideration as to safety of public.

At the Council, February 2, 1881, various communications from the country, in reference to the proposed amendment of the Act, were read and considered.

J. Mackay, on behalf of the North British Branch of the Society, strongly opposed amendment of widow's clause, and would rather favour a special adaptation to the case of widows—otherwise no opposition or amendment.

Among the resolutions forwarded were the following:—

Edinburgh meeting thought principle of personal qualification would be more jeopardised by raising question as to widows than it then was.

Glasgow objected to amendment of widow's clause.

Liverpool approved of amendments and would support Bill.

Rochdale approved generally, and suggested that co-operative stores and widows must go together; that branch shops with unqualified assistants were contrary to the spirit of the present Act and the proposed amendment.

Sheffield cordially approved.

South Hackney, R. O. Fitch and J. A. Clark, suggested slight alterations.

Brighton sent memorial expressing decided disapproval to amendment of widow's clause.

Mr. Sandford mentioned letters from Mr. Keen, Fenchurch Street, and Mr. Balkwill objecting to amendment of widow's clause, and suggesting provision for branch shops.

Mr. Frazer's motion to omit "medical prescriptions" and substitute "containing scheduled poisons" was negatived. He objected to the extension of the Act to non-poisonous drugs in prescriptions, and to putting further chains on chemists which could not be imposed on others, leaving chemists free, and he drew the line at poisons.

Mr. Frazer moved that amendment of widow's clause be erased Sandford seconded.

J. Mackay supported, and spoke of the strong feeling in Edinburgh, adding also that the argument about stores carried no weight and no conviction, since a widow was in a totally different position to a company. Motion lost, 13 against, 8 for.

Mr. Frazer moved his remaining amendments without finding a seconder, so that the Draft substantially received the assent of the Council, and the Committee was requested to approach the Lord President of Privy Council to explain the provisions agreed to, and induce him to take charge of the Bill in Parliament.

Pelham C. Maitland, *Stonehouse, Plymouth*, expressing the views of some fatuous chemists who would make a demand for monopoly of drugs and pharmaceutical preparations, asked what else do chemists want but legislation in favour of the druggist?—that is the burden of their cry—could not understand Mr. Proctor, and thought a widow's business conducted by a qualified assistant would not be worse than the case of a business in which the proprietor is seldom seen, although it may be left to unqualified assistants.

C. M. remarks, with involuntary sagacity, that if the late law appeal had been sustained, nothing would have been heard about amending the widow's clause. The inference is not equally sagacious; that intense selfishness was at the bottom of that amendment. Council should try some other means for getting rid of co-operative stores trading in drugs, than sacrifice of the chemist's widow.

E. G. Hughes, *Gloucester*, thinks chemists jealous and narrow-minded; they had better pay a tax and place themselves under Government supervision so as to increase the confidence of the public and obtain medical practitioners' dispensing.

J. R. Cooper, *Canterbury*, did not see beyond the trade in "patents."

G. Burrell, *Montrose*, thought it not at all presumptuous of a pharmacist to take a "statesmanlike" view of pharmaceutical legislation—that it is his interest to do so if he expects his Parliamentary representative to support legislation for his benefit.

From that point of view two leading principles should be considered, viz.—

1. The safety or greater good of the public.

2. Individual qualification and responsibility of the persons instrumental in securing that object.

SANDFORD's view would be destructive to the second—legal qualification, because a personal matter, cannot be transmitted with a business—Vicarious management is against the object of pharmaceutical legislation and the real interests of the trade.

ED. PRATT, *Barnstaple*.—Retention of widow's clause would be a great mistake, for if a pharmacist's business is to be carried on by an assistant, a co-operative store cannot be prevented from doing the same. If chemists hope for amendment beneficial to them as well as to the public, they must throw "crochets" to the wind and approach Parliament as a united body, asking for what can be justly claimed—in such united action lies the only chance of sucoess.

CHEMICUS does not appear to perceive that restrictions on the exercise of the chemist's business are the only form in which its protection can be looked for.

D. H. F., *Hampshire*, overflowing with benevolence and sympathy for widows, deplores the possible sad case of an unqualified assistant of a deceased chemist, who would have to be superseded by a qualified, and perhaps younger, man so that, besides the loss of her husband, the widow would suffer the further deprivation of the services of a good servant who had proved useful for many years.

G. G. HORNSBY, *Brighton*—Is the personal qualification of the proprietor of a business the only desideratum for the public safety? If personal qualification be the principle relied on, why not a clause to prevent proprietors of branch shops carrying on business without qualified assistants? Chemists belong to a trade, and it will be time enough to have recourse to the argument that a doctor's or lawyer's widow cannot continue her husband's business when chemists have acquired a professional position. Nonsense to contend that the widow's case is the same as that of private firms, companies or individuals, established on the unqualified basis for trade purposes only.

A. J. GOWER, *Vassall Road*—Argument against a widow continuing a business is equally cogent against branch shops—if that cannot be prevented, sacrifice of the Bill would be better than injustice to widows.

A. P. S. held that it is absolutely necessary that the individual proprietors of chemists' shops should be qualified—that a qualified assistant cannot confer qualification upon his employer. That branch shops should be managed by qualified persons only. Upon those lines he urges that chemists should strive for legislation that would restrict to them the dispensing of prescriptions and the sale of poisons.

PHILOS thought those who contended that chemists could not ask Parliament to prevent grocers' companies and unqualified individuals from carrying on the business of a chemist and druggist, because the widow of a deceased chemist might do so, were engaged in a "war for an idea," and did not recognise the essentially different position of a chemist's widow and the widow of a doctor. As a means of meeting the case he suggested that a registered chemist should be appointed as trustee to carry on business for a widow.

R. L., *Peebles*, thought that, in the diversity of opinion, sentiment prevailed over argument. Holding to the principle of personal qualification, he suggested that all branch shops should be in charge of qualified persons in order to provide the desirable protection to the public, and to counteract the arguments that could be put forward on behalf of stores by a large section of the community.

T. R. GIBBONS, *Manchester*, suggested that one important factor had been overlooked—viz., what is the Legislature likely to grant? In that respect he thought a provision that widows should be enabled to continue their husbands' business would be suicidal, since there would be, for the public, no difference between a widow and a company carrying on business by proxy. Then, without a suitable provision for the evil of branch shops, there would be little chance of an amended Bill. Moreover, there is great excuse for the widow, but none for the pluralist.

H. R. insists upon the difference between the case of a widow and that of a business which never had a qualified owner, and suggests that much good might be done by better use of the powers conferred by the Pharmacy Acts as they stood.

P. MACEWAN, *Dundee*, referred to the supposition that it is expedient for the safety of the public that trading in pharmacy shoulp be conducted by persons certified to be qualified for that purpose, and pointed to the fact that the spirit of the law was to a great extent violated by carrying on branch shops which were not always managed by qualified persons, and suggested also that the practice was a source of internal weakness.

A COUNTRY CHEMIST, *Kettering*, referring to the opinion, expressed in the course of the recent litigation, that for some purposes of the Act the seller of a poison might be understood to mean the person who effects the sale, suggested that it might lead to the infliction of serious injury in some cases of an attempt to prevent apprentices or unqualified assistants from selling any scheduled poisons, but he supported amendment of the widow's clause, and thought that consistency also required restriction of branch shops.

G. P. POND dealt with the difference between the case of a widow and a company, as being in the nature of things sufficient to justify a distinction between them, and sarcastically advocated, in regard to branch shops, that they should be done away with altogether by prohibiting a chemist from leaving his shop for any purpose during the hours of business.

ALFRED JONES, *Scarborough*, writing under the impression that the Pharmacy Acts had been more beneficial to the oilman, the grocer and the stores than to the legally qualified chemist, asks "What are our privileges?" but instead of answering the question loses himself in irrelevant remarks on medical dispensing and "the patent medicine question."

VIGILANS, in the last letter that appeared on the subject, pointed out that a provision for continuing a deceased chemist's business should consider widowers as well as widows, since women could qualify and might carry on business on their own account. The writer also suggested that qualifying under the Pharmacy Act might in future become a "woman's mission," so as to provide for marriageable men unable to pass the examination, and thus there would be another way of evading the Act, in accordance with the provisions of its 16th section.

At the Council Meeting on March 2, 1881, reference was made to the Bill in connection with communications from the Privy Council Office in regard to chloral hydrate and other poisons. An official announcement was made that the Chemists' and Druggists' Trade Association would co-operate with the Council in support of the Bill.

At the Council Meeting on May 4, 1881, a letter from the Privy Council Office, dated April 6, was read, stating, in reply to the Council's application of February 16, that "after a review of the whole correspondence" on the subject, and careful consideration of the draft Bill, the Lord President was not prepared to submit the Bill framed under the direction of the Society for consideration by Parliament.

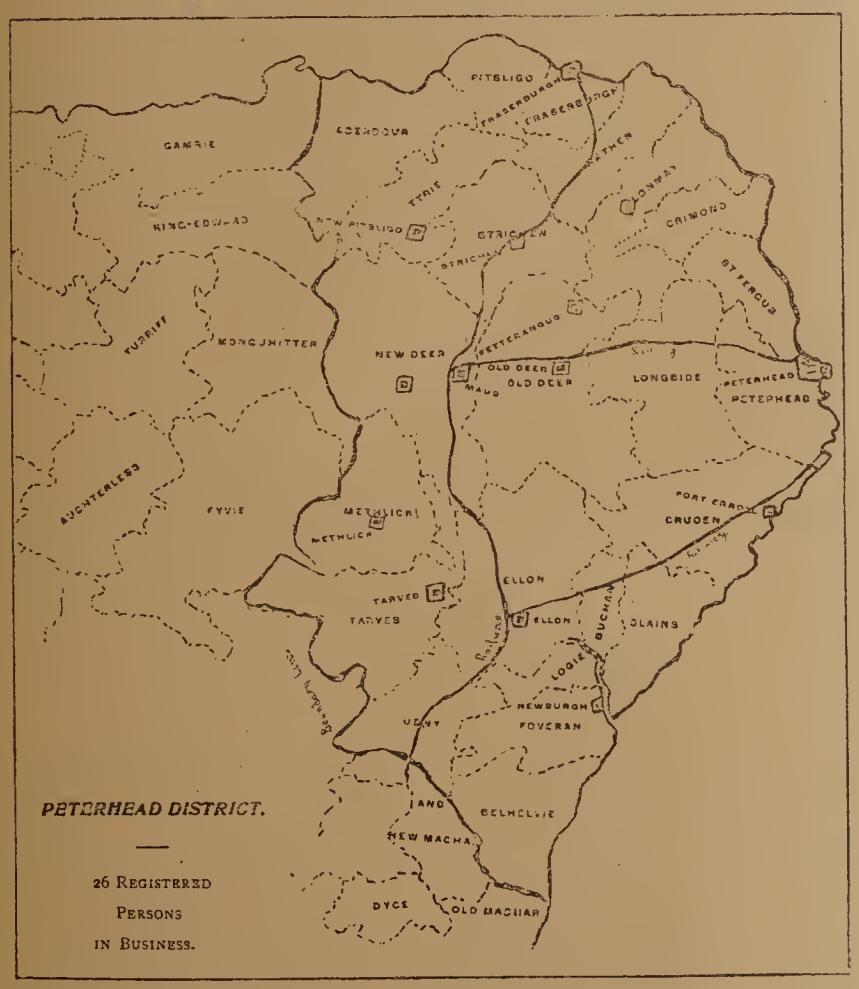
In response to a subsequent request that the Lord President should receive a deputation on the subject of the draft Bill, another letter was read, intimating that his Lordship would do so after the House of Lords met in May, but that was virtually the last that was heard of the Pharmacy Act Amendment Bill, 1881. Its fate resembled the end of a damped squib, fizzling out without igniting the powder it contains.

With some notable exceptions, the expressions of opinion in these letters show a lamentable want of appreciation for the position of the pharmacist even as a legally qualified person. Many of the views put forward are superficial, and point to such a radical incoherence of sentiment as to preclude the possibility of leadership being effectively exercised for promoting the common interests of registered chemists and druggists. Under such conditions the failure of the attempt to induce the Lord President to bring the Bill before Parliament may perhaps be accounted for, and the reference made to "the whole correspondence" in the letter received from the Privy Council Office may be taken as supporting that conclusion.

LOCAL PHARMACEUTICAL ORGANISATION.

In view of the interest at present taken in the work of local secretaries of the Pharmaceutical Society, it may prove useful to show what has been done in the direction of collating information relating to his district, by Mr. J. F. Tocher, local secretary for the Peterhead district. Mr. Tocher compiles every year a list of registered chemists in business in his district and distinguishes those who are members of the Pharmaceutical Society. He prints that list, together with a map showing the relative situation of the different places mentioned in his list.

Map of the Peterhead District.



Copy of the Printed List.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

List of Registered Persons in Business in the Peterhead District, 1899-1900.

(Peterhead District includes Belhelvie, Udny, Tarves, Methlick, New Deer, Aberdour, and the portion of the County of Aberdeen eastward of these parishes—*i.e.*, East Aberdeenshire within these limits.)

Please send early intimation of additions to this list, changes of address, etc., to the Local Secretary, J. F. Tocher, Peterhead.

Those marked * are Members of the Pharmaceutical Society.

*Mr. Robert Burnett, Broad Street, Fraserburgh (*Pharm. Chemist*).
*Mr. Wm. Cruickshank, Mid Street, Fraserburgh.
Mr. Alex. Gall, Broad Street, Fraserburgh.
Mr. J. A. Whyte, Broad Street, Fraserburgh.
Mr. C. Forrest, Lonmay.
Mr. J. Forrest, Lonmay.
Mr. J. Forbes, Broad Street, Peterhead.
Mr. J. A. B. Forbes, Queen Street, Peterhead.
*Mr. W. Pennie, Merchant Street, Peterhead.
*Mr. J. Robertson, Chapel Street, Peterhead.
Mr. J. Simpson, Marischal Street, Peterhead.
*Mr. J. F. Tocher, Chapel Street, Peterhead (*Pharm. Chemist*)
Mr. John Park, Old Deer.
Mr. G. M'Gregor, Ellon.
Mr. W. J. M'Gregor, Ellon.
*Mr. James Walker, Ellon.
*Mr. A. M. Lee, Strichen.
Mr. J. R. Angus, Strichen.
*Mr. George Thomson, New Deer.
*Mr. John Grant, Methlick.
Mr. F. C. M'Pherson, Newburgh, Belhelvie.
Mr. G. Matthew, New Pitsligo.
Mr. J. Milne, Fetterangus, Old Deer.
*Mr. W. Bremner, Port Erroll, Cruden.
*Mrs. Francis Lumsden, Tarves.
*Mr. Alexander Milne, Maud.

SELECTED PRACTICAL FORMULÆ.

Pasta Zinci Sulphurata Saccharata.

M. Hodarn recommends, as a quickly drying and healing ointment: Lanolin, 2; yellow vaseline, 2; glycerin, 1; white sugar, 2; sulphur, 1; zinc oxide, 2.—*Pharm. Cent.*, **40**, 446.

Preserving Medium for Wood.

The following mixture has been patented for preserving wood: Heat nitrophenol, from 1 to 7 parts, with a metallic basic acetate, 30 to 60 parts; creosote, 40 to 100 parts, mixed with vegetable, animal or mineral oil, 1,000 parts, and allow to cool.—*Pharm. Cent.*, **40**, 499.

Unna's Skin Paste Ointments.

Strong: Zinc paste, 40; resorcine, 40; ichthyol, 10; vaseline, 10. *Weak:* Zinc paste, 60; resorcine, 20; vaseline, 20. Either of these remedies may be used in the usual diseases.—*Pharm. Cent.*, **40**, 498.

Varnish for Laboratory Tables.

The following preparation is recommended for protecting laboratory benches from acids and alkalis:—Solution (*a*): Copper sulphate, 125; potassium chloride, 125; water, 1,000. Heat until dissolved. Solution (*b*): Aniline hydrochloride, 150; water, 1,000. Solution (*a*) is first brushed on, and then (*b*), the application being allowed to dry. Next day the bench is rubbed with raw linseed oil, this treatment being repeated once a month.—*Deutsch. Amer. Apoth. Zeit.*, **20**, 66.

Eau de Cologne for the Skin.

Lavender oil, 18; lemon oil, 18; rosemary oil, 6; cinnamon oil, 1; alcohol, 2,000.—*Deutsch. Amer. Apoth. Zeit.*, **20**, 67.

PROVINCIAL PHARMACEUTICAL EDUCATION.*

BY PROFESSOR W. M. HICKS.

Principal of University College, Sheffield.

Pharmaceutical students are connected with a calling which has a most important function to fulfil in regard to the health and bodily well-being of the community. If the *corpus sanum* contributes —as it undoubtedly does—to the *mens sana*, then the intelligence and the force of character of the community must to a certain extent depend on you for its vigour and activity. Therefore, everything that tends to bring you together, to organise you for the improvement of your craft and the technical education of your members, is not only a matter of importance to yourselves, but of the highest interest to the public outside. In early times each town had its local craft guilds, each of which looked after the maintenance of its customs, made its own regulations (including care against fraudulent workmanship), and punished its members who infringed them. With the Reformation and the disintegrating time which followed, these guilds decayed, but we now see signs everywhere of what we may call integrating forces, and in recent years the tendency to associate for common interests has become increasingly evident. We are at the commencement of a period which will see the creation of a species of national guilds in place of the ancient local guilds. They will not have grown out of the old guilds in the same way as most of our national institutions have developed by a process of natural evolution, but are new creations starting into life at a long interval after the death of the institutions which formerly did a similar work. Of course the guild comes in time after the craft, and the craft survives even if the guild goes. The craft has a continuous history. It develops and it divides with the division of labour which the constantly increasing complexity of civilisation demands. If you take your own calling of pharmacy and follow back its history, you will find its origins in something like the medicine man of the modern savages. The primitive medicine man is the depository of the tribal lore relating to the well-being or ill-being of the tribe. He knows how to appease the evil spirits, or to deal with the good spirits; he knows the medicinal powers of herbs, or charms, and the practice of incantations.

As time goes on we get a gradual separation of those who deal with the well-being of the body from those who deal with religious rites. It is only lately, after a long evolution, that the latter has divided into those whose care is the spiritual side of man's nature and those whose function it is to educate his mind. The former also grows, gets more complex, and divides. We can trace this by legislation in our own country. The College of Physicians was founded in 1815, and that of the Barber-Surgeons in 1540. Physicians prescribed, apothecaries sold drugs and also prescribed, grocers also sold drugs. In 1543 an Act was passed to protect apothecaries against their rivals, the physicians and surgeons. About sixty years later they were incorporated with the grocers, but shortly afterwards were separately incorporated, and no grocer was allowed to keep an apothecary's shop. A century later the Apothecaries' Company were empowered to enter any apothecary's shop in London and destroy drugs unfit for use. There has been a gradual separation of functions here also, and I suppose there are now very few, if any, true apothecaries in England—that is, persons who not only prescribe and dispense their own medicines, but also dispense on the prescription of others. Those who dispense their own medicines are decreasing in number, and the distinction between prescribing and dispensing is becoming every day more defined. At a time when medicines contained any number, up to sixty or seventy, more or less harmless ingredients, it mattered little to the patient or the general public whether the dispenser put in twice as many crab's eyes or an extra dose or two of moss from a human skull, earthworms or blind puppies, however much the estimation of the dispenser amongst his professional brethren might suffer. With the modern powerful drugs, however, where a gram too much or a mistake in a bottle may mean death to a patient, it is a very different matter. It is a matter of vital importance that no one shall be allowed to dispense who has not proved his competence to do so. Hence the necessity for a licensed body of dispensers, as we have had for a long time a licensed body of prescribers, and for the association of that body into a guild which shall look after the interests of the craft, the prevention of fraudulent practice, and the admission and education of new members of the craft. The Pharmaceutical Society of Great Britain is more than the beginning of such a guild. As it shows itself able and willing to do its work wisely and well, and as it gains thereby the confidence of the community, so Parliament will more and more enlarge its powers, and entrust important duties to it to perform.

In two points at least has the Pharmaceutical Society shown its wisdom and the broad-minded sense of the scope of its duties: I mean the institution of the research department for the improvement of the technique of its craft, and the institution of a course of training and examination for those who seek to enter its ranks. While the central Society alone can hold the examinations and lay down the general syllabus of instruction and experience, it is for the branch societies to organise such instruction for their localities. That has been the aim of your branch here for several years, and last year, for the first time, a trial attempt was made in connection with the University College. The result of that trial has been the institution of an organised three years' course of instruction for the Minor Examination at the College, on similar lines to those conducted at other University Colleges. This course has been drawn up after careful consideration by a joint committee of your branch and the senate of the College.

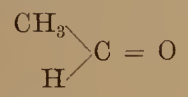
The course is confessedly a compromise between what is desirable and what is possible. We have had to recognise that your students can only attend evening classes, and that with evening study we had to guard against overloading the student We had to allow sufficient time for private study, and, may I say an occasional evening for social intercourse or recreation. In conclusion, I should like to say a few words to the students as to their study. The disadvantages and difficulties connected with evening study are obvious. You bring minds to your work jaded and bodies tired by your day's business, and the difficulty of concentrating your mind on your work and keeping interest in it is great. You have not only to bring will and determination to work hard, but you must use wisdom and judgment as well to keep your minds fresh and your interest alive. Organise your working time, and set apart certain hours which you will allow nothing else to interfere with. Set aside also certain hours for outdoor exercise or recreation—say Thursday and Sunday afternoons—and regard it as much a duty to do neither business nor study during those hours as it is to do neither business nor recreation during the hours you have set apart for study. I know it may be dangerous advice to give to any whose tendency it may be to let matters glide, but the safeguard is this: you have no duty to recreate yourselves until you have done your duty to your working hours. If this is done, then compel yourselves to work hard at resting. The time at your disposal is so small that you can only get through your study by carefully planning out beforehand how you will dispose it. Another great disadvantage of evening work is the sporadic manner in which the subjects have to be studied. You require to work continuously at a subject in order to become saturated, so to say, with it, and master it. For this reason I think you would all find it a good plan if you could give at least three months, altogether free from business, to laboratory work before entering for your examinations.

* Report of an Address delivered to the students of the Sheffield School of Pharmacy, on October 19, 1899.

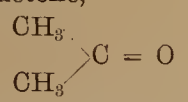
THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.

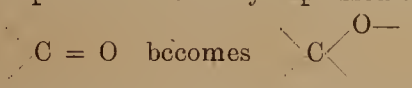
Sulphonal. — The systematic name, dimethyl-diethyl-sulphone-methane, indicates that sulphonal is a derivative of the simplest paraffin hydrocarbon methane CH_4. Two of the four hydrogen atoms are replaced by methyl (CH_3—) groups, hence the prefix dimethyl, and the other two by two ethyl sulphone (—$SO_2 \cdot C_2H_5$) groups. Although the constitution of sulphonal can thus be simply explained, it must not be supposed that it can be, or actually is, prepared directly from the parent substance methane. The process of preparation involves some reactions somewhat unfamiliar to the student, and not dealt with in the elementary text-books of organic chemistry. In order to explain them as simply as possible, it will be necessary to draw some analogies between these reactions and some of more fundamental importance with which the student should be familiar. Starting with ordinary aldehyde, whose constitution is represented thus—



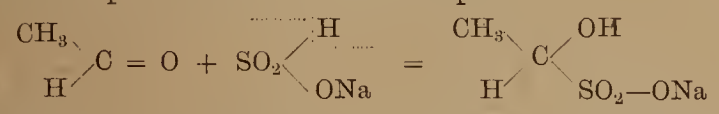
and acetone, the simplest ketone,



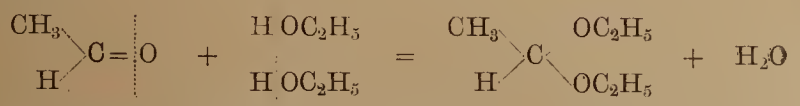
it will be observed that both bodies contain a carbonyl group $>C=O$, *i.e.*, oxygen doubly linked with carbon. The presence of this group enables both aldehydes and ketones to form additive compounds through a change in the relation of the carbon and oxygen of the carbonyl group which is usually expressed thus:—



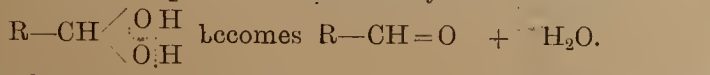
This change enables the aldehydes and ketones to take up two monovalent elements or groups, as, for instance, in the formation of the bisulphite compound with sodium acid sulphite—



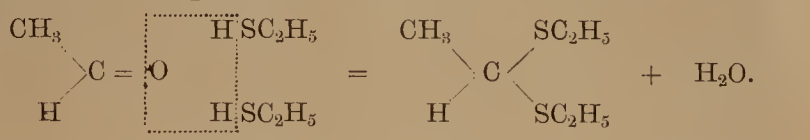
Compare also in your text-book the behaviour of aldehydes and ketones with hydrocyanic acid, ammonia and hydroxylamine. Aldehyde also condenses with two molecules of alcohol to form acetal—



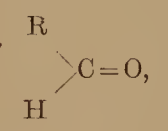
This substance, acetal, being the best known member, has given its name to a class of bodies, the acetals, which are regarded as derived from a *hypothetical* dihydric alcohol containing the two hydroxyl groups attached to the same carbon atom. As already mentioned under chloral hydrate, dihydric alcohols of this constitution can only exist in the free state when the compound contains electro-negative groups or atoms, as in the case of chloral hydrate $CCl_3CH(OH)_2$. Otherwise whenever we attempt to isolate these dihydric alcohols a molecule of water is split off and an aldehyde is obtained —



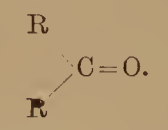
Although these alcohols are therefore unknown in the free state, we can obtain derivatives—the acetals—in which the hydroxylic hydrogen is replaced by alkyl residues. Thus ordinary acetal, referred to above, may be called diethyl acetal, because the replacing groups are ethyl, C_2H_5. The general formula for the acetal group may be therefore put as $R—HC(OR)_2$. In an analogous manner aldehyde condenses with thio-alcohols (mercaptans), which are the sulphur analogues of ordinary alcohols. Thus aldehyde gives with ethyl mercaptan a body having the constitution of a thio-acetal, and these bodies are called mercapt*als*, to recall their origin from aldehydes and mercaptans.



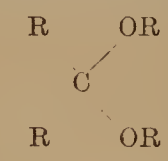
Passing now to acetone, the student should compare the similarity between the reactions of aldehydes and ketones, which are due to the presence in both classes of bodies of the carbonyl group $>C=O$. Note then the differences in their reactions, which are due to the carbonyl group of the aldehydes being connected with an alkyl group *and hydrogen*,



whereas in the ketones the carbonyl group is connected with two alkyl groups,

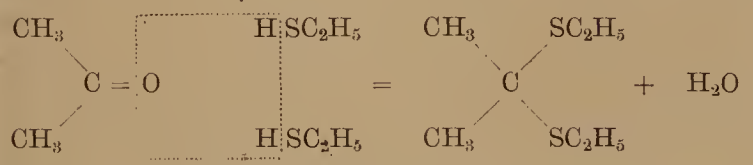


Among the compounds formed by the ketones, the group analogous to the acetals, and which would have the general formula

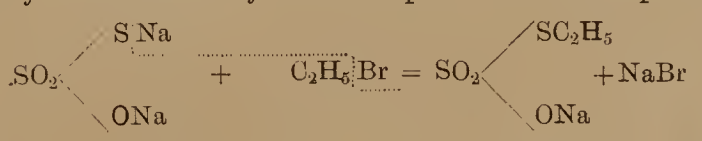


are not known.

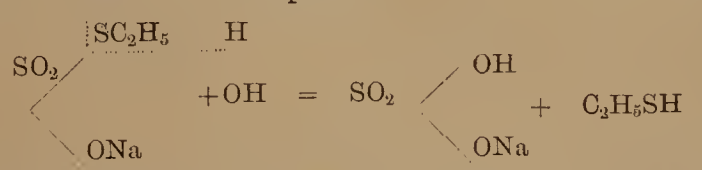
The sulphur compounds analogous to the mercaptals are, however known, and are called mercapt*ols*. The best known member is the dimethyl-diethyl mercaptol, mentioned in the Pharmacopœia, which is usually called simply mercaptol, and is obtained by the condensation of one molecule of acetone and two of ethyl mercaptan —



Mercaptan is a very volatile fluid of extremely unpleasant odour. In order to avoid the disagreeable effect of working with considerable quantities, as in the manufacture of sulphonal, it is said that sodium ethyl thiosulphate is employed. This substance is obtained by the action of ethyl bromide upon sodium thiosulphate—



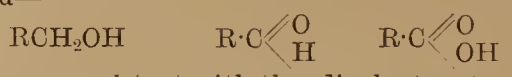
The sodium ethyl thiosulphate is heated with the acetone in presence of hydrochloric acid. Under the influence of the acid the thiosulphate reacts with water and undergoes hydrolysis into mercaptan and sodium acid sulphate—



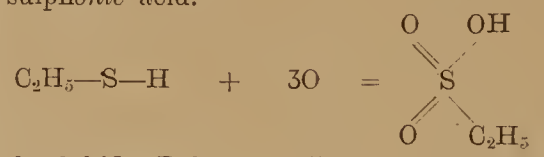
The mercaptan reacts with the acetone as fast as it is liberated, so that the disagreeable effects of working with large quantities of free mercaptan are avoided. In order to explain the next step—the oxidation of the mercaptol to a di-sulphone—compare the behaviour towards oxidising agents of alcohols and thio-alcohols (mercaptans). The former first lose hydrogen, and then take up

* Note.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

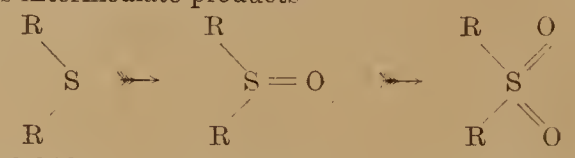
oxygen with formation of aldehydes and acids, *i.e.*, the alkyl residue is attacked—



These changes are consistent with the divalent nature of oxygen. The sulphur analogues, on the other hand, readily *take up* oxygen, due to the fact that sulphur is capable of exhibiting tetravalent and hexavalent properties (compare SO_2 and SO_3). Thus mercaptan, when oxidised by nitric acid or permanganate, is converted into ethyl sulph*onic* acid.

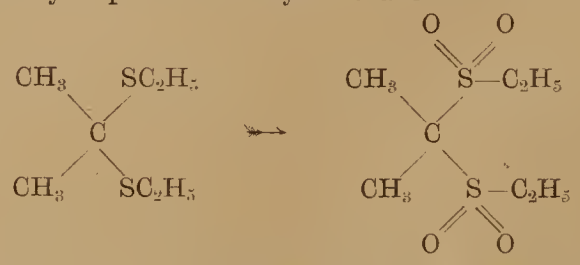


If alkyl sulphides R_2S be oxidised, two atoms of oxygen are taken up, and a *sulphone* is obtained, compounds called sulphoxides being obtained as intermediate products—

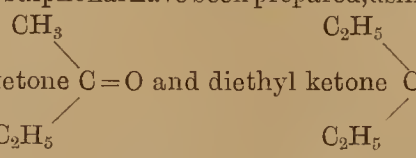


Sulphide. Sulphoxide. Sulphone.

By comparing the constitutional formula for mercaptol it will be seen to contain two sulphur atoms in the condition of sulphide, *i.e.*, each sulphur atom is connected with two alkyl residues. When mercaptol is oxidised it therefore takes up four atoms of oxygen and yields di-ethylsulphone dimethyl methane—



Homologues of sulphonal have been prepared, using in place of acetone,



methyl ethyl ketone and diethyl ketone. This leads to the production of methyl- ethyl- and diethyl-diethyl sulphone methane $(CH_3)(C_2H_5)C\cdot(SO_2C_2H_5)_2$ and $(C_2H_5)_2C(SO_2C_2H_5)_2$ respectively, which have been introduced as hypnotics under the names of trional and tetronal. If the ethyl groups in sulphonal be replaced by methyl by employing methyl mercaptan in place of ethyl mercapton, the resulting compound is devoid of hypnotic properties. In dispensing sulphonal its sparing solubility in water should be remembered. This renders it desirable to administer the remedy in the finest possible powder. Sulphonal and other sulphones are very stable bodies; they are hardly affected by boiling acids and alkalies. When heated in the dry state with potassium cyanide they are, however, decomposed. The cyanide acts as a reducing agent, and removes the oxygen of the sulphone group, causing a complicated decomposition to ensue, among the products of which the mercaptan, owing to its odour, is easily distinguished. At the same time the cyanide unites with some of the sulphur, forming potassium thiocyanate, KCNS. Hence, if the fused residue be dissolved in water and treated with a slight excess of hydrochloric acid, the resulting solution yields the red coloration with ferric chloride, which is characteristic of thiocyanates (compare iron test for acetates and meconates). It is necessary to use a slight excess of hydrochloric acid, in order to convert into chloride the excess of cyanide and some carbonate which is always present, and which would subsequently interfere with the reaction between the thiocyanate and ferric chloride.

FLORAL CALENDAR FOR OCTOBER.

There are more fruits than flowers available for examination during the present month. These will be distinguished in the following list by the letter (fr.) following their names. The list of plants in blossom being small, the names of those mentioned last month, but still in flower, are repeated here:—

Amaranthaceæ.—*Chenopodium ambrosioides* (fr.). B.G. *C. quinoa* (fr.). B.G.

Amaryllidacæ.—*Sternbergia lutea.* Fl. *Amaryllis belladonna.* Fl.

Araliaceæ.—*Hedera helix.*

Boraginaceæ.—*Anchusa italica.* Fl.

Brassicaceæ.—*Erysimum cheiranthoides, Koniga maritima.* Fl.

Campanulaceæ. — *Lobelia cardinalis.* Fl. *Campanula isophylla.* Fl.

Compositæ or **Asteraceæ.**—*Calendula officinalis.* Fl. *Anthemis nobilis, Matricaria parthenium, Tanacetum vulgare, Rudbeckia newmani.* Fl. *Aster amellus.* Fl. *Taraxacum officinale.*

Coniferæ or **Pinaceæ.**—*Taxus baccata* (fr.).

Convolvulaceæ.—*Calystegia sepium. Ipomœa purga.* B.G. *Convolvulus scammonia.* B.G.

Cucurbitaceæ.—*Bryonia dioica* (fr.). *Ecballium officinarum* (fr.) (*P.J.* [3], **9**, 241.)

Cupuliferæ or **Corylaceæ.**—*Quercus pedunculata* (fr.). *Castanea vesca* (fr.). (*P.J.* [3], **9**, p. 324.)

Dioscoraceæ.—*Tamus communis* (fr.).

Euphorbiaceæ.—*Euphorbia helioscopia* (fr.). *E. peplus* (fr.). *Ricinus communis.* Fl. (*P.J.* [3], **9**, p. 241.)

Ericaceæ.—*Arbutus unedo.* Fl. (*P.J.* [3], **9**, p. 323.) *Calluna vulgaris.*

Gentianaceæ.—*Gentiana amarella.*

Geraniaceæ.—*Oxalis rosea.* Fl. *O. corniculata.* Fl. *Tropæolum canariense.* Fl. *Pelargonium* species. Fl.

Illecebraceæ.—*Corrigiola littoralis.*

Iridaceæ.—*Crocus zonatus.* Fl. *C. sativus.* Fl. (*P.J.* [3], **8**, p. 241). *C. nudiflorus. Schizostylis coccinea.*

Labiatæ or **Lamiaceæ.**—*Teucrium chamædrys, Lamium album, Salvia pratensis.* Fl.

Leguminosæ or **Fabaceæ.**—*Ulex nanus, Lathyrus odoratus.* Fl. *Swainsonia alba.* Fl.

Liliaceæ.—*Colchicum autumnale* (*P.J.* [3], **8**, p. 241). *Scilla autumnalis.*

Malvaceæ.—*Hibiscus syriacus.* Fl.

Nyctaginaceæ.—*Mirabilis jalapa.* Fl.

Onagraceæ.—*Fuchsia* species. Fl. *Œnothera lamarckiana.* Fl.

Papaveraceæ.—*Papaver rhœas, Chelidonium majus.*

Phytolaccaceæ.—*Phytolacca decandra* (fr.). B.G.

Plumbaginaceæ.—*Plumbago larpentæ.* Fl. *P. cærulea.* Fl.

Polygonaceæ.—*Polygonum affine.* Fl.

Ranunculaceæ.—*Ranunculus repens, Anemone japonica.* Fl.

Rhamnaceæ.—*Rhamnus catharticus* (fr.). *R. frangula* (fr.).

Rosaceæ.—*Geum urbanum, Potentilla tormentilla, Rubus idæus, Rosa canina* (fr.) (*P.J.* [3], **9**, p. 241.)

Rubiaceæ.—*Lantana* species. Fl.

Rutaceæ.—*Ruta graveolens* (fr.).

Sapindaceæ.—*Acer pseudo-platanus* (fr.), *Æsculus hippocastanum* (fr.). (*P.J.* [3], **9**, p. 324.)

Scitaminaceæ.—*Canna* species. Fl.

Scrophulariaceæ.—*Linaria purpurea.* Fl. *Scrophularia scorodonia.* (Fl.)

Solanaceæ.—*Atropa belladonna* (fr.), *Solanum dulcamara* (fr.), *Datura stramonium* (fr.). B.G. *Physalis alkekengi, P. francheti* (fr.). (*P.J.* [3], **8**, p. 401.) *Nicotiana tabacum.* B.G. *Solanum nigrum.* (*P.J.* [3], **8**, p. 241.) *S. jasminoides.* B.G.

Umbelliferæ.—*Æthusa cynapium* (fr.), *Conium maculatum* (fr.), *Fœniculum capillaceum* (fr.).

Verbenaceæ.—*Caryopteris mastacanthus.*

Violaceæ.—*Viola tricolor.*

PHARMACEUTICAL JOURNAL.

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"COMPANY PHARMACY" AND THE PHARMACY ACT OF 1868.

Those chemists and druggists who believe representations that the existing prejudicial development of company trading has been the result of neglect on the part of the Council of the Pharmaceutical Society to perform the duty appertaining to it as the representative and executive body—as well as those who are not sufficiently well informed to know better—will probably be surprised to learn that the endeavour to obtain, through the medium of the Pharmaceutical Society, a remedy for the company grievance affecting registered chemists and druggists, dates back to a period antecedent to the formation of the Pharmaceutical Society of Ireland and to the inauguration of the Chemists and Druggists' Trade Association at Birmingham in 1876. At that time, the question as to the legality of Co-operative Societies selling and dispensing poison had been repeatedly under earnest and careful consideration by the Council of the Society, as a subject in which the entire body was deeply interested. Legal opinion had also been taken as to the desirability of proceedings for that unforeseen infringement of the Pharmacy Act. The result was the discovery that such procedure might open up the whole subject of pharmaceutical legislation, and reveal defects in the Act that would not be easily remedied while registered chemists and druggists included so many who were members of a trade rather than of a profession. Hence it was that the Council had, at that time, resolved that in the best interests of the general body the most prudent course would be to abstain from subjecting the Act to the tension of a trial at law, which it might be too feeble to bear, and that, for the time, such a course would be preferable to involving the Society in a costly legal process which the Council had been advised could not be other than abortive. Another probable reason for the reticence of the Council at that time was the inordinate apathy and patience that clung to the trade in reference to the infringement of the Pharmacy Act by co-operative trading, the injury it, even then, caused to their legitimate trade interests, and the prospective ruin it was likely to bring about.

A perception of this last-mentioned reason for the inaction of the Council may indeed have been the ground on which the Society—asleep and dumb—was charged at the Birmingham Conference with having forgotten that the safety of the public and legitimate trade interests were trusts that the Society is bound to take cognisance of; for that charge was made by a member of the Council thoroughly cognisant of all the circumstances. His whole address was an indictment—not of the Council, but of the Society—for failing to conserve and protect those vested interests that were the natural and anticipated outgrowth of regulations imposed by the State for the benefit of the public. The Society was exhorted to fulfil its obligations, in that respect, with a quickened conscience and sense of guardianship—to take prompt and resolute action to remedy a glaring and grievous evil that cut at the root of the Pharmacy Act and would, if allowed complete development, to a great degree render worthless and obsolete the legislation that had been the result of so much zeal and toil. That exhortation was addressed to the Pharmaceutical Society in reference to a matter endangering its safety and the stability of the calling represented by the Society. It might, therefore, have been expected to rouse every member of the Society, if not every member of the entire trade, to a sense of the necessity for such action as was suggested; to induce them to follow up such action so as to obtain amendment of the Pharmacy Act in regard to any unexpected flaw or weakness that would permit evasion and so as to establish the law, on the basis of enlightened expediency, as thoroughly efficient for the safety of the public and for the protection of those who carry on the business of chemists and druggists. But that result was not brought about and Mr. Hampson's efforts, to awaken in the minds of chemists and druggists a perception of their interests and a sense of their individual obligations, were to a great extent without effect.

The subsequent action of the Council in regard to company trading has been thoroughly representative of the position existing throughout the entire body. While some entertained a belief that the Act was strong enough to put an end to the evil complained of, indifference and lassitude prevailed with the majority. Complications arose from the desire to connect other questions, as to the need of amending the Pharmacy Act, with that of the legality of business carried on by co-operative stores. That was the extent to which "company pharmacy" had been developed until the prosecution of Mackness in 1878 was followed by the conversion of his business into the London and Provincial Supply Association, Limited; when "company pharmacy" took the form in which it is still being carried on. Immediately after the decision of the House of Lords in 1880, which made the Pharmacy Act for the most part worthless in the interest of chemists and in the interest of the public, the Council of the Pharmaceutical Society took up the question as to the requisite amendment of the Act, with the view of considering the probable effect of the decision on the future of pharmacy and whether means could be devised to secure the true object and intention of the Pharmacy Acts, viz., that in the interest of the public the individual owner or owners of a chemist's business should be registered and qualified. The Committee

appointed for that purpose presented the draft of a Bill to the Council in January, 1881. Evidence was at once given of serious absence of unanimity, even within the Committee, representing still more serious differences of opinion among those engaged in the drug trade—a desire, on the one hand, that the Pharmacy Act should protect trade interests and, on the other, to regard it as an undue restraint of trade. Widows were an additional source of trouble. The consequent discord which then found expression in correspondence addressed to the Journal, has prevailed ever since and it has been of a nature to preclude such concurrent and harmonious action as can only be secured by mutual willingness to waive individual opinions and desires for the sake of promoting the general interests of the craft.

UNFOUNDED IMPUTATIONS.

An article headed "The Adulteration of Drugs" appears in the *Hospital* last Saturday, containing statements eminently detrimental to chemists and druggists, —even raising a question as to their honesty and general trustworthiness as dealers in medicinal articles. Apparently with a view to supporting those statements, parts of a report of analyses of belladonna plaisters, signed Benj. H. Paul, was also published, in breach of a specific agreement. It will, for the present, suffice to say that the *Hospital* suppresses data in that report, which, if published, would have shown that the statements made in the article are directly opposite to the real facts of the case, and that the damaging imputations made are not in any way justified.

A MINOR COMPANY-PHARMACY PROBLEM.

In the discussion on Mr. Wilcock's paper, read before the Bradford Chemists' Association on Tuesday last, reference was made by one of the speakers to the possibility of hardship being inflicted on members of the families of registered chemists, if the law should require joint-stock companies carrying on business as chemists and druggists to consist entirely of legally qualified persons. But, as suggested by "An Ordinary Pharmacist," at page 399, it would be quite possible to devise satisfactory means of overcoming any difficulty of that kind without disregard of the intention and object of the Pharmacy Acts. For example, the capital belonging to unqualified individuals might be held in trust by a legally qualified member of the company. But whatever the means devised, so long as unqualified persons are prevented from reaping advantage from the use of a pharmaceutical title, and from exercising any control over the conduct of the business, no objection could be taken by pharmacists to the fact that the whole of the capital invested did not actually belong to persons registered under the Pharmacy Acts, any more than they could object to legally qualified persons carrying on business on their own account with the aid of borrowed money, if that were necessary for their purposes. So far as the public safety is concerned, it is not of the least consequence who finds the capital with which a business is financed, or indeed who obtains the profit; both are equally beside the question—but it is of the highest importance that no person without a proper legal qualification should be in a position to conduct the business or interfere with its control.

ANNOTATIONS.

An Evening Meeting of the Pharmaceutical Society will be held at 17, Bloomsbury Square, London, on Tuesday, November 14, at eight o'clock precisely. The chair will be taken by the President—Mr. William Martindale—and two papers will be read—one by Professor J. Reynolds Green, on "The Biology of Yeast," and the second, by Professor H. G. Greenish, on "Spurious Alexandrian Senna." The meeting will be the first of the present session, and it is hoped that the special interest attaching to the subjects to be treated may insure a good attendance.

The Company Pharmacy Problem, as put before our readers last week by "An Ordinary Pharmacist," appears to excite as much attention as ever, and it is not too much to say that registered chemists generally are more unanimous in approving the views presented to them, in the article referred to, than on any other subject. One distinguished leader of the craft, who writes privately, expresses the opinion that the views are those of nine hundred and ninety-nine out of every thousand registered chemists in Great Britain. What other leading pharmacists think on that point may be judged to some extent from the correspondence columns of this week's Journal. Notice should be taken of the fact that many of the letters are from prominent local secretaries of the Pharmaceutical Society, who are in a better position to know what views prevail amongst registered chemists than most men. Mr. John Smith, in particular, as Chairman of the Federation of Local Pharmaceutical Associations, has had special opportunities of testing the opinions of registered chemists—the warmth of his expression of approval regarding what appeared last week is, we believe, only a faint reflection of that which he has personally experienced in approaching other chemists during the last few months.

A Supplementary Article on the Same Subject, which appears this week (see p. 398), is intended to throw a little more light on the matter for the benefit of those who may not be entirely conversant with the incidents which resulted in the virtual repeal of the chemists' charter. The writer also makes it clear that his one end and aim is the prohibition of malpractice by individuals not registered under the Pharmacy Acts. Recognising that the House of Lords' decision in 1880 is irrevocable, so far as the Judicature is concerned, he would nevertheless appeal to Parliament to remedy its own oversight. The public safety requires that, and no consideration of pretended "vested interests" should be allowed to stand in the way of necessary reforms. The chief reform must be to secure full respect for the pharmaceutical qualification, like other professional qualifications, as an individual and proprietary one. Nothing short of that can effectually safeguard the public safety—nothing less, our contributor thinks, should satisfy registered chemists. He sees no objection to properly-constituted companies carrying on the business of a chemist and druggist and would not oppose internal reforms. But he asks that the Legislature should, at least, be asked to remedy its own mistakes.

Objection is Taken by Mr. William Gill, of Nottingham, to the fact that "An Ordinary Pharmacist" deals with the "Company Pharmacy Problem" simply from a professional standpoint and overlooks the commercial aspect of pharmacy. He says: "Pharmacists have to compete with unregistered trades, and should be able to raise capital in the same way as their opponents can do." That is, beyond question, reasonable. But when Mr. Gill goes on to say that "the suggested clause would prevent them from doing that," he entirely misrepresents the position, for the suggested clause would not have the effect he supposes. The objection raised by Mr. Gill rests entirely upon the mistaken assumption that the pharmacist can expect to be relieved from the necessity of competition "with unregistered traders," except in

regard to his professional functions. That is why the company pharmacy problem must be attacked in the chemists' interest from the professional standpoint—his privilege to keep open shop for retailing, dispensing, or compounding poisons. In that respect, the public well-being needs safeguarding, and for that reason every pharmacy should be under the direct personal control of a registered person who is the proprietor or has a considerable pecuniary interest in the business he controls. Mr. Gill would be in favour of permitting a company to trade as pharmacists providing the managing director were a registered chemist and the business conducted in his name; also that every open shop owned by the company were under the personal control of a registered chemist, who should hold shares to the value of not less than five per cent. of the paid-up capital of the company; and, further, that the registered person managing each shop should be the "person keeping open shop," etc., who is specified in the provisions of the Pharmacy Acts, all labels bearing his name, as in the case of an ordinary pharmacist. That might suffice for some purposes of general trade in drugs, but not for the practice of pharmacy proper. Mr. Gill's objections appear to be met, to some extent, in the second article on the subject, published this week. It must also be pointed out that pharmacy, so far as it is the subject of legislation, must of necessity be considered from the professional standpoint only. The letter signed "R. A. R." may, with advantage, be referred to with regard to the question of the capital required by pharmacists for enabling them to practise their profession.

The Conference Arrangements for Next Year were under discussion at a preliminary meeting called by the Hon. Local Secretaries—Mr. William Warren and Mr. Herbert Cracknell—at 17, Bloomsbury Square, London, on Wednesday, October 25. The chair was taken by the President of the Pharmaceutical Society (Mr. William Martindale), who was supported by the President of the British Pharmaceutical Conference (Mr. E. M. Holmes), the President of the Western Chemists' Association of London (Mr. J. F. Harrington), Mr. Walter Hills, Mr. Michael Carteighe, Mr. W. S. Glyn-Jones, and other leading pharmacists. Mr. Harrington briefly explained the position of affairs and it was decided to summon a representative meeting of London pharmacists, for the purpose of appointing an executive committee and transacting other business in connection with the Conference arrangements. The meeting will be held at 17, Bloomsbury Square, on Wednesday, December 6, and all London pharmacists will be welcome. Regarding the proposed entertainment fund, it was agreed that the maximum subscription should be fixed at two guineas for individuals or five guineas for firms. Other matters of detail were left for the consideration of the Executive Committee, which yet remains to be appointed.

The Chemists' Ball for 1900 will be under consideration at a general meeting to be held, by permission of the Council of the Pharmaceutical Society, at 17, Bloomsbury Square, London, on Monday, November 6, at 2.40 p.m. The meeting is summoned by the Hon. Secretary, Mr. William Warren, 24, Russell Street, W.C., who will be glad to hear from any gentleman who is willing to assist the Ball Committee, but is unable to be present at the meeting. The coming Ball, it should be needless to say, will actually be the last of the century, as well as the first of "the nineteen hundreds."

A Suggestion to Lady Pharmacists is submitted by Miss R. Kathleen Spencer, Cadarga, Knowle, Birmingham, who asks if the present winter session does not present a favourable opportunity to all ladies engaged in pharmacy, to form an association which would enable them to cultivate each other's acquaintance, read papers for mutual improvement, discuss matters relative to pharmacy, and from time to time hold social evenings, etc. In fact, she proposes that they should form a similar association to the many excellent pharmaceutical associations which are now in existence. In the event of such an association being formed, it is suggested that it might be desirable (bearing in mind the limited number of ladies engaged in pharmacy) to hold meetings alternately in London and Birmingham, or at any other centre likely to attract a sufficient number of members. Miss Spencer will be pleased to have the opinion of others on this subject, either through the medium of the Journal or by means of private communications.

The Plague at Hongkong provided much work for an old School of Pharmacy student, Mr. Frank Browne, who is now apothecary and analyst at the Government Civil Hospital, Hongkong; and his numerous friends will be pleased to learn that the Sanitary Board for the Colony has expressed its warm thanks to Mr. Browne for the valuable work he performed in carrying out the special cleansing and disinfecting work at Kowloon. Although Hongkong was thoroughly cleansed last year, there has been another severe epidemic more recently, causing the deaths of about fifteen hundred people. Mr. Browne again took charge of the Kowloon district on this occasion and, in sending a report to the Sanitary Board, he has felt it necessary to point out that much more drastic measures will have to be taken in order to free the Colony from the disorder. For this "very able and useful report," he has also been warmly thanked by the Board.

The Poison Regulations adopted by the Pharmaceutical Society are referred to in a note in the *British Medical Journal*, wherein it is stated that, in pursuance of the statutory powers conferred upon it by the Pharmacy Act, 1868, the Pharmaceutical Society at the commencement of this year prescribed, with the consent of the Privy Council, regulations dealing with the keeping and selling of poisons. Replying to a correspondent who writes asking how far, if at all, medical men are bound by the regulations, the editor of the *B.M.J.* observes that it appears to be quite clear that those regulations do not apply to any legally qualified medical practitioners. Since, however, the regulations prescribed by the Pharmaceutical Society are such as appear to experienced men to be necessary for the safe custody and handling of drugs, it is said to be obvious that the members of the medical profession would do well in their own interest to adhere to them.

Grant Allen or, to give him his full name, Charles Grant Blairfindie Allen, was one of the most versatile and talented writers of recent years, and his death at the comparatively early age of fifty-one will come as a great blow to the many thousands of persons who have been charmed by his work as a journalist, a novelist, or a writer on scientific subjects. He was an evolutionist of an extreme type, and carried the conclusions of Darwin, Spencer and other investigators far beyond the limits which contented them. He regarded himself as belonging to that organising class whose want was pointed out by Comte, and has been further noted by Herbert Spencer. The organising student, he pointed out, cannot also himself be a specialist in all the sciences whose results he endeavours to co-ordinate, and he must therefore depend for his data upon the original work of others. Grant Allen, himself, was not a profound scientific man in any direction, but he had a wide knowledge of the general results of scientific progress and speculation, and he had a very happy knack of lucid interpretation and exposition. Somebody dubbed him the "Darwinian St. Paul," because of his remarkable power of expounding and popularising Darwin's teaching to those who could not take it at first hand for themselves. He was an enthusiastic evolutionist in all things psychological, philological, sociological, political, and ethical, and he was specially insistent on the principle of natural selection, which he was wont to say, many professing evolutionists do not believe in and cannot understand.

SHEFFIELD PHARMACEUTICAL SOCIETY.

The annual dinner of the Sheffield Pharmaceutical and Chemical Society was held at the Wharncliffe Hotel, Sheffield, on Thursday October 19, after the new session of the School of Pharmacy had been inaugurated at the rooms of the Literary and Philosophical Society. There were about sixty gentlemen present. Mr. George Squire (President) occupied the chair, and among the company were Dr. Hicks (Principal of the Sheffield University College), Professor Addison, Drs. G. Wilkinson, Hill, and Mackay, Messrs. G. T. W. Newsholme, J. Rymer Young, William Parkin (President of the Literary and Philosophical Society), R. R. Eadon, Reaney (London), J. Austen, J. B. Pater, H. Antcliffe (Secretary), W. B. Tolputt, J. F. Eardley, S. T. Rhoden, W. Ward, A. R. Fox, Drummond, W. Harland, Paramore, C. F. Carr, Dalton, Percy Carr, G. J. R. Parkes, G. Ellinor, J. C. Gibson, C. H. Cocking, and Hands. Letters expressing regret at inability to attend were received from the President of the Pharmaceutical Society of Great Britain (Mr. Wm. Martindale) the Lord Mayor (Ald. W. E. Clegg), Ald. Batty Langley, M.P., Dr. Dyson, and others.

After an excellent meal, the President briefly gave "The Queen," which was enthusiastically honoured.

Mr. A. R. Fox, F.L.S., then proposed

The Pharmaceutical Society of Great Britain.

He said it used to be considered the duty of anyone who proposed that toast to say something in criticism of the policy of the Council, and that criticism was not always altogether favourable. Personally, he did not feel that he could say much in the way of criticism. He had been entirely in accord with what had been done of recent years by the parent Society. Had he brought the last week's issue of the *Pharmaceutical Journal* with him, and read the leading article to them, together with the "Annotations"; that would have made his speech. He had been glad to read in the Journal lately of the action that the Council of the Society had been taking with regard to the new legislation, and more especially with regard to

Company Trading.

They were all aware of the great difficulties that had been placed in the path of pharmacy by the fact that an unfortunate interpretation of the Pharmacy Act enabled company traders to do what it was quite impossible for individuals to do. Chemists had thus been very greatly handicapped in their profession. He certainly thought the Council was taking a right step in attacking the problem of company trading and with respect to the establishment of a compulsory curriculum, which would, of course, lead to a higher standard of education. It had done well, also, in instituting the use of proper regulations for the sale of poisons. Many of them had found great difficulty in carrying out the regulations, but they ought to be carried out, and more thoroughly than at present. Now, if a customer was refused poison at one shop because he had not brought a proper bottle, he could go to another shop and have poisons put into receptacles that were anything but fitted for a scientific dealer in those things to use. These complaints were coming before the Council, and he thought that body should enforce more strictly the regulations it had laid down for the guidance of pharmacists. The time was fast approaching when

A Curriculum Should be Instituted,

and he hoped that in all the large centres of the country the various University Colleges would take up the teaching of the tenets of pharmacy more than they had done hitherto. He was glad that had been done in Sheffield, and trusted the students would take every advantage of the training provided for them. He thought that the restrictions at present in force with respect to dealing in drugs should be extended. He would have a restriction attached to the sale of every article in the Pharmacopœia. If they were to have a technical knowledge of those articles, they certainly ought to have the only right of dealing in them.

Mr. G. T. W. Newsholme (Vice-President of the Pharmaceutical Society), in responding, said the criticisms of the Council which were so frequently heard were made in the best spirit, and were heartily appreciated by the Council. If it were left alone to carry out its own policy, probably it would not be as good as it was at present. The Council was about to propound some scheme for dealing with

The Important Question of Company Trading.

The Law and Parliamentary Committee had been instructed to bring up a scheme. The matter had been an important one for a great number of years, but now it had reached a critical stage on account of the clauses which the Lord Chancellor introduced into the Companies Bill last Session, and it must be dealt with in some way. At present, the Bill referred to was dead, but they had every reason to believe that the matter would come forward in the next Session of Parliament. Without indicating exactly what the policy of the members was, there was one point on which the Council were all agreed, and that was that they were going to stand, as far as they possibly could, by the Pharmacy Acts of 1852 and 1868. They were going to protect to the utmost the position they had gained. Chemists were not prepared to give up the titles which they had earned: titles which not only gave them a recognised position, but at the same time afforded protection to the public. The title of "pharmaceutical chemist" was the trade mark of the individual: it showed that he was to be trusted to carry out certain duties. He was satisfied that their best policy was

To Defend Their Titles

to the utmost. The Lord Chancellor suggested that seven unqualified persons should be able, as a company, to call that ideal personage a pharmaceutical chemist, provided they employed a qualified man. But that would be a most absurd position: it would not give the slightest protection to the public. In the preamble of the Pharmacy Act of 1868 it was expressly laid down as expedient for the safety of the public that chemists should pass examinations and assume certain titles. They had no right to go away from that now. If the Lord Chancellor's suggestions were carried out, the Pharmacy Act would be a useless thing. If a limited company was able, by the aid of a qualified individual, to usurp all the titles and the position of a pharmacist, what was the good of the Pharmacy Act at all? The whole thing would become a dead letter, and chemists had better by far go back to the position they had previous to 1868. Going on to speak of the question of

A Compulsory Curriculum,

Mr. Newsholme said he firmly believed that one ought to be established. As they had no Act of Parliament at present to enforce one, however, the next best thing was the voluntary curriculum, extending over three years, which had been agreed upon by the Sheffield Society and the senate of the University College. The Society had been met in a splendid spirit by the senate, who had been only too glad to fall in with their views. In Manchester, Birmingham, and Nottingham similar arrangements were being made, and he hoped to see the principle adopted by every University College in the country before long, because he was satisfied that until they had such a curriculum they could not deal satisfactorily with the great number of men who came up for examination. At an examination over which he presided in July, there were no fewer than 616 candidates, and only 189—less than one-third—passed. This showed that there was something wrong in the training of the men. For a great number of years it had been recognised that there was something wrong in the primary education, or, rather, in the examination that men were compelled to pass before they could go into business. The Preliminary Examination, hitherto held to be sufficient, was of far too low a character, and after July next year it would come to an end, and they would expect certificates from bodies that took a much higher standard than that examination. That was one way to meet the present difficulty, and another was that all who came up for examination should go through some curriculum, which he thought must eventually be compulsory. After referring briefly to the Benevolent Fund, and expressing his gratification at the liberal manner in which it was supported in Sheffield, Mr. Newsholme spoke of his

Scheme of Local Organisation,

propounded at Bradford in April last. His idea was that the Society should be thoroughly in touch, not only with its own people, but with every member of Parliament in the country. They ought to have at least 120 or 130 more local secretaries than they had at present, and a secretary should be appointed in every Parliamentary division, because questions affecting them—questions of legislation—were continually cropping up. He was glad that there had been a great increase in the membership of the Society since the amendment of the Pharmacy Act was passed last year, giving every man who had passed the Minor Examination the title of member of the Society, but the increase was not as great as it ought to have been. They had before them some very stiff work. "War imminent" was the position in which they were placed. At the opening of the next Parliament they would have to fight, almost for their very existence. They should be thoroughly prepared. It was desirable that they should have at the present time a greater accession of strength than they ever had before. It was sometimes said

that the Council consisted of men who had not the same feelings as those who belonged to the craft generally. He denied that. He and his colleagues had to make their own living, and to contend with the same troubles as the ordinary members of the Society. He appealed for new members, so that they might protect —not their privileges, for they wanted none—but their rights.

Mr. J. Rymer Young (member of the Council of the Pharmaceutical Society) proposed the next toast:—

The Sheffield Pharmaceutical and Chemical Society.

In the course of his remarks he referred to the question of company trading. He said the only point upon which the Council seemed to be unanimous at the present time was with regard to the protection of chemists' titles. That was a very important matter. As to how the Council should approach the thorny subject of company trading by unqualified persons, they had not one policy, but a dozen policies. One section of them would recognise that octopus-like growth, and seek to register it, regulate it, and restrict it. Another section—in which he thought he might include himself—looked upon the whole thing as unfair, unholy, uncanny, and something not to be touched by respectable people. He knew it was necessary upon many occasions to sacrifice principle in the interest of expediency, and that successful legislation was generally based upon judicious compromise. But, though he was not prepared to say at present what the Council might do, he trusted it would have nothing to do with anything which approached official recognition of company trading. If the regulation of companies was to be forced upon them by the Government, he held most strongly that they should wait until they were absolutely compelled to consider the unclean subject, but he hoped the Council would have none of it.

Mr. Squire, President of the Sheffield Society, in responding, said pharmaceutical topics were very quiet at present, but he thought it was only the calm which preceded the storm, and that before long they would enter upon very troublous times. The Council would need all the help that local associations could give, and it was for the local men to band themselves together and help members of Council in their deliberations and in framing clauses for the new Bill which they would have to promote. Above all things, they must not give away their title, and until they were absolutely obliged they must not recognise

Unqualified Company Trading.

Some time ago the Council sent suggestions to the Lord Chancellor, and if they had been passed pharmacy would have been rid of the parasitic growth of unqualified company trading, but they were doomed to disappointment. He thought company trading would always be with them, but unqualified company pharmacy they must try by every means in their power to stop. They might very well leave the matter to the Council in London, in the hope that chemists' interests would be properly cared for. Company pharmacy must not be recognised, and chemists' titles must be protected. If they gave away the title that was given them some years ago by Act of Parliament, where would they be? The Pharmaceutical Society might as well shut its doors. It would mean practically the repeal of the Acts of 1852 and 1868, and that he did not think Parliament would ever do. A company could not undergo individual examination, so why should it have an individual's title? It was important that the members of the Council should know the feelings of their brethren in the country. He was sorry that nothing definite had been done about Mr. Newsholme's scheme of local organisation. In Sheffield something had already been done, and they were waiting for the Council to give effect to the scheme.

Mr. William Ward next proposed the toast of

Sheffield University College

and the Learned Societies. He hailed with gratification and pleasure the arrangement the local society had made with the College. He was quite sure that the curriculum which had been established would meet the requirements of Sheffield students, and urged the students to avail themselves of the splendid opportunities provided for them.

Principal Hicks, in responding, expressed the hope that the connection of the College with the local society would grow stronger. It was a sign of

The Increasing Influence of the College

that the governing body was expected to take up special educational lines and to answer special educational needs. Not only had the Sheffield Pharmaceutical Society joined them, for their students, but the Incorporated Law Society had made arrangements with them to teach their pupils, and other societies in the city had also under consideration the making use of the College for their purposes —in fact, the College existed for the use of the town at large.

Mr. Wm. Parkin also responded.

The other toasts were "The Medical Profession," proposed by Mr. J. F. Eardley, and responded to by Professor Addison; and "The Visitors," given by Mr. J. B. Pater, and acknowledged by Dr. Hill.

During the evening a most enjoyable musical entertainment was given by Messrs. W. C. Newton, L. G. Reynolds, G. A. Shipman, R. C. Honey, T. Woodworth, and G. E. Hardcastle.

DERBY AND DISTRICT CHEMISTS' ASSOCIATION.

The second annual general meeting of this Association was held at Smith's Restaurant, Victoria Street, Derby, on Wednesday, October 18, Mr. Cope, President, occupying the chair. The election of officers resulted as follows:—President, Mr. J. A. Cope; Vice-President, Mr. C. W. Southern (Belper); Hon. Sec. and Treasurer, Mr. H. G. W. Dawson; Committee, Messrs. Hefford, Pembleton, Stevenson, and Warrington, the only change being that Mr. Hefford takes the place of Mr. Readman on the Committee. The Hon. Treasurer's accounts were then presented, and showed a balance in hand to the extent of £2 0s. 3d.

After other business incidental to a general meeting had been disposed of,

The circular from the Pharmaceutical Society respecting the

Election of a Local Secretary

was discussed, and after the President had explained the duties attendant upon the position, Mr. Dawson proposed, and Mr. Stevenson seconded, that Mr. Cope be re-elected. This was unanimously agreed to.

The question as to the desirability of joining the Federation of Local Pharmaceutical Associations next came before the meeting. The proposal received general support, it being thought that the Derby Association itself would benefit greatly, as well as conduce to the well-being of the trade as a whole. The Hon. Secretary was instructed to take the necessary steps towards affiliation.

At the instance of Mr. Hoare, attention was directed to the special

Classes for Pharmaceutical and Medical Students,

held at the Derby Municipal Technical College. General satisfaction was expressed that materia medica, botany, and biology were amongst the subjects now taught, and it was hoped that next year practical pharmacy would be included. The following new member was elected—Mr. W. Elmitt, Osmaston Road. This concluded the business of the evening, the subsequent proceedings taking the form of a social gathering.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

At a special general meeting of this Association, held at the White Bull Hotel, Blackburn, on Tuesday, October 24, Mr. R. Lord Gifford, the Hon. Secretary, read a paper on

Pharmacy in 1868 and 1899.

He said: Circumstances make it desirable to come to a proper appreciation of the relative position of pharmacy on the passing of the Pharmacy Act of 1868 and of to-day, the more especially as my experience proves that the great body of chemists has not been in sympathy with official pharmacy, and that official pharmacy is lamentably ignorant of the every-day requirements of a practice of pharmacy generally suitable to the needs of the people of this country. Pharmacy is defined in most lexicons as "the art or practice of preparing medicines—the trade of an apothecary," *i.e.*, the dealing in medicinal substances. Evolution is defined as "the act or state of unrolling or unfolding." How far applicable this definition of pharmacy was in 1868, and how far it is to-day, is the measure of the evolution or unfolding that has taken place since the passing of the Pharmacy Acts, and it is, incidentally, the measure of the work effected by the Pharmaceutical Council during that period.

Pharmaceutical History Since 1841.

In approaching this subject we must bear in mind pharmaceutical history, especially since the foundation of the Society in 1841.

The Pharmaceutical Society was instituted with this special object: "To benefit the public and elevate the profession of pharmacy." Now history makes it plain that whatever may be said as to its shortcomings, the Council has kept the original intention of the Committee (of which Mr. Joseph Gifford was Chairman) constantly in view from 1841 to the present day. In the light of history this is the simple truth, in spite of the assertion made in an unfair article directed against Mr. Carteighe in a trade paper, miscalled the *Chemist and Druggist*, on May 28, 1892, that "the Council sought protection (before 1868) simply for the business of a chemist and druggist in the compounding of the prescriptions of duly qualified medical practitioners." This statement merely illustrates either the ignorance of the writer or his facility for innuendo and spite against the Pharmaceutical Society; in either case, it exemplifies the difficulties which have beset the Society from its inception in 1841 down to the present time—trade interests, working to keep, as far as possible, free trade in medicinal substances. What was the condition of the drug trade in 1868? I can only give a general idea, based upon statements made to me by men actually in business at that time, and still in full possession of their faculties. Speaking broadly, the people went naturally to the druggist for their drugs and medicinal requirements, boys were apprenticed to a calling, and it was thought the duty of the druggist to see that pupils were made proficient in this calling as practised at that time.

The Chemist before 1868—and Since.

The chemist before 1868 was looked up to much more so than now by the people generally, and he had much greater respect shown him in those days. If this is so, and every man that I know able to speak upon the subject says it is, and it is abundantly confirmed by the investigations of Dr. Attfield in 1883 that the process of degradation was going on (*vide* B.P.C. 'Year-Book' for an address intensely interesting at the present time)—then it follows that pharmacy has degraded simultaneously with its recognition. This fact, if fact it be, is very pertinent to the discussion now taking place on company pharmacy. It is also interesting to trace this decadence, and to probe into its cause. Let us begin with 1868, and we find Dr. Johnson's definition of pharmacy fairly applicable. But examinations were made compulsory, and a register prepared, which is another way of saying that our environment was made artificial. We were taken out of the grip of free trade—that is to say, Act of Parliament exempted us from free trade principles. Presently, and naturally, when restrictions were placed upon the practice of pharmacy, trespassers came, and, unfortunately, were able to trample these restrictions under foot; so much so, that at the present time the Pharmacy Act of 1868 is void and inoperative. As an example of the utter absurdity of the thing, I have a case in mind of a man endeavouring to qualify, buying a business in the market through death. Into this he put a qualified man, and prosecuted his studies. He was fined £10 for keeping open shop and using the title. Now he has on each side of him unqualified persons trading as chemists and druggists, and with no qualified person on the premises in either case. That the pharmacist can still live and thrive does not affect the argument, because it is not out of pharmacy he does so. He has to become, under present conditions, a parasite preying upon the public.

"Nay, they discover, too (their spite is such),
That health, than crowns more valued, costs not much;
Whilst we must shape our conduct by these rules,
To cheat as tradesmen, or to starve as fools."

This is not a mere fancy, but a fact, and many fortunes have been made by pharmacists because they have hit upon a good method of exploiting the public. Other men, again, hit on "good things"—many men have made wealth out of happy trade hits. Some pharmaceutical chemists have found money in "fly stickers," and so on, *ad infinitum*. My point is that from a national standpoint all this is waste and evil. The State needs its pharmacists to live out of pharmacy and to devote his life to the service of the community. If the chemist likes to go into trade, all well and good; it is alleged to be a free country, but for the devotee of pharmacy there should be a function practisable only after duly regulated qualification. Pharmacy after 1868 progressed, and it is reasonable to suppose it would have progressed and developed to this day had we guarded our rights and privileges as we ought to have done.

The Existing Problem.

But we have not done so, hence the position as it is to-day. As to what has been the cause of our apathy, or why our Council has been inactive, it is quite useless to discuss—recriminations concerning other days are waste of time. Men want to know what the problem is to-day, and what the fight is. The medical and legal professions have penal powers, and by means of these only have they been enabled to keep their barrier intact, but our case has become so glaring an anomaly that the Government recognises it, and, through the Lord Chancellor, says it must be remedied. It is natural that if it be possible to exploit a profession, traders will do it, and they have done so with us. They have recognised that the acquisition of a title by personal effort, *ipso facto*, placed chemists and druggists above the ordinary trader, and made his preserves objects of cupidity. This has been ministered to by imperfect or incomplete legislation on the one hand, and by absurd definition and our own apathy on the other. So small a field was given us that traders were able to deal in most drugs. What more natural then than flouting advertisements that "Chemists rob you—deal with us"? It then comes about that they can use the title, and it follows naturally, "We are chemists, but not ordinary chemists. They rob you, and we are philanthropists." Thus has it gone on, with the result that the title and the privileges I earned according to law are practically confiscated—that is to say, the solemn compact, most sacred the country can make, which the State made with me, has been broken; and I say, too, that we are in the right in asking, and insisting, that the State shall keep its word. That the Government shall drive out the trespassers from our land and make the restrictions operative is the merest and the barest justice. I said a short time ago that the Lord Chancellor recognises the anomaly of our position. Much twaddle, in my opinion, has been printed in reference to the Lord Chancellor; but there does not seem to be any difficulty in understanding his position if you take his actions and his statements. First, he expressly states that the idea of personal qualification does not cohere with practice by a company; secondly, he puts the case in such a way as to compel us to settle the nature of our qualification; in point of fact, he asks, Has this qualification to be for ownership or personal control—as it should be in medicine—or is it sufficient that it qualifies the actual seller on anyone's behalf? In other words, does our qualification differ from medical qualification essentially or only in degree? That it differs only in degree and equally shall not be exploited by capital is my contention, and what is infamous conduct in medicine shall not be made proper with us. Yet it is actually proposed, astounding as it seems, by members of our hitherto invertebrate body, to ask the Government to build a fence around the thieves, to allow that thieves have acquired ownership in my property by long possession. Surely the absurdity of this, which is recognised outside the drug trade, will kill it. This must be understood, however, that we insist, and the great body of chemists will insist, on our pound of flesh. We have fulfilled our share of the contract—let the State fulfil its share. In this relation I have been appalled at the shallowness of thought and want of insight into the consequences of doing this or that.

The Original Title to be Reserved.

A valued correspondent writes: "All of us are now agreed that we must insist on the title being reserved to the individual," but he strangely and utterly ignores the most vital point, which is, that we must get the original title, not a counterfeit, an emasculated, empty sound. I ask for the title I earned, and I am not prepared to accept any other. Let us be clear what are the logical consequences of claiming our title. (1) Only the person on the Register can use it. (2) That covering is equal to allowing an outsider to use it. (3) That no company of qualified or unqualified people can use it. (4) That at the present time it limits the operations of companies, as of all unqualified individuals, to substances outside the poisons schedules. There is not much to keep from them—still, a principle is at stake. (5) The "widow's clause" must go. (6) Practising under dead men's names, the worst and most damning fault of the Pharmacy Act of 1868, must cease. Gentlemen, I cannot bring this paper to an end without saying, though it is particularly painful for me to say it (but I conceive it my duty), I am heartily and sorely ashamed of some of our brethren in Scotland. They are actuated by honesty, as we are, that is patent, but for my own comrades to enter the fight with their minds made up that justice cannot be had in these British Isles of ours is too bad. I brand such comrades cowards, and I say, "Clear out, you are a clog. Leave us who have the pluck to do the fighting." Finally, then, what are our conclusions as to Pharmacy in 1868 and 1899? Whilst the examinations were voluntary natural development was taking place in pharmacy, and the people were comparatively properly looked after in the matter of its drug stuffs. The time had come for instituting a profession of pharmacy, and it is solely from adventitious circumstances that the present absurd state exists in 1899. The field of pharmacy is so trampled as to make natural development quite out of question. A pharmacist may develop

into an analyst on the one hand or a trader on the other, but that he can develop into merely an intelligent pharmacist is quite impossible at the present day. Yet the pharmacist is needed, in the interests of the people. The great mass of the nation do not want a "penny in the slot" dispenser. The bane of pharmacy, and, I believe, of medicine, is that we do not appeal openly to the public. We seem ashamed of ourselves, and our methods give them the impression that we desire to exploit them, whereas their and our interests are identical. The public cries aloud for a rational medical practice and a proper distribution of drugs. All our (necessarily futile) efforts are directed to weaving round them a network of protection without consulting them at all in the matter. I think the practice objectionable from every point of view. You tell the man in the street that a man died through taking two, instead of one, headache powders, obtained from the grocer, and he asks quite naturally why unqualified people handle such drugs, and he asks you, too, what it is you qualify for. Tell him again of the death of a woman in fearful agony through taking bitter apple—refused by a chemist, who ekes out a living, by the way, with lamp oil—and obtained from a man who has "chemist and druggist" over his door, though unqualified and having no qualified assistant. He simply cannot believe it. Prove the case, and he stands appalled at such a state of things.

Report of the Committee.

The Secretary then read the report of the general work of the Committee during the past year. Referring to the suggestions for a draft Pharmacy Bill, issued by the Pharmaceutical Council early in the year, the report stated that, given a courageous Pharmaceutical Council, the Committee believed that nothing in the world could withstand such a Bill; it would be so eminently just, straightforward, and desirable from the point of view of the public as to only need insisting upon to become law. It was acknowledged on all hands that the only obstacles to pharmaceutical legislation were sordid and capitalistic, and the Committee could not understand why chemists did not close with the opposition. The Committee was strongly of opinion that if the chemists throughout the country would interest themselves in their own affairs, the future position of the pharmacist would be an assured and honourable one.

The Company Pharmacy Problem.

Mr. W. Wells then moved:—

That companies, not being eligible for examination, cannot obtain qualification or registration and therefore, they must not use the title of Pharmaceutical Chemist, or Chemist and Druggist, and may not retail or dispense scheduled poisons.

He contended that the principle contained in the resolution was the only satisfactory and common-sense solution of the company pharmacy question.

Mr. Lomax (Darwen) seconded the resolution, at the same time expressing regret that such a thing should be necessary to protect chemists' rights and privileges. He contended that all those who refused to support the Pharmaceutical Society in such a cause were just as much traitors as those who acted as "covers" to unqualified companies.

Mr. Holt supported the motion. He said that with regard to the suggestion of compromise, that Association had consistently held that there could be no compromise where a righteous and just principle was at stake. (Hear, hear.) There was no association of chemists in the country which would support the Council more warmly than the N.E.L.C.A., provided it took immediate and energetic action to secure their titles and privileges from piratical infringements.

Mr. Brown (Burnley) also supported the resolution, remarking that no chemist could have any possible misgiving upon the matter.

Councillor Shorrock (Darwen) said they must reckon upon strenuous opposition from the companies, but he thought it could be overcome by vigorous personal propaganda.

The resolution was carried unanimously.

On the motion of Mr. Hindle, seconded by Mr. Openshaw, a vote of thanks was accorded to the retiring committee.

Antimellin.—This is the name given by Boersch to a glucoside isolated from the fruits of *Syzygium jambolanum*, which has proved useful in the treatment of diabetes.—*Oest. Zeits. für Pharm.*, **53**, 576.

LETTERS TO THE EDITOR.

The Company Pharmacy Problem.

Sir,—Permit me to say that the article by "An Ordinary Pharmacist," in last week's issue, expresses my views entirely, and, I believe, those of chemists generally. I would strongly advise our representatives on the Council to move in the direction indicated.

John Averill,
Stafford, October 24, 1899. *Local Secretary.*

Sir,—Your contributor, "An Ordinary Pharmacist," most accurately voices the opinions of fully nine-tenths of the registered chemists of the country. I do not propose to refer to his arguments; we have passed that stage, and conclusions have been definitely formed. I wish to point out, however, that during the last few months, having had more opportunities than most men of learning the views of other chemists, I emphatically say that those views are embodied in the substance of the clause your contributor suggests. There are two points of a positive kind which should be contained in the clause to be suggested for the Companies Bill. First, the restriction of the use of pharmaceutical titles to registered persons—secondly, the placing of companies of unregistered persons on the same footing as individuals in regard to liability for penalties for infringements of the Pharmacy Acts. The protection of titles is indispensable, and chemists accept the statement made at the last Council meeting that there was absolute unanimity on that point. It is equally indispensable that they should advocate the second part of the suggested clause, if only as a protest; neglect to make that claim would amount to concurrence in and acceptance of, the present law as it has been defined. I earnestly hope your correspondent's fear, that it may be proposed, in some way, to recognise unqualified company pharmacy is groundless. That would be suicidal. No one who has any conception of the intensity of feeling on this point would entertain the proposal for a moment. There is a good deal of fighting power, now dormant, which would be called into active life in opposition to the Pharmaceutical Society, and the Society would next year be less than ever the representative body of registered chemists. The mention of the bare possibility of the Council proposing to register, regulate, or in any way to recognise company pharmacy produces a heat in one's blood which can hardly find expression in words. The Council could not—as the trustee of the interests of registered chemists and in face of the fierce, determined, and now organised opposition they would meet with from within the pharmaceutical body—carry such a proposal. I recall the words of "our only orator," "if disestablishment and disendownment are to come they should come from without," and on a previous occasion "that they (the Council) should burn their boats, destroy their bridges and commit themselves to the fight." Every chemist on the Register insists upon and believes in the morality of his claim to the title he has earned and means to fight for it. Chemists also believe in the justice of their claim that all unregistered persons—whether united to form companies or singly as individuals—should be on the same level as regards the provisions of the Pharmacy Acts, and they mean to fight for that too.

John Smith,
Liverpool, October 23, 1899. *Local Secretary.*

Sir,—So much has been written and said on the above subject, that one is somewhat diffident in again trespassing on your space, but the views put forward by "An Ordinary Pharmacist" in your last issue (p. 383) so truly represent the feeling of the majority of pharmacists with whom I have had the pleasure of discussing this question, that I cannot help writing to urge all my brother pharmacists to read carefully what he has said, and to be ready to give effect to the same in every possible way. Whoever the writer may be, his article is the best thing of its kind we have had for a long time. Our organisation throughout the country is better now than at any former period of our history; we have men ready and willing to act in all parts of the country, and if the Council of the Society will adopt the suggestions put forward in the article referred to, I have no doubt that something may be done towards altering the present deplorable state of affairs. Will our Council lead us? We have justice and right on our side; why should we fear? Our right to have our titles protected is indisputable, and there is no reason whatever, that I or other pharmacists can see, why any combination of unqualified persons should be allowed to remain

outside the operation of the Pharmacy Act of 1868. Compromise has been suggested: but we cannot afford to concede anything to persons who are neither by training nor in any other way fitted to fulfil the responsible duties of a pharmacist. As for registration of companies, of such persons that is quite out of the question and I utterly fail to comprehend the frame of mind of any pharmacist who would suggest such a thing. Surely no member of the Council can be so weak-kneed as to give way on that point.

CHARLES THOMPSON,
Birmingham, October 23, 1899. *Local Secretary.*

Sir,—The article in last week's *Pharmaceutical Journal*, by "An Ordinary Pharmacist" very clearly sums up the position against company pharmacy, and clearly puts the issue before us. There must be no compromise. The Act of Parliament is the groundwork upon which a body of men have been trained and educated to discharge certain duties, and when they claim the right to discharge those duties surely "Monopoly" does not express the position! The public when they see the brass-plate "Surgeon" or "Solicitor" know they are dealing with a man qualified to use those titles, so also they have a right to expect that the use of a chemist's registered title implies qualified proprietorship.

B. KEEN,
Bristol, October 24, 1899. *Local Secretary.*

Sir,—I read with much interest the article by "An Ordinary Pharmacist" in the Journal of last week. I agree with him fully, and in saying that I know I express the views of the majority of "ordinary pharmacists" in this district. I would lay special stress on the paragraphs headed "All Compromise to be Avoided," and "The Companies Bill not a Pharmacy Bill." I would also urge the necessity of immediate action on the part of the Council in the direction of a Pharmacy Bill designed to confine to individuals duly registered according to the Pharmacy Acts the use of the titles, and the exercise of the functions of pharmacists.

FRED A. WILLIAMSON,
Preston, October 24, 1899. *Local Secretary.*

Sir,—The subject of Company Pharmacy, like the poor, may be said to be always with us. It has been talked and written about for years, and has become almost threadbare. Most chemists are beginning to think it is high time something was done, and that the Council of the Pharmaceutical Society, at least, had made up its mind how little or how much it was disposed to ask from the British House of Commons. I should like to express my sincere thanks to "An Ordinary Pharmacist" for his excellent article published by you last week. It throws an amount of light upon the question which is really refreshing, and puts the desires and aspirations of most of us in a nutshell, so to speak; it comes as a timely reminder to us not to forget our privileges and vested interests. There is also conveyed a solemn warning to be on the alert, lest by any misfortune we lose or give away any of our hard-earned advantages. He is not alone in thinking he could discern a slight shakiness in some of the members of the Council. But I trust it is only one's fancy, and that it has no real existence in fact. I sincerely hope the Council will stick to its guns, and not give way an inch; we want all the protection we can possibly get. Protection to titles is absolutely essential; so also is the protection against limited companies engaging in the sale of poisons, whether with qualified assistants or not.

"An Ordinary Pharmacist" is quite right in his interpretation of the Pharmacy Acts; they were intended to license the qualified man to conduct the business of a pharmacist personally, and not as the servant of a limited company. His desire to put as little as possible into the Companies Bill is very commendable, and the clause he drafts is excellent in conception. When our wishes are correctly formulated, we should certainly proceed by a new Pharmacy Bill. The whole paper of "An Ordinary Pharmacist" is so excellent that it were only a waste of time to comment upon each paragraph. I repeat, it is high time the Council produced a complete scheme of its own and submitted it to the members of the Society for their approval and ratification. The opinion of the thinking portion of the trade is well known, and is favourable to a Pharmacy Bill in which the chemist will receive the fullest protection to his interests. Half-measures will only disgust and dishearten members of the Society, especially those new members who have mostly joined the Society in the hope of bettering their condition. If something is not attempted on a broad and comprehensive scale many of these new men will be lost to the Society. My final words are these: Let there be no retrogressive movement, but let the Council stand fast and demand our just rights.

WALTER A. GRACE,
Liverpool, October 24, 1899. *Assistant Local Secretary.*

Sir,—I have carefully read the remarks of "An Ordinary Pharmacist" in last week's *Pharmaceutical Journal*, and therein I find that his views express in clear language what all on our Register should strenuously contend for. His proposal not to attempt to overload the Companies Bill with our grievances, and, at no distant date, to bring forward a new Pharmacy Act, is worth serious consideration. Although this world is said to be made up of compromises, compromise of any kind with company pharmacy should be opposed to the utmost. I would have nothing to do with such unfair opposition, but treat them as Pariahs. I even now cannot understand why qualified men allow themselves to act as dogs to blind men, which they do when taking service with companies. It is often said that it would be useless to attack companies because of their vested interests. If that is their only claim for immunity, may I point out the much larger vested interests they attacked when they first started their nefarious practices. Ever since they have taken from the whole community of chemists, not only those in business for themselves, but every man on the Register? There is one thing I should like to see, and that is, our Society and the Irish Society working in unison, for they have but one end in view—the safety of the public and the good of the craft—two things so interwoven that what is best for either is best for both.

Harlesden, N.W., October 24, 1899. J. W. TAPLIN.

Sir,—I have read with interest the article in your last issue on the "Company Pharmacy Problem." It is certainly asking for enough under existing circumstances, but as it is consistent with the idea of the original Act, I feel sure it would receive the support of the rank and file throughout the country.

Plymouth, October 23, 1899. JAMES COCKS.

Sir,—Our thanks are due to "An Ordinary Pharmacist" for his able, lucid, and opportune article upon the much vexed question of "company pharmacy," and to you, sir, for your "Annotations" upon the same. One ventures to hope that they are more or less "inspired" by the Pharmaceutical Society's Council itself; that they foreshadow in some degree the lines which the forthcoming suggested clause to be submitted for insertion in the Companies Bill will go upon. They seem to show me clearly the reasonableness, first, of insisting upon the protection of our titles, and, secondly, of objecting to any proposal for the registration and regulation of "drug stores owned by companies of unqualified persons."

Cambridge, October 25, 1899. E. SAVILLE PECK.

Sir,—I have read with interest and appreciation the article in your issue of the 21st inst. on this subject and I regret that "Ordinary Pharmacist" did not write under or over his name. His common sense is uncommonly well developed and I, for one, would like to know that his level head was among those which grace our Council Board. As to the suggested clause, probably a legal draftsman will want to recast it; but I think we may wisely put it forward as the embodiment of what we want,—let the draping of our figure be done in another place. In our local association we have a watching committee ready to assist by interviewing members of Parliament, etc. When the time for such action I want no better text than the suggested clause.

J. MALTBY CLAGUE.
Newcastle-on-Tyne, October 25, 1899. *Local Secretary.*

Sir,—Allow me to congratulate you on the series of four such eminently readable papers on the existing state of pharmacy as those appearing in last week's issue, a series I may say truly worthy of the denomination you apply to it, viz., Instructive Reading. Whilst not wishing to make any invidious comparison, I would earnestly commend to the notice of chemists generally the article by "An Ordinary Pharmacist" on "The Company Pharmacy Problem," if for no other reason than the bold, straightforward way in which the writer states his views and defines what he considers should be inserted in the Companies Bill. Such articles it may be hoped will have the effect of educating qualified persons to appreciate their

qualification at its correct value, while imparting a little of that necessary "backbone" which seems so lamentably wanting even in many of the younger generation of pharmacists.

HAROLD WYATT, JUN.,
Bootle, October 25, 1899. *Local Secretary.*

Sir,—Approval in its most unqualified form must be given to the article in your last issue by "An Ordinary Pharmacist." To obtain a full amount of sympathy from such a democratic body as Parliament is under our system of all but universal suffrage, we must concentrate and focus our just demands upon the point of greatest urgency. That is no doubt the unjust appropriation of our titles by unregistered persons:—upon that ground we ought to make a most determined stand against the attacks of those who would deny our exclusive right to them. Our position on the ground of common sense and ordinary justice ought to be unassailable, but partly owing to our individual carelessness, and partly to our corporate supineness, we have allowed others to filch that for which we have toiled and worked and to which they have no claim whatsoever. Therefore I venture to think the bulk of all true fellow-craftsmen is with me when I say that our Council ought, nay must, make this demand for absolute and exclusive right to our own titles the very foundation of their attack upon the "Companies Bill." We have an inherent right to them—guaranteed to us by Act of Parliament, but through stress of other matters this right has been too much invaded. It is quite beside the question to introduce a lot of side issues about "trade" and "cutting prices." Although we get our living out of trade, and have to contend with "cutting prices," yet those questions must have no place in our deliberate demands. We hold no position apart from other tradesmen—if we plead our inability to compete with them in the matter of window shows, long-haired prodigies, patent comb manipulators and waxwork shows—and it is to be regretted that so many chemists have descended to such tradesman's tricks, mainly, I believe, at the instigation of those who are the most bitter opponents of our Society, and the most active supporters of inimical journals. No recognition ought to be given to companies of unregistered persons. It is impossible for us to conceive that Parliament originally intended a personal qualification to be assumed by a corporate body, or that the personal qualification was to be concentrated in such a form that one part of unqualified person added to six parts of a cosmopolitan host should make a registered chemist according to law, let alone the fact that nowadays the ideal personage need not have any qualified ingredient at all. The lawyer, the doctor, the dentist are no more entitled to special protection than we are. Yet they are to be protected by the very justice (?) which refuses protection to us. To discuss a Pharmacy Bill, or any other matter which we should so much like to see brought forward in our interests, is not expedient at the present time. Let us by all means promote the main object with a solid front, and bear in mind the tremendous power which will shortly be presented at the next General Election, when our views on other matters connected with our profession can be formulated and explained. True, it has been said that the bulk of M.P.'s themselves are so interested in the numerous stores that their action is already compromised, but—in regard to that point—I venture to assume that the infinitesimal, and, in a large number of cases, the entire absence of dividends lately announced may not be without benefit to us all.

October 24, 1899. ANOTHER ORDINARY PHARMACIST (5/16).

Is Company-Trading Machinery Applicable to Pharmacy?

Sir,—In connection with the various points that are attracting attention on this somewhat difficult subject, there is one aspect that has not received the attention it probably deserves. It has been assumed by some persons to be undesirable to limit in any way the employment of capital, and, in support of that view, reference is made to the great developments that have resulted in many ways for the general welfare of the community by application of the principle of limited liability. It has also been suggested that the business or profession of a chemist and druggist should not be any exception to this general rule. But to those who have expert knowledge on this subject, it is quite clear that in that particular calling, large capital is not of such supreme importance which it may be in many others.

The important qualifications required for the exercise of that calling are knowledge and skill rather than much cash. The business lends itself but little to developments by the mere employment of capital, and the returns of a medium or even large business are so limited that it may be confidently asserted there is no kind of necessity in a business so essentially of a personal character for the employment of capital by the machinery of limited liability companies. And in addition, and more important still, when it is further considered that to allow the principle of limited liability, as applied to the business of a chemist, means that persons having no requisite knowledge of drugs and in particular of various poisons, are by that means enabled to evade the law requiring personal qualification. Hence it must be evident that no case has been made out for allowing any latitude or laxity in the strict interpretation of the Pharmacy Act, 1868, and that so far as regards the safety of the public and the protection of those who are legally qualified to deal in poisons, it is not expedient that capital under the protection of the Limited Liability Acts should be so employed.

October 23, 1899. R. A. R. (5/26).

A Protest.

Sir,—My attention has been directed to an article headed "The Adulteration of Drugs," which appeared in the *Hospital* last week, purporting to reproduce parts of a report by me of the results of analyses of certain belladonna plaisters, and as that report has been published in direct breach of agreement I desire to enter a protest against the use that has been made of it. I do that, moreover, because data contained in the report are suppressed, and, as published, it has been made an apparent basis for statements, contained in the article, which are damaging to the credit of chemists and druggists and, by implication, raise a question as to their honesty and trustworthiness.

13, *Fenchurch Avenue, E.C.* BENJ. H. PAUL.

Phosphorus in Pill Form.

Sir,—During the course of some chemical experiments phosphorous acid was prepared by placing a stick of phosphorus in a test tube having a hole at the bottom, as recommended by Dr. Attfield. The apparatus was placed in a somewhat lofty window, having a south aspect. After a few days it was found that all the phosphorus had melted and passed through the hole of the test-tube into the water contained in the beaker, and there formed small round beads about the size of pills and varying in weight from one to seven grains. These have been found to be very useful to hand to elementary pharmaceutical students who require to weigh small quantities of this dangerous article for making pilula phosphori and other extemporaneous preparations containing free phosphorus. It is equally available for making experimental quantities of phosphoric acid and the official hypophosphites; for, all the student has to do is to select the piece or pieces of the right weight for the operation in hand, and remove with a mounted needle. This is better than cutting the phosphorus with knives, and, indeed, better than all the curious methods (with their attendent dangers) that a long experience recalls. This suggestion is offered to manufacturers and "all whom it may concern," in the hope that others may find the same benefits as have fallen to the writer's lot in this matter. By experiment it was found that the oxidation was so slight as to be almost negligible, and carbon bisulphide dissolved the phosphorus as readily as when in the stick form.

Birmingham, October 23, 1899. F. H. ALCOCK.

Association of Lady Dispensers.

Sir,—I note the query of your correspondent in last week's Journal about a Lady Dispensers' Association. Without wishing to force the Public Dispensers' Association upon lady dispensers, I wish to draw their attention to the fact that our Association is open to all qualified dispensers, irrespective of sex, and they may rest assured of a hearty and courteous welcome at any of our meetings.

G. F. FORSTER, M.P.S.
Hon. Sec., Public Dispensers' Association
London, October 23, 1899.

The So-called Percentage Solutions of the B.P.

Sir,—My statement that solutions of potent drugs containing *x* grains of the medicament in 110 minims of solution are clumsy and unnecessary has been challenged, on the ground that such solutions are desirable because they pave the way for the adoption of the metric system. It is quite true that such solutions are equal in strength to solutions containing *x* grammes in 100 cubic centimetres, but that is only a theoretical advantage, whilst there are good reasons for preferring the present solutions containing *x* grains in 100 minims. It is unlikely that medical men will think and prescribe in terms of the metric system for some time to come, or that they will use the comparatively unknown measure known as the fluid-grain. The adoption of the metric system is a change to be welcomed, but that is no reason why error should be courted in adopting, even temporarily, the form of solution whose strength is expressed as *x* grains in 110 minims. Day by day, among both medical men and pharmacists, calculations are wrongly made through the introduction of solutions of that strength. Take the case of liquor arsenicalis. The B.P. specifies the strength of that solution as 1 gramme in 100 cubic centimetres, which is the same as 1 grain in 100 fluid grains. But the average dispenser or physician, unfamiliar as he is with the fluid-grain, misinterprets the strength as 1 grain in 100 minims. Even if he realises the B.P. statement that 110 minims contain 1 grain he cannot readily calculate the dose of potent drug, and, when that is found, the dose does not correspond with the B.P. dose of the medicament. It scarcely needs pointing out that true percentage solutions are of scientific value only. The B.P. preparations are not percentage solutions, and it would be better for everybody concerned if the term "percentage solution" were entirely abandoned in connection with pharmaceutical preparations. In conclusion, I would point out that the object of making a solution of a drug of definite strength is to obtain the drug in a form that admits of ready administration, and to avoid having solutions of varying strengths in different pharmacies, a distinct source of danger. It is advisable, for the sake of safety, that the official doses of those solutions should contain official doses of the potent drugs. That object is not attained by solutions containing *x* grains in 110 minims. It is attained by means of solutions containing *x* grains in 100 minims. That provides a practical way by which accurate and consistent doses of active ingredients may be administered. Let us for the present adhere to *x* grains in 100 minims and refrain from calling the B.P. preparations percentage solutions.

London, October 25, 1899. F. A. Upsher Smith.

ANSWERS TO QUERIES.

Liquefaction of Hydrogen (C. B. D.—35/17).—See the *Pharmaceutical Journal* for January 28 last, p. 89, June 10, p. 540, and September 16, p. 275, for full particulars.

Daffy's Elixir (W. L. B.—35/3).—The following is the formula given in Gray's 'Supplement':—Senna, 6 oz. troy; jalap, sliced; aniseed, caraway seed, of each 1¼ oz. troy; juniper berries, 2½ oz. troy; proof spirit, 6 pints. Macerate for fourteen days, then add treacle, 10½ oz. troy; water, 17 oz. troy; mix and strain.

Brine Vats for Pickling (T. C. C.—35/15).—Metals of all kinds should be avoided; well-made slate or wooden vats are far preferable in every way. The least objectionable metal would be well enamelled iron, but that would possess no advantage over slate or wood. Certainly lead is most objectionable for the purpose, and should on no account be used.

Lime Juice and Glycerin (T. S.—35/4).—Yolk of one egg; glycerin, 2 fl. oz.; tincture of quillaia, 2 fl. drms.; oil of sweet almonds, 2 fl. oz.; lime juice, 1 fl. oz.; oil of limes, 20 minims; distilled water to 8 fl. oz. Rub down the yolk of egg with the glycerin, add the quillaia; then slowly incorporate the oil and the perfume; then mix in the lime juice, and finally add enough water to make up to 8 fl. oz.

Photography in an Asylum (S. H. L.—35/1).—(1) The most useful form of camera would be the parallel bellows portable pattern, with long extension. A studio camera would be found cumbersome, and taper bellows should be avoided. If funds will allow, we should recommend the Dallmeyer Stigmatic lens, series I.; but if there is a fair amount of light the No. II. series would probably be sufficiently rapid and less than half the price. Whatever lens be chosen, the focus should be at least one and a-half times the length of longer side of the plate used. (2) All plates are so good nowadays that the choice is almost entirely a matter of personal fancy. Extremely rapid plates should only be used when absolutely necessary. A medium plate will be found to give the best average of results. (3) We do not know of any text-book which treats fully of these matters. A photographer who has been used to the class of work referred to could give more valuable information in half an hour than that contained in all the text-books put together.

Examination of Silk Fabrics (W.E.—35/14).—You will find an excellent *résumé* of all the more recent methods of silk analysis in Allen's 'Commercial Organic Analysis' Vol. 4, pp. 499 to 527. From that source we abstract the following two methods, which will probably suit your purpose. To determine the total proportion of foreign matter, a known quantity of the silk, previously dried at 110° C., is weighed off and boiled for an hour with a 2 per cent. solution of sodium hydroxide, then with diluted hydrochloric acid (2·5 per cent. of commercial acid). This treatment is repeated four times, washing the material after each bath. The silk is then dried at 110°C. For a more extended examination, the following method is employed by Von Remont:—Four quantities, A, B, C, D, each of 2 Gms. of the air dried material are weighed out. One of those, A, is kept, the other three are boiled for fifteen minutes in 200 C.c. of water, containing 3 per cent, of hydrochloric acid. The liquid is decanted, the boiling repeated with more dilute acid, the pieces are then washed free from acid and B laid aside. To remove the silk, C and D are placed for two minutes in a boiling solution of basic zinc chloride (prepared by dissolving 100 Gms. of zinc chloride in 85 C.c. of hot water, and adding 4 Gms. of zinc oxide, heating until solution is complete). They are then thrown into water and washed, first with water acidulated with 1 per cent. of hydrochloric acid, and then with pure water, until free from zinc. C is then pressed and set aside. D is next boiled gently for 15 minutes with 60 to 80 C.c. of sodium hydroxide solution, s.g. 1·02, then washed very carefully in water. The four portions, A, B, C, and D, are then dried for an hour at 100° C., and left until the following day freely exposed to the air so that they may absorb the normal amount of hygroscopic moisture; they are then weighed. The weights of A − B = dye and finish, b − c = silk, c − d = wool, d = vegetable fibre. For further specific cases you cannot do better than consult the above quoted text-book.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Branch, Breeze, Brown, Crawhall, Dawson, Delves, Dent, Dunkerton, Emary, Enke, Ennever, Evans, Ferrall, Gair, Gill, Howes, Jackson, Judge, Marshall, Nicolson, Oldham, Padwick, Rowell, Ruff, Shanks, Smart, Wallis, Whineray.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

STAINING TUBERCLE BACILLI.

An aniline colour, Sudan III., is recommended by Dorset as a stain for the tubercle bacillus (*Journ. Amer. Public Health Assoc.*, xxiv., 1898, p. 157). Cover-glass preparations of sputum, etc., are stained for 5-10 minutes in a saturated solution of the dye in 80 per cent. alcohol and are then washed in 70 per cent. alcohol for five minutes, the solution being changed several times. The bacilli so stained are not decolorised by treatment with 1 : 25 sulphuric, hydrochloric or nitric acids for two minutes. Tissues are similarly treated, and may be counter-stained with methylene blue. Dorset claims that the Smegma and other similar bacilli are not stained by this method.

FILAMENTOUS BACILLI.

Thread and branching forms have been described in cultures of the tubercle and of the diphtheria bacillus, and Valerio finds that the same occurs with the glanders bacillus. Especially in peptone broth, filamentous forms occur with true and with false branchings, and often terminated by club-shaped expansions.—*Centr. f. Bak.*, xxvi., p. 177.

SUCCINIC ACID IN TUBERCULIN.

Viquerat states that the new tuberculins TO and TR do not contain any proteid, but that a substance having all the characters of succinic acid is present, and to this the activity of the tuberculin is due.—*Centr. f. Bak.*, xxvi., p. 293.

SUPER-COOLING OF PHOSPHORUS.

E. G. Bryant points out that the super-cooling of water is a well-known phenomenon, but it is somewhat difficult to show as a lecture experiment, as a good deal of preparation is required. The supercooling of liquid phosphorus, on the other hand, is exceedingly simple to demonstrate. If a piece of phosphorus be melted under a strong solution of caustic soda or potash, as in the preparation of phosphoretted hydrogen, it will apparently remain liquid for an indefinite time; at any rate, it has been kept some four days in that condition. Its temperature can be taken roughly by immersing a thermometer bulb in it, and it will bear moderate shaking or motion without becoming solid. If violently shaken it solidifies suddenly; also if an attempt is made to pour it out of the vessel. Of course, the body of solution in which it is placed prevents any noticeable rise of temperature on solidification when dealing with only a small quantity of phosphorus. The author imagines that chemical action has largely to do with the retention of the liquid condition, bubbles of phosphoretted hydrogen being given off continually, even at temperatures of 8° or 9° C. Still, whatever be the causes, the fact remains that phosphorus can be obtained and kept in a liquid state at such a temperature.—*Chem. News*, **80**, 183.

SUBSTITUTE FOR POULTICES.

M. J. Wilbert suggests the following formula for a substitute for poultices:—Kaolin, 1,000; glycerin, 1,000; boric acid, 100; oils of peppermint and wintergreen, each 1; oil of eucalyptus, 2. The kaolin is passed through a No. 60 sieve to free it from impurities, and heated to 100° C. for an hour or more to sterilise it; then add the glycerin and continue the heat for thirty or forty minutes, stirring the mass occasionally with a spatula, until a smooth, creamy mass is obtained. Remove the source of heat, and, when the mass is nearly cool, add the boric acid and the oils; mix thoroughly, and preserve in tin or glass boxes, which are sufficiently tight to prevent the absorption of moisture from the atmosphere. Similar preparations have been sold in America under the names "Antiphlogistine" and "Antithermaline."—*Am. Journ. Pharm.*, **71**, 478.

WILD CHERRY BARK.

A. B. Stevens gives the results of analyses which indicate that the bark of *Prunus serotina* deteriorates with age. He finds that the bark is best preserved in glass or other air-tight retainers, and suggests that only whole fresh bark should be used in the manufacture of galenical preparations. He proposes now to study the keeping properties of the various preparations of the bark, as compared with the bark itself.—*Pharm. Review*, **17**, 445.

BROWN RUST OF CEREALS.

J. Eriksson gives the results of an examination, extending over many years, of the parasitic fungus which causes the brown rust of cereal crops, *Puccinia rubigo-vera*. He proposes to split it up into six species, one only of which is at present known in the æcidioform stage, viz.:—(1) *Puccinia dispersa* (*Æcidium anchusæ* on *Anchusa arvensis* and *A. officinalis*), *Uredo dispersa* on *Secale cereale* and *S. montanum*; (2) *P. triticina*, n. sp., on *Triticum compactum*, *dicoccum*, *spelta*, and *vulgare*; (3) *P. bromina*, n. sp., on many species of *Bromus*; (4) *P. agropyrina*, n. sp., on *Triticum repens*; (5) *P. holcina*, n. sp., on *Holcus lanatus* and *H. mollis*; (6) *P. triseti*, n. sp., on *Trisetum flavescens*. Of these six species the first and second only are of great importance in agriculture, the first being very destructive to rye, and the second to wheat, in Europe, the United States, and Australia.—*Ann. Sci. Nat. Bot.*, **9**, 1899, p. 241.

YELLOW PIGMENT OF LEAVES.

In all crude alcoholic extracts of green leaves, C. A. Schunck finds two yellow colouring matters accompanying the chlorophyll, viz. chrysophyll and xanthophyll, using the latter term in a somewhat restricted sense. It is the predominant substance, and is identical with the principal yellow colouring matter in faded autumn leaves. Other yellow colouring matters may also be present, Chrysophyll and xanthophyll each gives a characteristic absorption spectrum in the violet and ultra-violet regions, the former consisting of three bands, the latter of four. Chlorophyll itself also gives three characteristic bands in the violet. Phyllocyanin and phylloxanthin have bands in identical positions with these three chlorophyll bands.—*Proceedings Royal Society*, **65**, 1899, p. 177.

ACTION OF ROOTS ON GRANITE.

According to F. Sestini, the roots of many plants, especially those of certain Gramineæ and Leguminosæ, have a powerful decomposing effect on felspar, assimilating the alkaline bases and all the ingredients which serve for the nutriment of the plant, leaving behind hydrated aluminium silicate. A similar part is also probably played by the microbes in the soil.—*Atti. Soc. Tosc. Sci. Nat.*, **11**, 1899, p. 138.

FASCIATION OF PLANT STEMS.

Herr E. Küster has investigated the anatomical changes which take place in the fasciation of stems in woody plants, and especially in the fig, beech, oak, plane, and ivy. The growth of the cambium is retarded by pressure; and in *Ficus* this is accompanied by increased activity of growth, and of cell-division in the primary cortex. In *Ficus stipularis* the parenchyma of the medullary rays becomes lignified. Portions of cambium always become enclosed in the cortex and bark. In *Hedera* closed cambium rings are sometimes formed round these enclosures.—*Pringsheim's Jahrb. f. wiss. Bot.*, **33**, 1899, p. 487.

THE STUDENTS' TRAINING—PAST AND PRESENT.*

BY JOHN SPILLER, F.I.C., F.C.S.

When a fortnight ago your esteemed Profes or of Chemistry, backed by my old friend Dr. B. H. Paul, preferred a request that I should give you something in the shape of an inaugural address, I hesitated at first on the score that my knowledge was not of the newest, not feeling sufficiently in touch with the latest developments of modern chemical research; but, on the other hand, to refuse on this ground, and decline to give you, in brief, the results and conclusions of fifty years' experience in chemical laboratories, was equally unsatisfactory, especially in view of the fact that I have been the recipient of past favours from the Pharmaceutical Society of Great Britain, as represented by many of those whose names are recorded in the brightest pages of its official history, down to the honoured President of to-day. I take it for granted that you will need no further introduction, or demand from me an apology for making an attempt to interest you as members of the School of Pharmacy Students' Association in matters relating, partly, at least, to a bygone period, and compare our former aspirations with the greater advantages and realisations of the present time.

Going back to the year 1848, when I entered the Royal College of Chemistry as the youngest student, Gregory's 'Inorganic Chemistry' and the 'Giessen Outlines of Analysis' were the standard books which every student was expected to provide. A few of us possessed Fownes's delightful little volume, and later on we all worked from Fresenius's 'Quantitative Analysis.' Our work was supervised by Dr. A. W. Hofmann, the most enthusiastic of bygone professors, whose twenty years' residence in this country, successful teaching, and fertility of research, constituted a quite remarkable scientific epoch. All his students revere his memory, the Chemical Society never had a better president, and although our professor had to lecture and address us in what to him was a foreign language, his rich vocabulary and happy choice of words often amounted to oratory, so that he succeeded in investing almost every subject treated of with an extraordinary halo of interest. It was my good fortune to remain for five years under such tuition, and during two full lecture courses to act as Hofmann's assistant. The staff was a strong one, including Messrs. Abel, Bloxam, and David Price, with Nicholson and Brazier in the private (research) laboratory. It was Hofmann's practice to visit each pupil for a few minutes every working day, so there could be no wasted time or difficulties long left unsurmounted. Our professor was known to have had a preliminary legal training, and perhaps to this circumstance much of his success was due. Bearing all these facts in mind, I counsel you, then, to study so much of the elocutionary art as is needful to make your meaning clear and style attractive. If you aspire to be a science lecturer and successful teacher this is very important. In the present day there is a great demand for really efficient technical lecturers, and those are preferred who appear to possess in highest degree the power of interesting an audience and sympathising with their pupils. Many learned men have failed in this particular; they may have had the knowledge, but not the gift of imparting their information to others.

Looking back to the period just now under review, one remembers in association the grand names of Faraday, Hofmann, Huxley, and Tyndall—an ever-famous quartette, although we have good lecturers in the present day.

Shortly after I left the R.C.C. (in 1853), and accepted Dr. Percy"s invitation to come into his metallurgical laboratory at the School of Mines, and work on the 'Iron Ores of Great Britain' with Allan Dick and Edward Riley,† a coalescence was brought about which resulted in the union of the Oxford Street and Jermyn Street establishments under Government control; for Lyon Playfair was giving up his chemistry lectureship, to which A. W. Hofmann succeeded. All went well until Sir Roderick Murchison sniffed the chemical fumes, and then the savoury department was once more banished to Oxford Street, but this time into the newer (rebuilt) theatre, where Herbert McLeod began his successful career as lecture assistant, and helped to bring to perfection the elaborate system of experimental illustration afterwards published in Hofmann's 'Modern Chemistry,' 1865.

But before I leave this part of the subject let me put on record that the fees charged at the R.C.C. were £15 per term of five months, and there were only two terms per annum, so that the cost was £30 a year. This covered for lectures and practical work in the laboratory, but did not include apparatus.

Several courses were given from 1852, onwards, at Jermyn Street Museum by each of the professors in turn, at merely nominal fees, and were eminently successful. Of course, they were early attempts to inculcate the principles of technical instruction, but without opportunity of practical working; more thorough, perhaps, but of the same character as those given formerly at the Mechanics' Institutions.

I come now to a serious defect in our College syllabus at those early times. It was that of dissociating the study of chemistry and physics. We were taught only a few leading facts, such as specific gravities, the pressure of air sustaining a column of water or mercury, Mariotte's law of gaseous volume, the Torricellian vacuum, expansion by heat, and liquefaction by pressure of certain gases. In my time, as custodian of the College apparatus, I had charge of a very small collection of scientific instruments applicable to the teaching of physics. There were a few voltaic battery cells, a frictional machine, Leyden jar and eudiometer, an air pump and Magdeburg hemispheres, a compression cylinder, the ring and ball arrangement and pyrometer for showing the expansion of metals by heat, a few thermometers, hydrometers, and a box of specific gravity beads. Some of us were adepts at electrotyping, and possessed our own appliances. Crookes, Maxwell Lyte, and myself were ardent photographers, but all such hobbies were outside the laboratory course, and had to be done at home. Fownes's introductory pages, about one hundred devoted to physics, were carefully read, but we had no demonstrations, or only the scanty few already mentioned. Hence it was to some of us a great boon that we were permitted to attend here for a short course of six evening lectures on "Magnetism and Electricity," given by the late Dr. Theophilus Redwood, and admirably illustrated. I cannot now remember whether any fee was paid, but I believe not; nothing beyond recording our grateful thanks to the Pharmaceutical Society and its amiable lecturer, who was always on very good terms with our own professor.

Now-a-days the study of elementary physics and chemistry go hand in hand, for we have to use the polariscope in sugar determinations quite as often as the purely chemical tests. The tintometer is also a well-recognised instrument for matching colours and keeping to standard shades. Electrolysis is now often resorted to in the quantitative deposition of metals; dialysis performs a useful function amongst the class of bodies to which you give your attention, and we all know the practical use of the spectroscope in steel making. Who could have guessed that an alloy of potassium and sodium would remain permanently liquid like mercury, and be used in a similar way for filling thermometers? I remember Schrötter coming over from Vienna to show us how to prepare the red modification of phosphorus; now Bryant and May use it by the ton. The differences are only physical, but important, like coke and the diamond. During the last half-century a band of scientific educationalists have been hammering away to secure the recognition of science teaching in public schools. Eton, Harrow, and Rugby were slow to begin, although the City of London had

* Address delivered at the opening of the School of Pharmacy Students' Association, on October 27, 1899.

† Published in 'Memoirs of the Geological Survey,' and reproduced in Watts's 'Dictionary of Chemistry'

shown the way as early as 1847. Some fifty Fellows of the Chemical Society and nine of the Royal Society received their first scientific instruction at the school under the late Thomas Hall, B.A., F.C.S. Amongst others, Dr. Divers, Sir Wm. Huggins, Professors Kennedy, Pedler, W. H. Perkin, sen. and jun., Sir John Seeley, Professors Sollas and W. C. Unwin. Perhaps none of these might have been won over to science but for the happy circumstance of their being brought under the influence of Mr. Hall at the City of London School. Now every school has is laboratory, and elementary science classes are held even in remote country districts, the operation of the Technical Instruction Acts conducing to this end, and offering financial aid, the Department of Science and Art likewise giving encouragement of a similar character.

In the march of progress Huxley led the van, for we see in his 'Lay Sermons' and multitudinous writings continual references to the advantages and mode of presenting the leading facts and principles of science to school boys and girls. His Chapter IV. "On Scientific Education" is a veritable golden legend, and be sure and read the footnote relative to medical education, quoting the speech of Mr. Quain, the President of the Royal College of Surgeons.

Dr. John Hall Gladstone, some time member of the London School Board, is another doughty champion of the same fraternity. We spent a most delightful morning at Dover on Monday, 18th ult., receiving and discussing the British Association Report on "The Teaching of Science in Elementary Schools." It promised well, for here are the names of the Committee:—Dr. Gladstone (chairman), Professor H. E. Armstrong (secretary), Professor W. Ramsay Dunstan, Mr. Geo. Gladstone, Sir John Lubbock, Sir Philip Magnus, Sir Henry Roscoe, Professor A. Smithells, and Professor Silvanus Thompson. We were told that, according to the Education Department's reports for 1897-8, 24,000 centres in England and Wales had adopted "Object Lessons and Elementary Science," and that the London School Board, in their Evening Continuation Schools, had considerably over 20,000 scholars taking these subjects. This, in turn, threw great responsibility upon the teachers, so that we now find special classes instituted for their training at several of the London Polytechnics. We must be careful not to overdo it, but it is surely desirable to give children some idea of the nature of air, water, and common objects around them. At any rate, Huxley and Quain's objections are met, and what with the gigantic technical advances of late years no one of the rising generation ought to come to Bloomsbury Square without a fairly good preparation for the special course of study you propose to give him here.

Chemists of to-day find the area of study so immensely large and constantly increasing, without even the superadded effort of keeping abreast of the progress in physics, that the majority of us, if not all, have to be content with a general survey, and allocate to ourselves the duty of following closely some few particular directions of study in which we endeavour to make ourselves proficient. Many of us are specialists, and only consulted as such. We have our brewers' chemists, sugar experts, food and water analysts, toxicologists, assayers, textile colourists, chemical engineers, and the hundred and one representatives of certain well-defined departments, which a glance at the printed list of members of the Society of Chemical Industry will enlighten you upon. As I have said before, it is not possible for one poor mortal to make himself master of all branches; the work must be subdivided, and practically it is so to a large extent in the present day. I imagine that pharmacy is getting pretty wide, so many new therapeutic agents being constantly introduced, but your range is probably more limited than that of the general chemist. We can only strive to do our best, seek help when we want it, and, therefore, must keep on good terms with the whole profession. One step towards this is to cultivate and deserve the friendships formed here in your early days, and be ready to sympathise with other scientific men, whose work does not happen to run exactly in your own groove. I trust your Students' Association is founded for this very purpose, each contributing from his own special store of knowledge to enrich the experience of others, and in this way many a good thing is best done when you have the opportunity of comparing notes with your fellows as you go along.

How I envy you the long and useful career that we devoutly wish stands in front of every one of you—to begin where I leave off, and take advantage of all the refinements and conveniences of modern times. Rare metals and products brought within your grasp, cheap nickel and aluminium; uranium, lithium, and thallium accessible; silver at half-price; liquid air for freezing; an electric current is wanted—you take it off the house main just as easily as you get your supply of gas, but for electrolytic purposes see that it is not an alternating current. You will be working with X rays to help the surgeon and solve many a mystery. Your drugs and tinctures will be of the right strength. Always do your own analyses, and be ready to stand by the results. Lose no opportunity of seeing over a factory whenever you get the chance, and be sure and visit the foreign laboratories, museums, and botanical gardens when you go abroad. Acquire some little proficiency in glass-blowing, for we often work now with sealed joints. These are just a few hints that occur to me to offer by way of conclusion, and I suppose the student who has no research of his own to report will do as we did, and find somebody else's novelty to describe, and, if possible, submit samples.

One other thought occurs to me. Are any of you intent upon competing for the Actonian Prize in 1900? One hundred guineas was awarded to Professor Fownes in 1844 for his essay, and the septennial period will very shortly be coming round again.

ETHICS AS APPLIED TO THE PRACTICE OF PHARMACY.*

BY J. C. HYSLOP.

The agreeable task that devolves upon me now of asking your attention for a short time to the subject of Ethics as applied to the vocation we have chosen for our life's work, demands that I present to you in as terse and succinct a form as possible:—First, some historical introduction; secondly, some *résumé* of Ethics in general; thirdly, some of the most prominent cases in which we have to fall back upon the teachings of Ethics for guidance in the practice of pharmacy.

Historical Introduction.

About 400 years before the commencement of the Christian Era there lived at Athens Plato and Aristotle, two of the profoundest thinkers and most indefatigable workers of any country or time.

Plato—the instructor of Aristotle—was an idealist; Aristotle, his pupil, became a realist.

To put one on the straight road of becoming wiser than his instructor, is the aim and effort of all good tuition, and hence it is no disparagement to Plato's memory to say that Aristotle became in many respects the greater personality. Indeed, by a closer inspection than we have time to give now, there would be found in the lives and teachings of these two men an exemplification of another broad, general truth, namely, that excellence of ideal precedes, naturally, excellence of workmanship. Plato built all his castles in the air; Aristotle supplied foundations to the same, and added all necessary filling in of the splendid outlines.

The voluminous writings of Aristotle are divisible into two groups of subjects: the first (in order of time) consists of dissertations on almost every conceivable subject relative to the outward nature of things. These are termed in the Greek *τά φυσικά*, things belonging to outward nature, hence our own word "physics." The second group is an attempt to grapple in the like exhaustive manner with those inquiries which lie beyond the limit of human experience, such as the nature of the Supreme Being and the mysteries of existence itself; and also of mental and of moral science.

* Read before the Chemists' Assistants' Association, on October 26, 1899.

All these of the second group were termed *τά μετά φυσικά*, things that follow the physics for the simple reason that they were written last in order of time, from which we get our own word "metaphysics."

Now of these metaphysical writings, the one portion—those relating to the mysteries of existence and the nature of the Deity—have been totally eclipsed by the brighter and clearer light which it was the mission of the adorable founder of Christianity to bring into the world. Those who would still cling to the old notions, good and helpful as they had been in preparing men's minds for fuller light—the greatest of the Apostles does not hesitate to brand with the error of introducing oppositions of science falsely so called! The very term metaphysics is rapidly passing out of use except in a sarcastic or deprecatory sense.

But the case is widely different as respects the latter part of these truly wonderful productions.

"Man know thyself, presume not God to scan,
The proper study of mankind is man."

Our poet's idea is well illustrated by the absolute persistence—a survival of the best—of those divisions of the Metaphysics of Aristotle in which man's attention is directed to the mental and moral laws he finds written within himself, by which he himself must regulate himself, and be punished or rewarded as the case demands. These interesting researches have been resumed from time to time by some of the highest intellects and the most exemplary scholars with a progressive evolution of quite as satisfactory a result as can be claimed on behalf of any branch of human knowledge; and to-day the twin subjects—Psychology, the science of mind, and Ethics, the science of duty—are well recognised as lying within the scope of a liberal education.

Some of the Elements of Ethics.

This word Ethics is compounded of the Greek substantive *ἔθος*, custom; and that much-resounding verb—a great favourite with every student of the language because of the scores of cognate meanings it gives rise to—*τίθημι*, to place, ordain, fix, settle etc.

The aim of Ethics is to investigate and determine upon that branch of the laws of man's moral economy which relate to his duty as a responsible creature, and as a member of civilised society.

The Latin equivalent of *ἔθος* is Mos, moris; whence "moralis," and our own "moral" and "morals." "Mos" is derived from the old Latin verb "meo," akin to Sanscrit root "MA," which equals metire, to measure, with the accessory notion of one's way; used of an army—to be on the march, and also of inanimate things that proceed in an ordinary manner: so in Ovid—

"quo sidera lege mearent."

In Asia Minor they say there is a river, the Meander, named from this same root because of its intricate windings and peaceful career, and hence come our own two beautifully poetic words—"meander" and "meandering."

For the pharmacist life is, however, as it is with every active and useful career, not a meandering down quietly from its source to the grand ocean of eternity with scarce a struggle or a storm; but it is a call "to cope with enemies, and first points out a conflict with oneself the worst." As the course of Time proceeds, this struggle is not lessened, but rather intensified, and whatever our calling in life, unless we face the facts of our existence with candour and thorough earnestness, we have no right nor reason to expect anything but ignominious defeat at last.

There is a sophism current, and thus it runs:—"Man's first duty is to himself." There is no logic, no reason, whatever in such an expression. "Duty" means "debt"; a debt that is lawfully due to another, or to others. "As a vital spark of heavenly flame" man's first duty is to his Maker and Preserver, to investigate and fix those duties and the laws that regulate them is the province of religion. But man has duties with respect to those around him, on the due performance of which much of his own happiness depends. These, it is the province of Ethics to investigate, to trace to their source, if possible; to discover the laws of their evolution or development; to classify them as to their relative importance; and to enforce their due observance by appeals to man's own reason and judgment. There have been fierce contentions in every age as to the fundamentals of Ethics, as there have been also as to those of religion. These contentions have prevented many men from slumbering away their days without some regard for such important matters; that seems the main good they have done. On the other hand they have furnished an excuse for those drowsy heads who dislike action, and wish to sleep away life's little day; and so the balance seems to remain about as it was.

Ethical teachers have for ages been divided into the two opposite camps—the inductive and the experimental systems. In our own times these are best known as the "intuitive" and the "utilitarian" schools of thought. It is all a question of the criterion by which good and bad is to be determined. The results seem to come to about the same in either case. Accordingly, the popularity of these two systems has varied much with the efflux of time. Latterly the public taste has certainly been in favour of the experimental or utilitarian school, which teaches that man should make his own happiness the rule of his life, and the promotion of the greatest happiness for the greatest number the criterion of his duty. There are signs, however, that the intuitive system is again coming into vogue. It is comprised in the two following propositions:—

First, that our will is not governed exclusively by the law of pleasure and pain, but also by the law of duty, which we feel to be distinct from the former, and to carry with it the sense of obligation.

Secondly, that the basis of our conception of duty is an intuitive perception, that among the various feelings, tendencies, and impulses that constitute our emotional being there are some which are essentially good, and ought to be encouraged, and some which are essentially bad and ought to be repressed.

In support of this view we contend that it is a psychological fact that we are intuitively conscious that our benevolent affections are superior to our malevolent ones, truth to falsehood, justice to injustice, gratitude to ingratitude, chastity to sensuality; and that in all ages and countries the path of virtue has been towards the higher and not towards the lower feelings.

We cannot afford time to pursue the arguments for and against these rival theories now, but must finish this division of our subject with the remark that as to the systems of Ethics, as with the kindred and more lofty subject of religion, all who have heartily sought for truth in these regions have found it; all have been right in most of their contentions; all have been wrong in some few of their conclusions. Each succeeding generation is better equipped than the former one for settling the points of greatest importance, and it is those who are attracted to the consideration of these lofty truths by the fact that the best and noblest minds have through all ages sought to unveil them—not those who read to doubt or read to scorn—that finish their course here most happily and well.

Ethics Applied to Pharmacy Practice.

Our duties as pharmacists may be arranged under these three heads:—First, our duties to the public—*i.e.*, our customers; second, our duties to the medical man; third, out duties to our schoolmates.

The very foundation of our business consists in due performance of our duties to the public. Forgetfulness of this fact lies at the root of most failures; attention to it, and a diligent behaviour accordingly must, and always does, ensure success.

This attention to the public interest keeps a man always on the *qui vive*. You can scarcely conceive an occupation where so

much variety of minutiæ is so constantly turning up, and the pharmacist must be prepared for it all.

The aggregate of this demand—this heavy demand at first it is—varies with the locality where his services are rendered, and goes on to multiply indefinitely and most prolifically with each day's business, the serious part of the matter being that very often a man's courage begins to fail. He has not something that his neighbour requires, or he has half a dozen customers walk in for small quantities of as many different articles that ought to be ready to hand to each at once. These he has to weigh up for them in a nervous state, feeling that for once all eyes are upon him, and that although the business of his neighbourhood is improving he himself is losing ground.

This man has not attended to the *morale* of his business. A fruitful source of failure this. First he fails in the proper conception of the ideal of his own intentions, and as a consequence they soon say of him, "This man began to build, but was not able to finish." He may lay the blame upon his assistant, as the man who is mean enough will—Adam like—lay the blame upon his wife. Or he lays it sometimes upon the Pharmaceutical Society. Poor fellow, his case must be worse than that of Job, for he commits the very sin that Job would have committed had he followed his wife's advice. Whilst all the time this man's failure is due, from the first, to the incomplete idea he possessed of his own position as a public servant—of rank and importance—followed necessarily by those inattentive, slovenly habits which have at length irreparably lowered the *morale* of his own business establishment.

Wherever a pharmacist is in business, he must, in order to gain general success, keep an efficient store of drugs and chemicals, methodically arranged, ready at a moment's notice, day and night. And, so far as his petty retail trade is concerned, which, properly managed, proves often the broad, safe basis of downright success, everything in daily request should be as neatly wrapped as possible, and well stocked, ready for handing over to the purchaser in an instant. An employer is ever ready to blame his assistant for neglecting these matters, whilst in nine cases out of ten he himself has never set the good example that he wants another to adopt. That same assistant, as soon as he goes into business, gets an assistant, and makes a scape-goat of him in turn. Want of discipline of this sort brings nothing but failure in its train. Most of those who advertise often for assistants really need managers. Neither they nor their so-called assistants ever took a love for pharmacy for its own sake. Each seems to think that in life's business it is very clever to give little and take much. Hence a constant changing and constant irritation where there is so much need of a reasonable, patient performance, and a constant placidity of disposition.

The truth is that both employer and employed are groaning beneath the punishments that always accompany and follow duties neglected. Our profession, "Habenda ratio valetudinis," cannot be ignored with impunity.

There is a certain breach of duty, the punishment for which lies heavy upon the trade of the chemist and druggist; one which I might almost say is a chronic curse that he inherits from his ancestors, who used to cater for the dirty sensuality of the last century, which greed of gain permits him not to shake off even in these days of vaunted refinement and educational advancement. My own feeling of duty compels me to hint at this as lightly as I can.

Our duties to the public demand that with the greatest care and judgment we supply medicaments of the most trustworthy character, and the various surgical appliances that are necessary to cure or alleviate all the disorders that are diagnosed by the medical man. Many of these disorders have their origin in vice. That is no business of ours. But this is our business: to refuse to sell at any profit, or at any cost, appliances that are used only by the vicously inclined for the purpose of perpetuating the vice without the sequence of its normal consequences. If we do supply these appliances we participate in the crime of demoralising and debasing our fellow creatures, and lay up for them in times to come—in this world—a punishment similar to that typified in the tale of Sodom's overthrow, whose moral descendants our patrons are.

And what shall we say with respect to our duties to the public as to the abounding imposture of quackery?

> "The tincture or syrup, lotion, drops, or pill,
> Which tempt the sick to trust the lying bill;
> And twenty names of cobblers turned to squires,
> Aid the bold language of these blushless liars!
> There are among them those who cannot read,
> And yet they'll buy a patent and succeed,
> Will dare to promise dyiug sufferers aid,
> For who, when dead, cau threaten or upbraid?
> For soul or body no concern have they,
> All their inquiry—can the patient pay?
> And will he swallow drugs until his dyiug day?"

Is it consistent with truth and honesty to stock these things indiscriminately, to allow our honoured names to be placed on the handbills, almanacks, etc., got up to deceive the illiterate and to fill the pocket of the richest at the expense of the poorest part of mankind? Shall we know these things better than most do, and not raise the note of alarm and indignation for the benefit of the ignorant and the deceived? If so, the breach of duty brings condign punishment. First, a loss of self-respect; secondly, the contempt of the educated classes of society—medical men especially—who may go on using us for their own convenience, whilst they regard us as mere traders, and even speak of us as such *in camerâ*, and despise us in their hearts; thirdly, we shall have a world of worry within our own domains, a worry that no pharmacist can stand with impunity. Cares he can face as well as any man, work is his forte to any extent; but worry he must seek means to avoid, and the first preventative is a good conscience, the second a strict method in all he does.

Next to our duties to the general public come our duties to that select circle—the medical profession.

The great aim of a pharmacist should be to worthily fill the position of a responsible, confidential, and trustworthy assistant to the doctor; attempting to soar higher than this he must raise himself as a selfish individual, with stolen or borrowed wings, soon to come smash to the ground. The need for such a faithful coadjutor is great, and is largely felt by the first parties to the bargain; but is it likely that the medical profession as a whole will ever climb down from the sphere of their own arduous duties, and entrust a part of them to those who look like mere shopkeepers, the managers of fancy bazaars, or general agents for packed goods? It could never work. And as to thinking that negotiations between the one party and the other, as respects giving up dispensing on the one hand, and dispensing with prescribing on the other, will ever come to anything whilst the chemist's show is of such a flimsy, trashy, untasteful character as it is, is a mere delusion—doomed to the worst of disappointments. Let the pharmacist, in his own pharmacy, come to the light, and show that besides being qualified he is a competent man, and ever ready for his duties; all other good will follow.

Lastly, our schoolmates.

In the good time coming, sir, I can fancy I see still plenty of chemists scattered throughout the British Empire to meet all the need—pharmaceutically—of all men everywhere. And I hear the remark passing from mouth to mouth, "See how these chemists love one another."

Is one of them suddenly incapacitated from his important duties, his brother-chip close by will keep his customers together for him until the crisis is past. Or, does one seriously need a change, and is not wealthy enough to keep a permanent assistant, he will need no "locum"—who often ruins the work of years in a single month—but he will with scarcely any loss be enabled to suspend business altogether for a few weeks by a like amicable arrangement.

If anything like this is to be realised it will come simply as a virtuous reward for the recognition of our common scholarship. The pharmacist of the future must be trained for his calling as well as legally qualified to practise it, and the memory of that training, with all the forbearance and the wise nurture of the Alma Mater, the jovial times we had at times, and the hard lessons at others, which all came right at last, will be a grand source of perpetual brotherly sympathy and seasonable aid then always close at hand.

Why do I, with the least show of reason, expect such things? Why, is there not already a sound living nucleus consisting of true pharmacy men that have been trained in the School of Pharmacy and at other efficient centres of learning ready to push forward the good cause of pharmacy proper for the benefit of society, the assistance of the physician, and the honour of the craft to which they belong, because they perceive it to be an incumbent duty? The successful career of your own Association, sir, is an earnest to me that such a desideratum is quite possible of attainment, and your Association is but one of very many where the leaders—always changing—are all animated by the same spirit of unselfish devotion to the good of the general body. Men who have a conscience and fear not to admit the fact—conscience that Ethics demonstrates to hold a place among the moral powers analogous to that which reason holds among the intellectual powers of man's being; a habit of thoughtfulness as to one's duty; a determination to act on the plain dictates of conscience makes the hero—have made the heroes before us who started British pharmacy sixty years ago—on the career of steady development and substantial progress we see to-day, and such are yet to follow to reap the full harvest and scatter around its golden fruits. Say not this is too optimistic. The moral laws of the universe of man's heart are as inviolable as the laws of outward nature. One branch of the moral law is duty; this works by penalties, we may ignore the law and fail in our duty, but the punishment comes to put us right and teach us better. The other chief branch of the moral law is virtue; this works by reward. Virtue is always its own reward, and the virtuous man expects no better reward; yet,

> "All's on the side of the virtuous man,
> The good will always aid him if they can,
> The bad when interest or ambition guide,
> And 'tis at once their interest and their pride:
> But should both fail to take him in their care,
> He boasts a greater Friend and both can spare."

The remembrance that we are schoolmates, and the efforts we make in consequence to cultivate an *esprit de corps*, will tend to level many molehills that, being now magnified into mountains, prove real obstructions to the general good. The late controversy as to secret commissions is a case in point.

Have not we all known mere trading chemists who were always ready to take any mean advantage of their neighbour for their own immediate profit; and some at the present time who advertise some of the worst of quack remedies at greatly reduced prices in order to steal away their neighbour's trade—he who will not swerve from the sound business principle of demanding a fair profit for everything that passes through his hands!

And have we not also known trading doctors who have been bad enough to take advantage of the chemist's greediness for their own immediate gain? heathens, fools enough to suppose that gain is godliness, that business spells £ s. d. and nothing more.

Pray do not think these words too strong. What! do we not know that

> "Vice is a monster of such frightful mien,
> As to be hated needs but to be seen."

Then show her up in all her naked deformity. Lucid exposure is our only safeguard. Laws can never check her pestilential rule over men's affections, but truth-speaking can, and so can such associations as yours, sir; the bad can never hold together, it is those only that are well disposed that can face the necessary discipline that unites together for one common end. Selfishness is a disintegrating force; benevolent sympathy holds all together through all eternity.

AUSTRALIAN QUICKSILVER.

Although quicksilver has not hitherto occupied other than a minor position among the metals of New South Wales, there are indications that in the near future it will be found one of the most valuable of the numerous metallic products of the colony. The presence of native mercury, or quicksilver, in New South Wales was ascertained so far back as 1841, when the Rev. W. B. Clarke, the well-known Australian geologist, received a sample from a creek on the Cudgegong River, an auriferous stream, rising in the Australian Alps, and flowing through a portion of the western goldfields of the colony. Cinnabar had previously been found in the same locality. It has also been discovered in a few other places, but although Mr. Clarke, with a view to stimulating systematic search for the metal, published a popular description of the ores of mercury, little or nothing further was done. In later years mercury, in the form of cinnabar, was found at Bingara, where there are several diamond mines; in the vicinity of the Solferino goldfields; and at Cooma, at the entrance to the New South Wales snow country, where the assays of ore yielded 25 per cent. of quicksilver. The richest deposits have, however, been discovered near Yulgilbar, in the Clarence River district, one of the most fertile and beautiful in Australia, sugar cultivation being a staple industry. Some four years ago prospecting was carried on, in the hope of finding a payable quicksilver deposit, and the New South Wales Department of Mines dispatched its mineralogist, Mr. J. E. Carne, to inspect and report upon the workings, with the result that that gentleman, after a most careful examination, recommended that a portion of the Government prospecting vote be devoted to assisting the prospectors in their search for the lode which was suspected to exist, and, if successful, to ascertain whether or not the deposits would eventually become payable. Since then considerable developments have been made, and six distinct shafts have been put down on three parallel lodes. Several tons of the ore from these lodes have been brought to Sydney, and quantities of it distributed among the various Government departments for examination and testing purposes. The ore is expected to yield from 3 to 5 per cent. of mercury, and it has been ascertained that the "spent" ore contains gold and silver. The area of the ground examined by the Government geologist is about 120 acres, but it is believed that with the progress of prospecting operations other lodes, more or less rich, will be found. A further examination of the locality is being made by the Government geologist, and his opinion is being anxiously awaited. He has definitely ascertained the existence of three distinct parallel lodes, the first discovered in the colony, and improving as they go down. When the quicksilver mining industry is fairly established, a large population will become attracted to this part of the colony, which has been for many years portion of an immense pastoral property, and but little known. Machinery is being erected, and a preliminary testing of about one thousand tons of ore will be made. Should the results prove satisfactory, the New South Wales quicksilver trade will become revolutionised, as the poorest assays show the ore to be richer than those of the American and Spanish mines. They will also encourage the search for other cinnabar deposits, which, there is every reason for believing, are more numerous and richer than generally assumed. The value of the discovery in connection with the colonial gold-mining industry can hardly be over-estimated. It simply means that the work of gold production will become enormously stimulated, thereby greatly increasing the already large auriferous output of the colony.—*Journal of the Society of Arts.*

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, NOVEMBER 1, 1899.

Present:—

Mr. W. Martindale, President.

Mr. G. T. W. Newsholme, Vice-President.

Messrs. Allen, Atkins, Bateson, Carteighe, Cross, Glyn-Jones, Grose, Harrington, Harrison, Hills, Park, Savory, Southall, Symes, Warren, and Young.

The minutes of the previous Council meeting were read and confirmed.

The Late Dr. Adolph Ernst.

The President said he regretted to receive information of the death of Dr. Adolph Ernst, of Caracas, a corresponding member of the Society.

The Late Mr. Bevan.

The President then announced with regret the death of Mr. Bevan, late of Harwich, who had acted as a local secretary for forty years. The Society was indebted to Mr. Bevan for the unswerving support which he had afforded the Society for half a century.

Diplomas.

The undermentioned being duly registered as Pharmaceutical Chemists, were respectively granted a diploma stamped with the seal of the Society:—

Austen, John
Battle, John Cyril Marfleet
Burrell, Benjamin Lawson
Cornick, Ernest Edward
Evans, William Llewellyn
Gibson, Hubert
Meldrum, Martin
Moore, Richard Herbert
Smith, Arthur Richard
Wood, Edward Vivian

Election of Members.

The following persons having tendered their subscriptions for the current year, were elected "Members" of the Society:—

Beck, Albert Neve: Stroud Green
Beresford, Arthur William; Birmingham
Black, Robert; London
Boulton, Jesse; Kidsgrove
Butler, John Howard; Margate
Corke, Edward; Ticehurst
Cox, Arthur H.; Brighton
Gill, Herbert Edward; Birmingham
Hutchinson, Walter: Leeds
Jackson, Frederick William; Ashton under-Lyne
Morris, Edward Herbert; Newport, I.W
Myers, James; York
Sharpley, Major; Market Rasen
Stevenson, Arthur L.; Todmorden
Williams, Thomas; Hillingdon Heath
Winckler, Ernest; London

Election of Student-Associates.

The following persons having passed the First examination, and tendered their subscriptions for the current year, were elected "Student-Associates" of the Society:—

Martlew, Thomas Nicholson; Carlisle
Willder, William; Ealing

Several persons were restored to their former status in the Society, upon payment of the current year's subscription.

Benevolent Fund Committee.

The report of this Committee included a recommendation of grants to the amount of £71 in the following cases:—

The widow (62) of a chemist and druggist member, who himself had a grant in 1898. (London.)

The widow (62) of a member who has had an annual grant for several years. (London.)

A member and subscriber (75), formerly in business in London, who sold his business for a very small annuity. (Ipswich.)

The widow (43) of a registered chemist and druggist, who was in business for twenty-eight years and died in 1894, after ten years' illness. (Exeter.)

The widow (51) of a chemist and druggist whose name was erased from the Register in 1896. This case was deferred last month. (Walsall.)

The widow (69) of a chemist and druggist and subscriber. This case also had been deferred. (Louth.)

One case was adjourned for further information.

The Vice-President moved the adoption of the report, which was carried unanimously.

Finance.

The report of this Committee was read, recommending the payment of sundry accounts.

The President in moving the adoption of the report and recommendations, said there was nothing which required any special comment.

The motion was unanimously agreed to.

Library, Museum, School, and House Committee.

The report of this Committee stated that several donations to the Library and Museum had been received (see *P.J.*, October 14, p. 371), and the Committee had directed that the usual letters o thanks be sent to the respective donors. The Librarian had pre sented his usual report including the following particulars regarding attendance at the Library:—

Attendance.	Total.	Highest.	Lowest.	Average.
July	253	23	3	10
August	75	8	1	3
September	80	10	0	6

Circulation of Books.	Total.	Town.	Country.	Carriage Paid.
July	117	49	68	10s. 4d.
August	105	45	60	14s. 5½d.
September	88	37	51	11s. 7½d.

The Committee recommended that the undermentioned books be purchased for the Library in Edinburgh:—

Reichter, Organic Chemistry, new edition.
Thorpe, Quantitative Chemical Analysis.

The Librarian reported that at the annual examination of books in the Library in London, the undermentioned were missing:—

Attfield, Chemistry, 13th edition, 1889.
Morley, Organic Chemistry, 1886.
Valentin, Qualitative Chemical Analysis, 5th edition, 1880.
Whateley, English Synonyms, 6th edition, 1868.

The Curator's report had also been received and included the following particulars:—

Attendance.	Total.	Highest.	Lowest.	Average
July	361	43	3	14
August	63	7	1	2
September	106	15	3	9

An application from the Curator for an extension of the Materia Medica Museum was deferred until further details and an estimate had been submitted. The Librarian had made his usual annual report as to books missing from the Library. He also presented a report on the meeting of the Library Association at Manchester.

A sub-committee had been appointed to consider what, if any, modifications in the conditions of the Jacob Bell Scholarship examination were desirable. Mr. Carteighe had been appointed visitor of the Society's School. The School Staff had attended and reported on their respective classes.

The President, in proposing the adoption of the report, said the number of books reported as missing from the Library was somewhat less than on former occasions. Probably the books would turn up soon.

The report was unanimously adopted.

Appointment of a Divisional Secretary.

Mr. J. H. Smith, of 227, Commercial Road, E., was appointed divisional secretary for St. George's-in-the-East, in place of Mr Chas. Walker, who has left the district.

First Examination Attendance List.

The Secretary formally laid on the table the following list of centres at which the First Examination had been held during the past three years, with the number of candidates at each centre, and it was ordered to be entered on the minutes.

List of Centres and Table of Attendances of Candidates at each Centre.

CENTRES.	1897. Jan., Apr., July, Oct.	1898. Jan., Apr., July. Oct.	1899. Jan., Apr., July, Oct.	Total number of attendances at each centre at **12** examinations.
ENGLAND AND WALES.				
Birmingham	65	68	56	189
Brighton	14	10	13	37
Bristol	23	17	28	68
Cambridge	12	10	10	32
Canterbury	15	7	9	31
Cardiff	19	38	31	88
Carlisle	54	45	25	124
Carmarthen	35	28	38	101
Carnarvon	15	24	22	61
Cheltenham	15	15	24	54
Darlington	25	31	29	85
Exeter	11	14	16	41
Hull	27	30	21	78
Lancaster	28	27	29	84
Leeds	78	69	83	230
Lincoln	32	26	32	90
Liverpool	80	63	71	214
London	109	121	170	400
Manchester	119	117	142	378
Newcastle	50	50	48	148
Northampton	12	10	8	30
Norwich	15	13	12	40
Nottingham	57	53	74	184
Oxford	7	14	19	40
Penzance	7	11	10	28
Peterborough	14	7	18	39
Plymouth	19	23	16	58
Sheffield	18	24	32	74
Shrewsbury	16	18	13	47
Southampton	26	21	37	84
York	15	14	15	44
SCOTLAND.				
Aberdeen	80	49	69	198
Dundee	47	32	46	125
Edinburgh	126	119	128	373
Glasgow	105	106	110	321
Inverness	12	18	17	47
	1402	1342	1521	4265

Total number of attendances at **5** *examinations.*

Douglas, Isle of Man	14
Guernsey	6
Jersey	4
Kirkwall	11

Correspondence.

The PRESIDENT announced that the following letters had been received :—

From Mr. Porteous, of Lerwick, asking that that place should be made a centre for Preliminary examinations. Of course, in present circumstances this could not be entertained, but the letter might be referred to the Library Committee.

From the Grimsby and District Chemists' Association, endorsing the resolution passed by the Dewsbury District Chemists' Association, and intimating that Mr. Sneath, the Secretary, had been appointed to represent the Association on the North-East Section of the Federation of Local Associations.

A circular from the British Association inviting names for a General Committee to act in connection with the Paris Exhibition of 1900. He suggested that this should be referred to the Library Committee.

From the Royal Societies Club, asking for notice of the Society's meetings and a gratuitous copy of the Journal as published. This might go to the Library Committee.

From the Hull Chemists' Association calling on the Council to apply to the Privy Council to place carbolic acid on the schedule of poisons. They would remember that the matter was at present before the Privy Council.

From the Bradford and District Chemists' Association forwarding a resolution urging the desirability of promoting legislation for the protection of titles and to extend the scope of the poison schedule, and also supporting the proposals set forth by the Vice-President a year ago with reference to the local secretary organisation.

From the East Lancashire Chemists' Association, expressing the opinion that companies cannot legally use the title of chemist or retail or dispense scheduled poisons. From the Burnley Chemists' Association urging legislation in the direction of protecting titles and requiring a qualified directorate in companies carrying on the business of a chemist and druggist. Those last three letters, he should suggest, might be referred to the Law and Parliamentary Committee.

The suggestions of the President were all agreed to.

The Waterall Legacy.

The PRESIDENT announced that a report had been received from the Solicitor recommending the acceptance of the Waterall legacy of £1,000. The conditions attaching to the legacy made it imperative that the legacy should be placed to a separate fund.

Mr. CARTEIGHE, who had read the will, stated that the conditions were a little peculiar but the intention of the donor being distinctly benevolent, he felt they could not refuse the legacy. He hoped that any of their friends who were making their wills would feel a sufficiently wide and catholic faith in their own Benevolent Fund not to impose such conditions.

The report was adopted.

Law and Parliamentary Committee.

The report of this Committee was then read. It contained a recommendation that the following clause be presented on behalf of the Council to the Department of the Government having charge of the proposed company legislation :—

"No company shall carry on the business of a chemist and druggist, or assume or use the title of pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or chemist or druggist, or dispensing chemist or druggist, or any other title implying registration under the Pharmacy Acts, and if any company contravenes this enactment it shall be liable to the same penalties as those enacted in the case of individuals under the Pharmacy Acts."

Mr. GLYN-JONES moved that this report be received, but that it be referred back for consideration.

A discussion ensued, which occupied some time, as to whether this ought not to come as an amendment to the usual resolution that the report be received and adopted. Eventually it was agreed that such a course should be followed.

The VICE-PRESIDENT therefore moved : "That the report of the Law and Parliamentary Committee be received and adopted." There was one point on which all members of the Council were agreed, and that was to do their utmost to protect the registered title He thought they ought to be just as much agreed with reference to the carrying on the business of a chemist by limited companies He would ask in what way their position was altered from what it was in 1852 or in 1868, when it was laid down that for the safety of the public certain individuals should pass certain qualifying examinations, and certain regulations were also laid down with reference to the keeping open shop. They had had during the last twenty years a great deal of worry and anxiety in connection with so-called company pharmacy, which had been a great curse to the bulk of pharmacists, but he did not think it would be a proper thing for them to climb down in face of the great opposition with which they were menaced. They were there as representatives of the chemists of the country. It was felt by some that there should be some regulation of company pharmacy. He maintained that it was not the duty of the Council to recognise or regulate company pharmacy at all. They did not believe it was right for a company to use the title or practise pharmacy. There were, no doubt, a few

men in their ranks who found it convenient to form their business into a limited company, but the Council represented the great mass of chemists who had to live by their titles and their qualified practice, to whom this system was a curse. Not only in their interest, but in the interest of the safety of the public, the nearer they could get to the principles laid down in the 1852 and 1868 Acts, the better.

Mr. Atkins, in seconding the motion, said he should speak very briefly, but he did so under a sense of responsibility as deep as he had ever felt during the many years he had sat at that table. It was no use saying much, because what they said would not have much influence probably on one another, or even on the country—the pharmaceutical country. There had been times when that country required education, but if he could gauge the opinion of the country—and he had received an amount of correspondence during the last month on this subject which astounded him, both from its quantity and character—the country did not require any education on this point. There were two things for which he was prepared to fight if necessary to the bitter end. The first was the protection of titles, on which they were all unanimous, but when they came to the next point they differed. He contended that companies must be placed in every respect in the same position as individuals; nothing less would satisfy him. He might be beaten, but he did not regard that as so inevitable as some of his friends. He should not believe that until they were told by the authorities that justice would be denied them. He did not believe that a Government department, if properly educated by those who knew what pharmaceutical law and pharmaceutical ethics were, would refuse them justice, but if that should be the case, he would be prepared to take off his coat and go in for a campaign throughout the country for fresh legislation. No doubt the case would be very ably argued on the other side, but though he much regretted there should be any difference of opinion, he must adhere to the two points he had mentioned.

Mr. Glyn-Jones then moved as an amendment, "That the report of the Parliamentary Committee be received, but that it be referred back to that Committee for further consideration." He could not understand why Mr. Atkins should oppose the amendment, because he thought that every member of the Council was agreed that there should be but one law for individuals and for companies. The report of the Committee was by no means a unanimous report, but the report of a section of the Committee. The proposed clause pledged the Council "that no company shall carry on the business of a chemist and druggist, or use the title," and those who thought that was going too far, took care to ascertain what those who were in favour of that clause meant by it, and they said they meant exactly what they said. The Council was, therefore, to go to the Government and ask that it should be made illegal for all limited liability companies to use the title (which he agreed with) or to carry on business. Now there were two members of the Council who, if that clause became law, would have to close their business, as they at present stood. The Council would be asking the Government to declare as illegal a practice which had been carried on by two of its own members, and several local secretaries were also guilty of this great iniquity. Before going to the Government for such a clause, surely the bounden duty of the Council was to remove the names of Messrs. Symes, Southall, Reynolds, and Woolley from the list of members. If the Committee meant what was said, why did not the Council begin by putting its own house in order; instead of that it was proposed to go to the Government and ask that no company pharmacy should be allowed. If he had the slightest hope that such a thing could be accomplished, he would hold up both hands for it, because though it might be hard on some of the Council's own members, it would be in the interest of the whole trade. But anyone who voted for the procedure embodied in such a clause ought at least to be prepared to say that he had a reasonable hope that it would be accepted by the Government, otherwise the Council would be simply encouraging unfounded expectations amongst the members at large, who looked to the Council for guidance. It had been argued that the Council had already taken up the position indicated by the proposed clause, that no company should use the title or practice, and on the invitation of the Lord Chancellor to state its views, had asked him to introduce such provisions into a Bill. What had been the result? The receipt of the suggestions was acknowledged, but the practical answer of the Lord Chancellor was shown by the Bill he introduced, in which he proposed that a company might carry on the business and use the title of chemist if it had a manager holding such a title in its shops. That Bill had practically been abandoned, but in introducing it the Lord Chancellor said he had had a number of communications on the subject, and that it was impossible to resist the propriety of submitting those companies who were at present carrying on business as chemists to restrictions such as were proposed in the Bill. Unless they were going to knock their heads against the wall, they must accept that as a complete answer to their request. The matter was dealt with in that Bill in a way which no pharmacist could allow to pass without vigorous protest. The question had been raised as to the views of the members generally, and he should be the last to disregard that, but he was not prepared to admit that the majority of them would agree to going to Government with the proposed clause. It was rather singular what a quantity of correspondence had appeared in the Journal a few days before the meeting of the Council. On October 21 an article appeared in the Journal on this subject by a gentleman who did not sign his name, and the next week there were several columns of letters approving the views of "An Ordinary Pharmacist," and saying it was what everyone was thinking. Still he should claim that all these local secretaries and others who agreed with "An Ordinary Pharmacist" would be supporters of his amendment, because in his second article that gentleman pointed out that in dealing practically with the matter there were various awkward little things to deal with. One was the fact that there were men in their own ranks running a business as a company with unqualified shareholders, and he said that "companies of duly qualified persons should not be interfered with." But the Committee proposed to interfere with them. He also said—"Even where, owing to family arrangements, part of the capital invested in such company belongs to unqualified individuals, it ought not to be impossible to devise some satisfactory means of overcoming the difficulty." That was exactly what he wanted the Committee to consider. To his mind the Editor of the Journal sought to emphasise what his contributor had said when he wrote: "whatever means were devised, so long as unqualified persons were prevented from reaping advantage from the use of a pharmaceutical title, and from exercising any control over the conduct of the business, no objection could be taken by pharmacists to the fact that the whole of the capital invested did not belong to persons registered under the Pharmacy Act." The principles of the 1868 Act could be absolutely maintained without their going to the Government and saying no company should exist. Who, in the case of Day and Son's Drug Company, would suppose that it was the clergyman in the North of England, who owned a few shares, who ran the business? Of course, it was Mr. William Day, the managing director, and the other directors associated with him. What they had a right to insist upon was that not one of their qualified men should become the servant of an unqualified master. He maintained that it made not a bit of difference whose money it was that was being controlled; what they had to consider was, that in the interests of the public it was necessary that the Government should place all shops where poisons were sold upon the basis of the 1868 Pharmacy Act, provided that

such shops were *bona fide* controlled by qualified assistants. There was not the thickness of a piece of paper between those who said that companies ought to be on the same footing as individuals and the position he wished to lay down. He wished to emphasise the fact that, practically, the people who kept open shop were not the people who found the money, but the people who controlled the business. The Government was prepared to place such restrictions upon people who used company machinery that they would not be able to conduct the business of a chemist and druggist unless the people who absolutely conducted it were qualified under the Pharmacy Act so to do. It was his firm conviction that if all the capital invested in retail pharmacy at the present time owned by unqualified people was withdrawn a third of the pharmacies of the country would be shut up. There were a large number of men who were, while controlling their business absolutely, running it with financial help received from their wholesale house, which had no qualification, or from some brother or friend, and he could see no reason in the world why that man should not carry on business with the borrowed capital if he controlled it himself. The Society had a dual capacity to some extent. It stood for the drug trade in the same position as the General Medical Council on the one hand, and on the other hand it stood, or their members thought it stood, in the same position as the Medical Defence Union. He thought the Council made a mistake in going to the Government and speaking of the Pharmacy Acts as chemists' Acts. They were Acts which provided for the public safety, and the Society was the body to carry out the Acts. They would have no chance of obtaining a hearing from the Government if they went in the capacity of men formed together to defend trade union rights. Their strong position was to say what they asked for was asked for in the interests of the public. Could they, in the interest of the public, ask the Government to stop Charles Symes, Limited, conducting their business as they were at present doing? Could it be said that his business was a menace to the public, or that Reynolds and Branson should be closed in the interests of the public? There was a way by which they could get for their people all that they could reasonably ask, and he thought all that they wanted. A restriction should be made that the moment a subscriber signed the memorandum he should become a director and, if it was necessary, that a man should be qualified to conduct one shop, surely it was necessary that a man should be qualified to conduct several. It was twenty years too late to deal with the question of recognition. What did it matter whether they recognised companies or not while their customers were recognising them? The Government had committed itself to there being some restrictions; the only point of difference that they could reasonably have with the Government was that the restrictions which they imposed did not go far enough. He asked the Council to refer the report back to the Committee on the ground that it asked for the impossible, and for more than they had a right to ask, and on the ground that it could, by adopting other methods, secure a very great step in the right direction. It was all very well to appease the demands of the present by saying they would go to the Government and ask the Government to do this, that, and the other, but if the Government refused them again their position in twelve months' time would not be so popular. He agreed with the Treasurer that what they wanted was the protection of titles and the placing of companies, so far as the 1868 Act was concerned, on the same footing as individuals, by which he meant allowing companies to employ money owned by unregistered people in the same way as they allowed individuals to employ money owned by unregistered people, but not to allow people who financed companies to take up the position of unqualified partners. If unqualified people wanted to finance pharmacy they must put their money in the hands of qualified men to conduct the business in the same way as the unqualified man who provided capital placed the sole control of the business in the hands of a qualified man.

Mr. HILLS seconded the amendment which he thought all their colleagues would agree had been most ably proposed by Mr. Glyn-Jones, who covered the ground so completely, but he felt that this was an occasion when everyone should speak out and declare plainly what his views were on this most important subject. He was sorry that they were not more unanimous in their views with reference to this subject of company trading. While he had the honour of being President he always tried to get their differences of opinion threshed out in Committee, so that they might come to something like unanimity of opinion when they came to the Council. He did not say that his successor had not done all he could in the same direction, but this was a more thorny subject than he ever had to tackle with when President. He had read the articles by "An Ordinary Pharmacist" who seemed to think that although company trading was altogether immoral, still there could be means found in certain cases of getting round it. He thought they would all agree with the general remarks of "An Ordinary Pharmacist," but questioned whether they would agree with his conclusion. The question divided itself into two parts, one was with reference to the protection of title or description, and the other with reference to the protection of trading. Mr. Glyn-Jones said they were all probably agreed on the question of titles. Probably they were in the abstract, but he was not prepared to admit that entirely. An opinion had been expressed to him by a member of a company, which was carried on on excellent lines, that it would be undesirable to say that a limited company, all the members of which were registered persons, should not be allowed to use the title. They were not absolutely at one on that question, but as far as he could gauge the opinion of others, he thought, broadly speaking, they did say that it was reasonable that the title should be restricted to the individual, and that limited companies should not use the title that belonged to persons who had obtained their qualification in the ordinary way. They found that many of their friends round the country did not universally use their title, and he was told that drug stores with cutting prices were doing quite as much harm to the pharmacist as any company. When they went to the Lord Chancellor they took up the line which was now proposed by the resolution, but he thought the condition of things was somewhat altered now. He admitted that they were justified as a Council at that time in making those representations to the Lord Chancellor, who had made a statement in the House of Lords which led them to believe that they would have support from him in dealing with this very thorny question. In obtaining any fresh legislation there were two factors that were necessary; they must have the direct or indirect support of the Government, and also very largely the support of a majority of their people. They did say to the Lord Chancellor that if they had his sympathy with their views and aims, the principles contained in the suggestions which they sent to him represented the views of registered persons throughout the country, and probably they did now. The Lord Chancellor had not done anything more than simply acknowledge the receipt of those suggestions. He had made some sympathetic remarks in the House of Lords, but the clause in the Companies Bill now before them was one which did not recognise their suggestions in any way, and did not meet with the approval of any member of that Council. The point before them was this, Were they going to knock their heads against a wall and simply put themselves in a position which was untenable, and which had a certain amount of unreality about it. The amendment which he supported was that they should send the matter back to the Committee to be reconsidered. Of course, as Mr. Glyn-Jones had said, this action ought to have been taken twenty years ago, but they could not go back twenty years, they had to deal with things as they were now. What did they see? They saw companies on all sides, and the public recognising those companies. In conversation with a member of Parliament, that gentleman had told him, in considering a matter of this kind the

House of Commons would be influenced by two considerations, first, what was for the public interest and protection, and, secondly, what interfered least with existing conditions. He agreed broadly with what Mr. Glyn-Jones had said that a certain amount of protection by the public over and beyond what was obtained by present conditions would be furnished if there was a *bona-fide* manager or director, who should be in full control of a business where poisons were sold and retailed, and he did not object to a qualified person being the servant of an unqualified person, and having to do what the unqualified person told him he must do. Then, as to interfering with existing conditions, he would refer to the Widow's Clause, which the Lord Chancellor had taken to furnish him with a text for fresh legislation. Broadly speaking, he should say that their friends were opposed to any material alteration in that clause. In the suggestions which they laid before the Lord Chancellor they proposed that there should be a limit of time; but he thought it was quite possible that there was some way out of it, and that in the case of a deceased chemist one of the executors or trustees should be a qualified man who should have control, and if he was not actually working in the business, should employ a qualified man in his absence. As his predecessor had often said, the Widow's Clause was the one great weakness in that Act. Then they had the vested interests of twenty years to deal with, which the Government would not ignore. Going round the country he saw very little pharmacy carried on. He should like to see all dispensing carried on by registered persons. He believed there would in future be less of what he called the ordinary profitable pharmacy done than in the past. Mr. Rutherford Hill had suggested that they should go in for drugs allied to photography, spectacle selling, and so on. Their practice was not protected, and he was very doubtful whether the clause affecting their professional brethren, with whom he had a great deal of sympathy, would ever pass at all. It was practically asking Parliament to say that a company should not do what an individual was allowed to do. They had a certain amount of practice which was protected, though it was very little indeed, but when they asked that all legitimate pharmacy should be in their hands he saw no enthusiasm for it throughout the country. Under the Wheeldon judgment the public at the present moment were so far protected that the hand of the person who retailed or dispensed a poison should be qualified, and he was afraid it would be rather difficult under these circumstances to make a member of the House of Commons see that he was not sufficiently protected. They only said now that they should try and help the Government at this juncture to reproduce in a limited liability Bill something underlying the principle of the Act of 1868. His friend, the member of Parliament, agreed with him that the public would be best protected by a qualified individual who had all his capital and reputation at stake in the proper conduct of that business, but he also said that that remark might be made of almost every other business throughout the country. He should be happy as far as he could to help to draw up some proposal to submit to the Government.

Mr. Young said he would not detain the Council long, but he thought it right to say that he should vote for the resolution, chiefly because the report of the Committee was in accordance with the resolutions passed eight or nine months ago, and passed unanimously. He had yet to learn what had happened since then which would justify their ignominious withdrawal from the position then taken up. If it were urged that the Lord Chancellor had not seen fit to accept the suggestions put before him, and that that was a reason for withdrawing them, he could only say that they were very easily shaken off. Was every effort in the interest of pharmacy to be dropped the instant the cold breath of opposition came upon it? That was not the spirit they would expect from their soldiers. He would be a bold man who would say that because of a defeat in the Transvaal the British soldiers should be withdrawn. Then it was said they were asking far too much. Was it too much to ask that their titles should be protected? Or that the sale of ten or a dozen poisons should be restricted to chemists? That was the only possible point on which companies could oppose such a clause. Mr. Glyn-Jones said that in a roundabout way he could so restrict companies that it would have practically the same effect; if so, would not the limited liability companies oppose any such clause with equal force? Speaking for himself, then, he looked upon the article which had been referred to simply as the expression and opinion of an individual. When it referred to the question of how far members of Council were delegates, and how far they were supposed to represent the constituents, he thought if the half-a-dozen members who were elected in May last under the new franchise had let it be understood that they were going in for doing all they could in the interest of storekeeping, there would not have been a single one elected.

Mr. Glyn-Jones said he stated distinctly in his address that he did not agree with the Council's suggestions.

Mr. Young said the Council represented the whole of the chemists on the Register, of whom not 2 per cent. had any idea or intention of becoming members of limited liability companies. They were not sent there to make things comfortable for themselves or their friends, but to protect the interests of the trade at large, and he saw an enormous danger in any attempt to regulate company pharmacy or to recognise this pernicious growth in any shape or form. If they recognised it in any way it should only be after repeated defeats. Let them go to the House of Commons, the Privy Council, and the Board of Trade, and if they were defeated in every quarter it would be quite time enough to consider how to move in the direction Mr. Glyn-Jones indicated. He thought it would be a serious mistake to give way in the slightest degree to any suggestion for regulating company trading. They had to consider the interest of the public, but they had also to consider their own interests. On these grounds he should vote for the resolution.

Mr. Allen said he was a member of the Sub-Committee who drew up the clauses which were sent as suggestions to the Lord Chancellor, and in assenting to those clauses he deferred to the general feeling of his colleagues. The moment they attempted to draw up any clauses of such a character, they departed from the principle on which the Society had always acted, and he came to the conclusion that it was not the duty of the Council to devise clauses with the object of putting those who had not, and could not pass an examination on a level with those who had. That principle he could not see his way at the present juncture to depart from. It was said, why should they not loyally assist the Government to do that which would amount to a surrender of their rights? But there was no evidence that the general body of members desired that any such surrender should be made at present. He was thoroughly in accord with the motion, which amounted to this, that no company should carry on the business of a chemist, or assume the title. When they were told decidedly that such a clause was impossible he would accept the defeat, but not before. A certain clause had been passed in the House of Lords, which might come before the House of Commons; that recognised certain professions, and there was nothing advanced yet to convince him that there was any difference between the business of a dentist and that of a pharmaceutical chemist from a professional point of view There had been no attempt as yet to educate the public as to what the business of a chemist really was. It meant trading in a certain professional way with a certain poison schedule—nothing else. 95 per cent. of the things sold by a chemist had no relation whatever to this particular question. He did not want to do anything impolitic, but he could not at this juncture, without any direct invitation from the Government, agree to assist in framing clauses which would have the effect of allowing companies to carry on the business of pharmacy.

Mr. CARTEIGHE said it was a misfortune for those who read their discussions—if there were any—that they had not before them the wonderful panacea referred to by Mr. Glyn-Jones. It was before the Committee, and it was rejected, though only by a small majority, he admitted—not because it did not fulfil many conditions which would be valuable, but simply as a matter of tactics—as Mr. Allen had said, it was purely a question of tactics. When the clause embodying Mr. Glyn-Jones' views, was drawn up he admired its ingenuity, and regretted that it had not been produced, so that a vote might be taken upon it direct. But he would ask any person of average intelligence outside, who knew anything of political life whether there was any material difference between that clause and the clause adopted by the Committee with regard to the opposition which would be aroused in either case. He objected to Mr. Glyn-Jones' clause on two grounds—firstly, as a question of tactics, because that clause would evoke as much opposition from the Government and those interested, as the direct clause which the Committee adopted. Until they were told by members of Parliament or by a Minister of the Crown having charge of the Companies Bill that they would do nothing more than was offered, he did not think the Council was justified in asking for anything less than what had been suggested as proper. In view of the clause relating to dentists and midwives, the Council ought not to reduce its demands until there was a clear expression of opinion that the members of the Society desired the Council to do so. His clear conviction was that the Council could not deal with companies by an indirect method, either by means of a qualified director or manager or otherwise, so as to be satisfactory to the public and to pharmacists. Though it was quite true that the Council had to consider the public, it had also to consider the interests of the trade. To lay down regulations by which men of capital could set up any number of pharmacies and put in a managing director—who might have his qualification supplied him—with the effect of sweeping off those who remained of their poorer brethren, was not in the interest of the public. He had had something to do with Parliamentary business, and he should vote for the adoption of the report, because he did not think the united skill of the whole Council could frame an amendment of the Companies Act which would meet all the exigencies of the case. Under those circumstances, he thought the duty of the Council was plain—to go to the President of the Board of Trade and remind him of what he had said, taking the Blue Book with them and showing how the draft Bill conflicted with his expression of sympathy. He was surprised and saddened to think that the professional side of their occupation—limited as it was—should have been practically brought down to the level of the average grocer. There was no reason in the world why a chemist should not do anything he liked. In the days of Jacob Bell a pork butcher might qualify, possibly, but he was not qualified *per se*; a pharmaceutical chemist might qualify, and was qualified for his business. A pork butcher must not become a pharmaceutical chemist, but the chemist might become a pork butcher. It would be a mere waste of time to attempt to break the principle of the old Act by introducing a clause which, when it got into the House of Commons, would be met with as much opposition as the direct clause the Committee proposed.

Mr. CROSS said if the amendment simply pledged the Council to regulate company trading he should not vote for it, because he would be no party to undertaking such a duty, but he should support the amendment, because he believed the resolution before the Council was impracticable. It was reiterating the position which the Council took up earlier in the year, when, no doubt, the members were unanimous. But what had happened since then? When the suggestions were published, and went before the country, they were received not as tentative suggestions, but almost as a proposed Act of Parliament; they were argued clause by clause at provincial associations, and the conclusion most of those associations came to was that the Council was asking too much. He believed a clause could be framed which would meet the case, and that it was better the Committee should reconsider the whole matter. If the Council could obtain a clause protecting the title, he believed a great deal of what chemists wanted would follow. It was an injustice for companies to assume the title of chemist, and on that point chemists might fairly ask for redress. Afterwards they could consider whether pharmacy—whether carried on by companies or by individuals—was in a satisfactory condition. If it was not, an amending Pharmacy Bill might be introduced.

Dr. SYMES said his name had been introduced into the discussion, but he never allowed his personal interests to interfere with his public duty, and if passing the resolution could reasonably be expected to have the effect of preventing companies carrying on the business, he would vote for it. He had hoped for many years that something of the kind might be accomplished, but most of them had come to the conclusion that it was hopeless and impracticable. It was a nice thing to talk about the higher education and the like, and was very popular. If any good were likely to result, he should be as pleased as anybody, but he knew better. Some of those who had spoken on the other side had charged their opponents with the desire to regulate company pharmacy, but he repudiated any such idea. The Council was asked by the Lord Chancellor to state what was wanted, and it did so; but not a single member of the Council ever supposed they would get all that was asked for. The only practical reply the Council got was in the opposite direction to stopping company trading. If the Lord Chancellor's speech meant anything, it meant that he did not propose to stop company trading. But he meant to impose sufficient restrictions to protect the title, and also to provide that companies should be under the same restrictions in conducting the business as individuals. He had been an advocate for the protection of titles for many years, but had been told by a past president that chemists had no title, that they had nothing to fight for in the matter of title, though to-day the title seemed to be the great thing the Council was going to fight for and he was pleased to find it was so. If an unqualified person put up a sign saying he was a chemist or surgeon or physician, that person practised a fraud on the public, and was amenable to the law; but to-day they had companies of unqualified persons writing "chemist" over their door, and it was said that because companies were not mentioned in the Act they were outside the law. There had been a good deal of abuse of the "Widow's Clause," which was made a pretext for the Government saying that the Act acknowledged an unqualified proprietor, but he contended the "Widow's Clause" did nothing of the kind. If a duly qualified man had been carrying on business and died, the executors, who might not be qualified, had to bring in qualified persons to conduct the business, but the qualified manager came into a place arranged by a qualified man and carried it on in the same way as it had been; that qualified manager controlled the business, the executors only found the capital. He believed the report of the Committee was thoroughly unpractical, and it was much better that it should go back for reconsideration, to see if something could not be done to draw up a practical clause. In this matter he thought the interests of the public and of the trade were identical.

Mr. HARRISON would vote for the amendment, not because he wished to regulate companies in any way whatever. He had as little sympathy with company trading as anyone on that Council. It was said that those who took the position which he was taking were guilty of a great surrender, but in his view if the Council were to go to the Government for restriction of the use of the title of chemist and druggist, and restriction as to practising pharmacy, it might be leading its forces into an untenable position. The Council could ask for the protection of the chemists' title on strong grounds of principle. The trouble largely arose from the fact that in the original

Act of 1868 there was a departure from this principle. Dr. Symes, with his great generosity, still defended the "Widow's Clause," but if the Council were to have any legislation which should be of benefit to chemists as a body, it should in the first place abrogate the Widow's Clause. That would benefit chemists and would be doing no injustice to the widows. The medical profession was protected as to title but not as to practice, and it appeared to him a doubtful policy to go beyond what was acknowledged in the medical profession. He hoped the Council would accept the amendment in order to ask for what was believed to be practicable, and in the meantime there might be an opportunity for the Council to approach the Government with some definite policy, and ascertain how far the Government would support the Council.

The PRESIDENT said he found himself in the dilemma of not being able to support the clause passed by the Committee. He thought it was necessary to declare the actual position, and not mislead the trade by trying to obtain something which was unobtainable. The Vice-President had said that the Council should go back to the 1868 Act, but that Act did not afford that protection which chemists desired. Chemists had enjoyed the privilege of carrying on their practice for the last twenty years, and were now beginning to assume the chemists' titles. He maintained that if they protected their title they would protect their practice. Having briefly referred to the remarks of the previous speakers, he put the following amendment :—"That the Report of the Law and Parliamentary Committee be received, but that it be referred back to that Committee for further consideration."

Ten members voted for the amendment, and eight against, the division list being as follows :—

For.	*Against.*
Bateson	Allen
Cross	Atkins
Glyn-Jones	Carteighe
Harrington	Grose
Harrison	Newsholme
Hills	Park
Martindale	Warren
Savory	Young
Southall	
Symes	

The amendment was afterwards put as a substantive resolution, nd carried *nem. con.*

A letter was read from the Board of Trade thanking the Council for having appointed Mr. Phillips to serve on the Departmental Committee having for its object the revision of the scale for ships' medicine chests.

Mr. HARRISON, as representing a seaport town, said he had paid some attention to this subject. It frequently happened that medicine chests were imperfectly fitted, both as to the quality and quantity of the drugs. They had recently sent a communication to the Board of Trade calling attention to the matter, and suggesting that it was of sufficient importance to have an inspector appointed who should hold the qualification of the Pharmaceutical Society.

Mr. SYMES and Mr. GLYN-JONES endorsed Mr. Harrison's remarks.

The PRESIDENT then called attention to an article in the *Hospital*, with reference to certain analysis made by Dr. Paul, of some belladonna plasters, a great number of which were deficient in alkaloids. Dr. Paul had reported confidentially, but the report had been made public, and some very sweeping observations had been made in the periodical to which he had referred, reflecting prejudically upon chemists as being generally in the habit of adulterating, but he wished to say that all the plasters reported upon were not the plasters of the British Pharmacopœia, but trade articles. Moreover, they were purchased from company drug stores and did not afford any basis for the statement in the *Hospital*, casting discredit upon legally qualified chemists and druggists.

Mr. HILLS announced that he had received from the Comité de Souscription du Monument Pelletier-Caventou, acknowleging the contributions which had been forwarded by the members of the Council.

Appointment of Examiners.

A portion of the report of the General Purposes Committee dealt with the appointment of examiners. In accordance with that report,

The PRESIDENT moved that the following be appointed Examiners in England and Wales for the ensuing year :—

Arkinstall, William ; London.	Phillips, Alfred James; London.
Farmer, John Bretland ; London.	Saul, John Edward; London.
Farr, Edward H. ; Uckfield.	Tanner, Alfred Edward ; London.
Harvey-Gibson, J. R. ; Liverpool.	Thomson, John Millar ; London.
Kipping, F. Stanley ; Nottingham.	Wilson, Harold ; London.
Peck, Ernest Saville ; Cambridge.	Wright, Robert ; Buxton.

and that the following be appointed Examiners for Scotland :—

Balfour, Isaac B.	Fraser, Jonathan I.
Boa, Peter	Jack, Jas.
Davidson, Alexander	Lunan, Geo.
Dobbin, Leonard	Tocher, James Fowler.

This was unanimously agreed to. It was also resolved that the Boards of Examiners should hold examinations during 1900, in January, April, July, and October, or as near to those months as conveniently may be.

Appointment of Local Secretaries.

The General Purposes Committee had also considered the appointment of local secretaries, and presented the list which is printed at page 430*a*.

THE PRESIDENT said that, after careful consideration of the recommendations submitted by local associations, and by members residing in the respective districts, it had been decided to appoint representatives of the Society in the following new centres :—

Barnard Castle	Rotherham
Beckenham (with Bromley)	Sidcup (with Chislehurst)
Cirencester	Staines (District)
Haslingden, etc.	Swindon
Macclesfield	Tewkesbury
Morley (Parliamentary Division)	Wallasey (District)
Newbury	Wallingford
Normanton (Parliamentary Division)	Workington

He had to report, with regret, the retirement of several local secretaries who, for many years, have rendered loyal service. Among the number he might mention Messrs. Goss (Barnstaple) Laurie (Blackpool), Howorth (Doncaster), Bottle (Dover), Currie (Glasgow), and Heanley (Peterborough). To all those and other past local officers who have watched over the local interests of the Society, the cordial thanks of the Council were due. It was gratifying to be able to point out that in several centres where the local secretaryship had been recently in abeyance new interest has been manifest, and the *status quo ante* restored. On the other hand there were some cases where the centre had retired into the unrepresented condition. In five instances, although nominations were recorded, the nominee had intimated his unwillingness to accept office, and, in default of other evidence of local wishes, the places had to be dropped. The towns in question were :—Chelmsford, Gateshead, Leytonstone, Uttoxeter, and Weymouth. No nominations had been received from the following places ;—

Berwick	Maldon
Bridgwater	Oakham
Cromer	Romford
Faversham	Sevenoaks
Ilfracombe	Stowmarket
Leigh (Lancs)	Stratford
Leominster	West Ham

If the present officers in these towns would, during the ensuing month, signify their readiness to act for another year, he had no doubt the Council would gladly avail itself of the opportunity of retaining the places on the list of local secretary centres. With regard to Scotland, the Council had the advantage of the aid of the North British Branch Executive officers, and the appointments for the Scotch centres had been largely made on the recommendations which had been forwarded for guidance. It was, perhaps, fitting that he should allude to what had been said and written as to the necessity for a more perfect local organisation

than the present arrangements were said to afford. He would not go so far as to say that the existing system was the best possible system they could get, but he was bound to remember that it had shown valuable capabilites in recent years, when Parliamentary pressure was called for in aid of the Pharmacy Acts Amendment Bill and in opposition to the Government Poisons Bill. The experience then acquired, however, was thought by some to ndicate that a greater political force might be exerted in time of need if the system of local representation were based upon the Parliamentary divisions of Great Britain rather than, as now, upon the number of members resident in a particular district. It might be that the time had arrived when the question of modifying their system should be seriously taken up; but a change of the kind ndicated involved many considerations apart from the vast amount of detail work, and could not be completed without considerable thought and labour. The Vice-President and Mr. Cross, as well as other members of the Council, had had the subject in their minds for some time, and his object in making that brief reference to the matter was to assure the members of the Society that the Council was fully alive to the importance of organising its local forces, more especially in view of possible Parliamentary contingencies in the near future.

Dr. Symes said he hoped those districts in which it was desirable that assistant local secretaries should be appointed, owing to the amount of work to be done, would consider the matter and send up recommendations by next month, when such appointments would be made.

The President then formally moved the appointment as local secretaries, of the gentlemen named, and that was unanimously agreed to.

Superintendents of Written Examinations.

It was resolved, according to the usual practice, that the office of Superintendents of Written Examinations be offered the local secretaries in the centres where such examinations are held.

The Council then went into committee to consider the legal portion of the report of the committee. On resuming, the report and recommendations were unanimously adopted, and special resolutions passed authorising the Registrar to take proceedings against the persons named.

Report of Examinations.

	Candidates.		
	Examined.	Passed.	Failed.
England and Wales :—			
Major	15	9	6
Minor.....	241	70	171
Scotland :—			
Major	1	1	0
Minor.....	88	35	53
First Examination.....	316	160	156

Thirty-eight certificates were received in lieu of the Society's Examination.

NORTH BRITISH BRANCH.

A meeting of the Executive of the North British Branch was held in the Society's House, 36, York Place, Edinburgh, on Friday, October 27, 1899, at 11.30 a.m., Mr. Peter Boa in the chair. Present: Messrs. Ayre, Boa, Bowman, Burley, Cowie, Currie, Ewing, Fisher, Gilmour, Henry, Johnston, Kerr, McAdam, McLaren, Mitchell, Russell, and Strachan.

An apology for absence was intimated from Mr. Tocher, Dumfries. The minutes of last meeting were read and approved.

Evening Meetings.

The Assistant-Secretary reported that Professor J. Arthur Thomson, Aberdeen, had replied expressing a desire to have his address postponed till next year, on account of other engagements. This had been readily agreed to, and Professor Thomson had consented to give the opening address of the Session of Evening Meetings in Edinburgh in 1900. His subject would be "The Medical Aspects of Natural History." Mr. Boa had consented to open the ensuing session with an address on Wednesday evening, November 29. Other meetings were being arranged for the third Wednesday of each month, and those willing to assist were invited to communicate with the Assistant-Secretary as soon as possible.

The Chairman said he hoped they would get some support from members of the Executive for the Evening Meetings. They were deserving of every support that could be accorded to them, because they helped to sustain an interest in the scientific part of their work as pharmacists. They also brought members together to exchange ideas, and in many ways did a great deal of good. He earnestly hoped those who were inclined that way would do their utmost to assist in getting up the meetings.

Nomination of Examiners.

The Executive went into committee to consider the report of the Committee for Nomination of Examiners. Two examiners—Messrs. Ewing and Nesbit—retired by rotation. The others were eligble for re-election. After a full discussion the meeting again became open, and the Chairman announced that the following resolution had been agreed to:—

"That Isaac Bayley Balfour, Professor of Botany in the University of Edinburgh; Leonard Dobbin, Lecturer on Chemical Theory, and Assistant to the Professor of Chemistry in the University of Edinburgh; Peter Boa, Edinburgh; Alexander Davidson, Montrose; Jonathan Innes Fraser, Edinburgh; James Jack, Arbroath; George Lunan, Edinburgh; and James Fowler Tocher, Peterhead, be nominated for election by the Council as members of the Board of Examiners for Scotland for the year 1900."

The Chairman moved that the Executive record in the minutes an expression of their thanks to Messrs. Ewing and Nesbit, the retiring examiners, for their services. Mr. Nesbit had been connected with the Board for a much longer period than any of the present members. Mr. Ewing joined the Board at a very special juncture, and has done important and useful work during his period of service.

Mr. Johnston seconded the motion, which was unanimously agreed to.

Mr. Ewing thanked the Executive on behalf of Mr. Nesbit and himself. He had found his four years' period of service a very pleasant time.

Local Secretaries.

The Assistant-Secretary intimated that he had received a communication from the Secretary anent local secretaries in Scotland. A proposal had been made to have a local secretary appointed for the County of Linlithgow, and the matter was at present under consideration by the Council. Regret was expressed that in several instances again in Scotland this year there had been a want of proper attention to the nomination of local secretaries by chemists in business in the various districts. In other cases the returns were so imperfect as to be of little value to the Council as indication of the wishes of the local chemists. The Executive instructed the Assistant-Secretary to reply, giving all possible assistance to the Council in the appointment of suitable persons in the districts referred to.

Plymouth Conference.

Mr. Burley reported that he had attended the meetings of the British Pharmaceutical Conference at Plymouth. Comparatively few Scotchmen attended owing, doubtless, to the distance and inconvenient railway connection. The local committee gave them a very cordial welcome. The meetings were well attended, and the papers read were interesting and useful. The excursions were very delightful, and creature comforts were supplied in great abundance.

This concluded the public business transacted.

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THE COUNCIL MEETING.

After the reading of minutes of last meeting, the President mentioned the death of Dr. Ernst, of Caracas, a corresponding member of the Society, and Mr. Bevan, who had long occupied the position of local secretary at Harwich.

The reports of the Finance and Benevolent Fund and Library, etc., Committees were adopted, payment of six grants, amounting to £71, being authorised.

Mr. J. H. Smith was appointed divisional secretary for St. George's-in-the-East.

Several communications were referred to the Library Committee, one received from Mr. Porteus asking that Lerwick should be made a centre for Preliminary examinations.

Others from the Grimsby Chemists' Association endorsing a resolution passed by the Dewsbury Association (see p. 424); from the Hull Chemists' Association, calling upon Council to apply to the Privy Council to place carbolic acid on the schedule: from Bradford Chemists' Association forwarding a resolution urging the desirability of promoting legislation for protection of titles and extension of the poison schedule, and supporting the Vice-President's proposals concerning local secretary organisation: from the North-East Lancashire Association, expressing the opinion that companies cannot legally use the title of chemist, or retail or dispense scheduled poisons—and one from the Burnley Association calling upon the Council to protect the title of chemist and druggist and to insist that the directors of every company should be qualified, were referred to the Law and Parliamentary Committee.

Reference was made by the President to a legacy of £1,000 left under special conditions by the late Mr. Waterall, of Nottingham, and Mr. Carteighe mentioned that in such cases a sufficient belief in the Benevolent Fund would make such conditions unnecessary.

The Report of the Law and Parliamentary Committee recommended a clause to be submitted to the Government department which has charge of the Companies Bill with the view of obtaining its support. Mr. Glyn-Jones moved that the report should be received and referred back for reconsideration. After some discussion as to the mode of procedure, the Vice-President moved that the report be received and adopted, urging that it expressed the unanimous view of the Council in regard to titles, and that there should be the same agreement as to the exercise of the chemist and druggist's business. He did not think it would be proper for the Council to yield to the opposition with which chemists were menaced, in violation of the principle established in 1852 and confirmed in 1868.

Mr. Atkins seconded the motion, and expressed himself as being convinced that the determination of chemists throughout the country was to defend the legal position in which they had been placed by the Legislature. On the point of title there was no kind of dissent; as to "company pharmacy" he expressed his agreement with the prevailing feeling that nothing less would satisfy chemists than seeing the Pharmacy Act applied to companies in the same manner as to individuals. He could not believe that claim could be denied wherever the circumstances of the case were made clear and understood.

Mr. Glyn-Jones then moved, as an amendment, that the report should be received and referred back to the Committee, supporting that proceeding in a long speech by the opinion that the Committee was not unanimous in its recommendation; that it proposed to ask for too much—far more than chemists have a right to—and, if granted, would involve stopping the business of many pharmaceutical chemists. In objection to the argument that no company should be allowed to use the title of chemist and druggist, or practise pharmacy, he urged that the Lord Chancellor had not adopted the suggestions of the Council as to amendment of the Pharmacy Acts in that direction, and that their adoption could not be expected. Mr. Hills seconded the amendment, and Messrs. Cross, Symes, and Harrison spoke in support of it, Messrs. Rymer Young, Allen and Carteighe speaking in opposition. On a division being taken, ten members voted for the amendment and eight against it.

The discussion was of so important a nature on both sides that it claims careful perusal of the full report (see page 424).

Attention was directed to the subject of the medicine chests supplied for the use of ships by the reading of a letter from the Board of Trade, thanking the Council for having appointed Mr. Phillips to serve on the Departmental Committee for the revision of the scale for ships' medicine chests.

The President drew attention to the statements published in the *Hospital*, on the 21st ult., reflecting upon chemists and druggists, and explained that the circumstances were such as to show that there was no ground for those statements, the plasters referred to being ordinary trade articles that were obtained from company drug stores, and not from legally qualified chemists and druggists.

The report of the General Purposes Committee reviewed the experience of the past year in connection with the office of local secretary, and a number of appointments were made in accordance with the recommendation of the Committee.

The recommendations as to the appointment of examiners for England and Wales and for Scotland for the year 1900 were adopted (see page 429).

BRITISH PHARMACY—AS IT IS AND AS IT MAY BE.

AT the present moment a question is under consideration that has been somewhat unexpectedly raised; one that concerns every individual whose name is on the Register, inasmuch as it is a question of the continued existence of chemists and druggists as a body of individuals recognised by the State and possessing privileges conferred by the Legislature, not as a consideration for, but essentially as a complement to their compliance with statutory conditions relating to their business that have been held by the State to be expedient and necessary in the public interest.

That question relates, in its present form, to "company pharmacy," or, in other words, it is a question whether the provisions of an Act of the Legislature, devised solely in the interest of the public, shall be sustained or practically repealed, so as to frustrate the intention of that Act, as well as inflict upon a large number of individuals a glaring and grievous injury.

In view of the importance of this question to all registered chemists and druggists, articles having especial reference to it have been published in this Journal during the past year in order to direct the attention of all who are interested to the nature of the issue that is now before them, an issue that calls for the most energetic action on the part of every person whose name is on the official Register. Now that the necessity for such action has become crucial and urgent it appears desirable to make the following further and comprehensive statement of the case.

In every civilised country—except Great Britain—the practice of the art of pharmacy, in its full extent, is limited by law to individuals certified by the State to possess a competent practical knowledge of their business, acquired as the result of education and technical training. The limitation of that business to such specially qualified persons does not in any degree amount to a monopoly of the sale of drugs, nor is it in any sense to be regarded as constituting a trade monopoly, since it is an arrangement that has been adopted, in the interest of the general public, in regard to the performance of important duties, its object being the safety of the public—as has been repeatedly pointed out in this Journal. Any coincident advantage accruing, as a result of that limitation, to the persons lawfully entitled to practise pharmacy is a necessary consequence of the limitation for public purposes, and an essential condition of its efficacy for obtaining the public object in view. It may be confidently stated that, to candid minds, consideration of all the circumstances of the case can lead to no other conclusion than that stated above. But at the risk of appearing tedious to those who do perceive and acknowledge the truth of that view, its reiteration is still necessary, because that truth is not fully appreciated, and also because an unworthy attempt is being made to create an impression that a monoply of the sale of drugs is the real object of the opposition to "company pharmacy" and to the proposed amendment of the Companies Acts in regard to the practice of pharmacy which has recently been brought before Parliament.

In Great Britain the practice of pharmacy, as now taken cognisance of and defined by Act of Parliament, is the retailing, dispensing and compounding of certain medicinal articles that are enumerated in a schedule to the Act, to which other articles may be added under prescribed conditions. To that extent only is the keeping open shop, for those purposes, by persons "known as chemists and druggists" unlawful for "any person" who is not registered under the Act. As compared with other countries, that limitation of the practice of pharmacy in Great Britain is therefore of very small extent—instead of applying to the entire range of pharmaceutical work it is confined to operations with those medicinal articles which are "poisons" by Act of Parliament and require on account of their exceptionally deadly as well as dangerous nature, for the "safety of the public" to be dealt in and manipulated or supplied as medicines only by persons certified to possess competent skill and knowledge for the performance of those important duties. To speak of that curtailed limitation of the practice of pharmacy as a "trade monopoly" indicates either mendacious perversity or strange want of acquaintance with the circumstances of the case. This latter condition is by far the most dangerous: the great necessity for providing against the possibility of its influence affecting legislative action, has but recently been demonstrated by an utterance of the head of that Government department which exercises statutory control over the action of the Pharmaceutical Society and has almost unlimited power to influence pharmaceutical legislation.

The present legal position of British pharmacy, as above defined, is better than it was, some fifty years ago, when the practice of the art was open to any persons however ignorant or incapable, and when the public were utterly unprotected in that respect by suitable statutory regulations. The early efforts of the Pharmaceutical Society produced some improvement; but it was regarded with suspicion from the free trade point of view—even Parliament refused to sanction the establishment of any qualification for the practice of pharmacy but one of a voluntary nature—that of pharmaceutical chemist. At a later period, when the state of pharmacy in Great Britain was declared by medical authorities to be a disgrace to the country—but not until the public were in acute dread of the danger of poison—the partial measures, now in force, were adopted for regulating the practice of pharmacy. The effect of the Pharmacy Act, 1868, was to incorporate, by registration, the persons known as chemists and druggists, as persons having the legal qualification for keeping open shop to sell, dispense, or compound poisons that was then established. So it came to pass that a recognised craft guild of "chemistanddruggistry" was created, superseding that of pharmaceutical chemist, which had been the object of the Society, as necessary for ensuring competence for the practice of pharmacy in the proper sense. Hence the operation of the so-called Pharmacy Act, 1868, did not affect the practice of pharmacy as a whole; but served only for the protection of the public against the danger of poison. The beneficial effect of the advance thus made was soon interfered with. The business carried on by persons known as chemists and druggists, generally comprises—in addition to the sale, dispensing, and compounding of statutory poisons, and the whole professional part of the business practice of pharmacy that is not subject to statutory restriction—various accessory branches of ordinary trade which

could be carried on by any persons without qualification. Considerable opportunity for encroaching upon the professional part of the business was also presented by making the chemist's and druggist's shop resemble a fancy bazaar and calling it a "drug store." The first encroachment on the chemist and druggist's privilege to sell, dispense, and compound poisons was on the part of co-operative stores, some of them carrying on business as limited liability companies, and the attempt to stop that encroachment was frustrated by the decision of the House of Lords in 1881, which virtually sacrificed the legal qualification established for the practice of pharmacy to the Moloch of free trade.

The full effect of that failure to uphold the principle of the Pharmaceutical Society—that it is expedient for the safety of the public that persons engaged in the practice of pharmacy should possess a corresponding scientific and practical knowledge of their business—was not produced until the provisions of the Companies Acts were mischievously applied for the purpose of evading the Pharmacy Acts in which that principle was embodied. By that means and by the subsequent invention of the "bogus" or one-man company, any person—unqualified under the Pharmacy Acts—could keep open shop for retailing, dispensing, or compounding poisons, without being subject to the provisions of those Acts. That invention —the apotheosis of the House of Lords' decision—utterly stultified the Pharmacy Acts, and took the practice of pharmacy back again to a legal condition which was declared in 1864 by the General Medical Council, by Sir Robert Christison, Sir Henry Acland, and many other medical authorities, to be "a disgrace to the country," a condition allowing any ignorant or imcompetent person to carry on a business for the exercise of which, the Legislature had previously decided that the safety of the public required competent knowledge and skill. Hence the question has come to be really one as to the sufficiency of the Pharmacy Acts to prevent unqualified individuals taking a position that only legal persons should enjoy, not merely one as to the admissibility of company pharmacy. That is the position, at the present time, and though the departmental Committee of the Board of Trade declined in 1895 to take cognisance of the evil as being outside the scope of its instructions to provide a remedy for defects of the Companies Acts, the mischievous effect of the existing legal anomaly in regard to the operation of the Pharmacy Acts has been perceived: two of the highest legal authorities, having pointed it out in the House of the Lords as requiring to be remedied by suitable legislation. The procedure that was suggested for the purpose by the Lord Chancellor would, however, be no remedy for the evil: it would involve entire sacrifice of the principle of the Pharmacy Acts, destroy their efficacy in regard to the safety of the public, and inflict a grevious wrong on the persons legally qualified under those Acts to practise pharmacy, by making them the prey of unqualified competition.

Such is the position to which British pharmacy would be reduced if the provisions of the clause introduced in the Company Bill were enacted. The only hope of averting that disaster—which would indeed be a national disaster—lies in impressing upon the authorities concerned the utter incompatibility of the proposed measure with the principle of the Pharmacy Acts, or with public safety, and public justice. The Lord Chancellor's original suggestion for remedying the evil that he recognised, bore evidence that he had only a partial and distorted perception of the truth that the anomalous state of the law is obviously contrary to common sense. The same deficiency is apparent in the subsequent modifications of that suggestion. The memorandum prefixed to the Lord Chancellor's Pharmacy Bill, stating that the object of that Bill was to place a company in the same position as the executors or trustees of a deceased druggist, involves the fallacious assumption of analogy between the abnormal conduct of a chemist and druggist's business by a company of unqualified persons and the continuance of a deceased chemist's legitimate business. There is really no analogy whatever: nor can the proviso as to employment of a duly qualified manager or assistant be regarded applicable in the one case as it would be in the other.

Moreover the provisions of the second clause of the Companies Bill are absolutely inconsistent with each other, as well as with the general principle of the Pharmacy Acts. If the second clause were enacted, the only provision of the Pharmacy Acts to which a company would be really subject would be the one relating to observance of regulations as to the keeping or selling of poisons. Companies do not compound medicines, but obtain them for sale from wholesale manufacturers; therefore the only other provision touching a company, viz., that as to the compounding of medicines of the British Pharmacopœia, would be of little account in the case of companies. Then again, that very slender liability to the provisions of the Pharmacy Acts, is, according to the latter part of the second clause, to be subject to the further provision implying that companies may carry on the business and use the description pharmaceutical chemist or chemist and druggist—thus conceding to companies the most essential points of the Pharmacy Acts. That provision is in direct opposition to the principle of the Pharmacy Acts: it implies that a company may carry on the business and use those titles in connection with the chemist's business and irrespective of the fact that a company, as an ideal personage, cannot be registered, and cannot fulfil the conditions, antecedent to registration, which the Legislature has declared to be essential and expedient for the safety of the public. The condition under which it is thus proposed that a company should carry on the business and use the titles indicative of qualification, is also, from the public point of view, delusive, for since a company cannot be examined as to its fitness to do either the one or the other, it follows that the conduct of a company's business by a duly registered manager would in any case only confer upon the company a reflected and not a real qualification. Such a moonshine qualification may well be regarded as insufficient to secure any object of the Pharmacy Acts, —not in any sense justifying that practical confiscation of the privileges of qualified persons which its recognition would entail. The proposed second clause of the Companies Bill is, therefore, self-contradictory and distinctively retrograde in its tendency. That such a mode of dealing with the evil of company pharmacy should be considered for a moment, is conceivable only on the supposition that its proposers do not fully com-

prehend the case, or perceive what would be the consequence of adopting such a proposition. That persons on the Register of Chemists and Druggists—to say nothing of pharmaceutical chemists—should be the advocates of such legislation, should be inclined to acquiesce in it, or to contemplate any kind of compromise, admitting companies of unqualified persons to share their privileges, suggests a state of mind which, as Mr. SMITH well expressed himself last week, does not admit of being characterised in polite language, for, unless the interests of the public and the corresponding just interests of all legally qualified persons are ignored and disregarded, the only other conclusions would be too uncomplimentary to specify.

From the point of view stated above the articles appearing in the Journal during the past year have been directed to the exposition of a common-sense view of the case, which appears to be consistent with the principle and past action of the Society. Chemists and druggists who share those views and desire to oppose the confiscation of their privileges which seems possible, should throw the whole weight of their influence individually and collectively into supporting the action of the Pharmaceutical Society on their behalf. In order to defeat the open advocates of company pharmacy, as well as its secret supporters, the Council of the Society should be placed in a position to represent a united Society strong enough to resist all opposition—a Society determined to defend the position in which chemists and druggists were placed by the Pharmacy Acts—to command the attention of the Government and of Parliament, and to secure recognition of the justice of its claim. Existing conditions are more favourable than those prevailing when such an attempt was made in 1881. The rank and file of legally qualified chemists and druggists comprise a much larger proportion of examined persons, the value set upon their professional qualification by the public is greater, and, even in Parliament, extended application of the principle of the Pharmacy Act has been spoken of as desirable in the public interest.

THE COMPANY PHARMACY PROBLEM.

THE proceedings at the Council Meeting last Wednesday and—so far as can be gathered from the report—the proceedings of the Committee, clearly point to the existence of two parties in the Council. That absence of unanimity may perhaps be a source of gratification in certain quarters, though the papers by "An Ordinary Pharmacist" appear to have disturbed the equanimity of some who are inclined to support opposite views on the subject of company pharmacy. The writer of those articles may safely be left to defend himself by reasonable and logical arguments against any opponents, without editorial assistance. It may, however, be said that the view he puts forward and the arguments by which it is supported are quite in accord with the view that has always been expressed in the *Pharmaceutical Journal*. Any weight attaching to those arguments depends on their being reasonable and logical. Knowledge of the writer's name and individuality would not enhance that value, therefore it is sufficient to say that the writer is a pharmaceutical chemist, as well as a member of the Society, and is consequently fully entitled to express his views in the pages of the Society's Journal.

ANNOTATIONS.

"PHARMACIST No. III.," whose letter appears at page 443, does not appear to remember the fact that the House of Lords' decision in the case of the London and Provincial Supply Association, Limited, is a legal precedent applying to all cases relating to the legality of "company pharmacy." According to that legal precedent a company may lawfully carry on the business of a chemist and druggist, *i.e.*, sell poisons, or keep open shop for retailing, dispensing, and compounding poisons, and use the title of chemist and druggist in connection with that business—or even the title of pharmaceutical chemist—without being subject to the penalties that an individual would be subject to in such cases of infringement—in fact, a company need not conform to any of the requirements of the Pharmacy Act, *i.e.*, need not be registered, have been examined, or conform to regulations as to keeping or selling poisons or compounding medicines according to the formularies of the British Pharmacopœia—a company, as such, is a free-lance that may do what it will—and as a company may consist of the one individual—on whose behalf it is formed—with six dummies merely to satisfy the Companies Acts, the result is that the House of Lords' enfranchisement of companies has wiped out the Pharmacy Acts from the statute book. Strange to say, many chemists and druggists do not seem to have perceived that fact, any more than "Pharmacist No. III." appears to have done. Now that a very material advance has been made—in regard to the legal position of the registered chemist and druggist—by the introduction of clause 2 into the Companies Bill of the Govrernment, a more fully rational appreciation of the case is urgently desirable.

PROCEEDINGS UNDER THE SALE OF FOOD AND DRUGS ACT, 1875, were taken during 1898 in respect of the sale of "drugs," in ninety-three cases. Sixteen hundred and forty-one samples were examined, and a hundred and ninety-six of those—nearly 12 per cent.—were found to be adulterated. There were 39 adulterated samples of sweet spirit of nitre out of 173 examined; of Gregory's powder, 25 out of 75; of sulphur, 15 out of 82; of rhubarb, 15 out of 136; of lime water, 13 out of 40; of magnesia, 11 out of 74. Eight out of 25 prescriptions were improperly or carelessly compounded. The condemned samples of "wax" numbered 8 out of 30; of cream of tartar, 9 out of 84; of seidlitz powders, 9 out of 43; and of glycerin, 2 out of 132. On the other hand, 69 samples of castor-oil, 48 of linseed meal, and 49 of quinine and its preparations were found above reproach. The twenty-eighth annual report of the Local Government Board, from which the foregoing figures are taken, is like its predecessors in not stating how many—or how few—of the condemned samples were purchased from registered chemists Possibly the reason of the omission is that the number is too small for the authorities to feel justified in attempting to classify the culprits according to the nature of their business.

GUMMED PAPER has claimed a victim during the past fortnight—a clerk who applied the adhesive edge of an ordinary envelope flap to a wound in the scalp, instead of sticking plaster, having apparently died as the result of blood-poisoning thus set up. The wound may, of course, have become septic from some other cause, but the medical testimony favoured the view that the septicæmia which caused death had resulted from the unwise practice of applying any odd piece of gummed paper to a wound. The margins of sheets of postage stamps are frequently preserved for that purpose by people who ought to know better, but it cannot be too widely known that Government gummed paper is as likely to cause mischief when applied to wounds as any other.

THE FIRST EVENING MEETING of the Pharmaceutical Society for the present session will be held at 17, Bloomsbury Square, London, on Tuesday next, November 14. Professor J. Reynolds Green

will treat of the biology of yeast, and Professor H. G. Greenish will read a paper on spurious Alexandrian senna. The chair will be taken by the President—Mr. William Martindale—at eight o'clock precisely. It is hoped that a large number of members of the Society will make a point of being present and also bring my friends who may be interested in the subjects announced for consideration.

The Policy of the Council of the Pharmaceutical Society with regard to company trading in pharmacy, in so far as such a thing can be said to exist, is substantially what it was before the Companies Bill expired in August last. That is to say, the members of the Council are at one on the point that the use of titles indicating the possession of a legal qualification should be restricted to individuals who actually hold that qualification. They are also agreed that it is essential in the public interest that companies carrying on the business of a chemist and druggist should be placed on the same footing as individuals in regard to liability for offences under the Pharmacy Acts. Those two points of agreement are sufficient to constitute the basis of a policy that should commend itself to every chemist on the Register, and but few level-headed laymen would deny the justice of the two propositions. The difficulty, however, is to arrive at a generally satisfactory method of realising the conditions implied by those propositions, and such differences as prevail in the Council have their origin in minor difference of opinion as to what is practicable.

With the Same Object in View, the twenty-one members of Council naturally approach the problem of its attainment in such differing ways as suit their personal idiosyncrasies. Each individual member of the Council would like to have the Pharmacy Acts so amended as to apply equally to all persons—whether natural persons or artificial persons created by law. But there is not the same unanimity with regard to the method of securing that amendment; in fact, there is a great divergence of opinion in the Council on that point. As will be gathered from the report of the meeting of the Council held on Wednesday last, there is a strong party in favour of attempting to prevent a company of unqualified individuals from doing anything that the law says a single unqualified person may not do. But other members of Council, whilst in strong sympathy with that party, feel that it is inadvisable to attempt so much. Some hold that company trading in pharmacy has come to stay, and must be dealt with as an accomplished fact. At the same time, they insist upon the necessity, in the public interest, of providing proper safeguards in the case of companies as well as of individuals. How that is to be brought about they are not agreed. A few would provide a remedy in a Companies Bill; another section fails to see that the matter can be properly dealt with except in a Pharmacy Bill. But the point to be noted is that, whilst those differences of opinion exist, each individual member of the Council is honestly striving, as far as lies in his power, to find a satisfactory solution of the problem which presents itself.

A Protest Must be Entered, therefore, against the ill-chosen language occasionally made use of to express the opinions of members of the Pharmaceutical Society or of local associations, with regard to the manner in which the Council of the Society is attempting to perform its very difficult task. Some of the worst offenders in that respect hail from Lancashire, and a glaring instance of the objectionable practice referred to was supplied by the report of the Committee of the North-East Lancashire Chemists' Association, which was read at a meeting reported in last week's Journal. Only a summary of that report was printed in the Journal, the language of the report itself being quite unfit for publication in the Society's official organ. Whilst every member of the Society may reasonably claim to criticise in these columns his representatives upon the Council, in a fair and gentlemanly manner, it is obviously quite out of the question to print a mass of uncalled-for abuse. Misstatements and slanders cannot take the place of argument in serious discussion, and the sooner that fact is realised generally the better it will be for pharmacy.

It Would be Interesting, by the way, to know how Mr. Wells reconciles the terms of the proposition moved by him (see *ante*, p. 413) with the following statement attributed to him by the reporters:—"He believed emphatically that regulation and registration of the companies would be a desirable settlement." He then proceeded to say that "they (registered chemists, presumably) could not admit of any regulations in the matter of title, and no regulations could meet the case. Nothing but the individual qualification must confer the right to use the title or to handle scheduled poisons." Those statements may possibly be made to appear other than antagonistic, but it is difficult to conceive how. The report of Mr. Wells's remarks seemed so contradictory when received that—though apparently in his own handwriting—they were presented in the Journal in a summarised form. He has since complained, however, that his remarks have been "suppressed" and, under the circumstances, it seems desirable that he should have an opportunity of explaining what he really meant.

The Blackburn Position appears to be the absolute prohibition of all companies, whether constituted of qualified or unqualified persons. In other words, Mr. Wells and his friends would deprive registered chemists of the right to take advantage of the provisions of the Companies Acts in rearranging their business affairs—a right denied to no other tradesman. For, to the extent that the provisions of the Companies Acts can be applied to his business, a chemist and druggist is nothing but a tradesman. But such a proposal is absurd on the face of it, and not worthy of a moment's consideration. So far as a personal qualification is concerned, the existing Companies Acts should certainly not be allowed to apply, since it is obviously impossible for a company to fulfil the requirements imposed on individuals who desire to secure a professional qualification. It is equally out of the question that a company should practise any profession; but the individuals constituting a company, if properly qualified, can practise and ought not to be interfered with in so doing. A strict line of demarcation must be drawn between the professional and trade interests of registered chemists. The former should be legally protected and inalienable, but the protection of trade interests must be left to individuals—alone or in conjunction with others. What pharmaceutical chemists and chemists and druggists must be content to ask for, at present, is that the use of their titles and the practice of pharmacy in its professional aspect shall not be permitted to any unqualified person or combination of unqualified persons.

Argument based upon assumed analogy between the case of "James Woolley, Sons and Co., pharmaceutical chemists" and "Jesse Boot, Limited, the greatest chemists in the world," does not present itself as being of that reasonable and logical nature that should characterise an argument used in opposition to the claim of legally qualified chemists to the exclusive privilege of using the title and carrying on the business of chemist and druggist. Why legally qualified pharmaceutical chemists or chemists and druggists should be debarred from taking advantage of the facilities afforded by the Companies Act—if that be possible or desirable—no one of the advocates of "company pharmacy" has yet pointed out. Until it can be shown that such a proceeding involves a necessary violation of the principle of the Pharmacy Acts the argument above referred to cannot be of much practical value.

REVIEWS AND NOTICES OF BOOKS.

THE 'PHARMACOPŒIA OF UNIVERSITY COLLEGE HOSPITAL' has been revised by Mr. Harold Wilson, dispenser to the hospital, and the new edition (London: Jas. Truscott and Son, Suffolk Lane, E.C. Pp. 63. Price 1s. 6d.) is as conveniently arranged and compact a little volume as could be desired. The sections on "Heads for Reports of Cases," "General Rules for Performance of Autopsies," and "Rules for Removal of Tumours" have been omitted from this edition, and the space is more profitably occupied by sections on the "Use and Preparation of Enemata," "Poultices," "Mustard and Cold Baths," "Treatment of Bed-Sores," "The Urine," "The Blood," "Use and Preparation of Stains," and the "Treatment of Acute Poisoning." Other additions are diet, saturation, thermometric, solubility, and posological tables. The nomenclature has been brought into line with that of the British Pharmacopœia, and several new formulæ are introduced. The size of the book is $5\frac{3}{4} \times 3 \times \frac{1}{4}$ in., the binding is flexible, and there are several blank pages for notes.

'THE CHEMISTRY OF THE HAIR, FACE, AND TEETH,' by Dr. A. B. Griffiths (London: R. Hovenden and Sons, Berners Street, W. Pp. 152. Price 2s. 6d.), is a reprint of a series of lectures delivered by the author, to which he has added numerous formulæ for toilet preparations of various kinds.

THE 'TRANSACTIONS OF THE JENNER INSTITUTE OF PREVENTIVE MEDICINE,' a second series of which is now published (London: Macmillan and Company, Limited), constitute a record of original scientific work of the highest value. The papers included in the present volume dealt with diphtheria toxin, photogenic bacteria, the fermentation of sugars by various organisms, thermophilic bacteria, the pathology of cancer, symbiotic fermentation, the technical applications of bacteriology, and numerous other interesting topics in the department of preventive medicine. There are also many useful laboratory notes, dealing with flagella and capsule staining, disinfection on a large scale with formalin, etc., etc. The notes on apparatus describe a new hot stage for the microscope, a new photo-micrographic apparatus, a method of rapidly disintegrating micro-organisms, and a new microscope lamp. The volume is prefaced by an illustrated description of the Jenner Institute, and there are several plates illustrating articles on specific bacteria. Regarded as a whole, the book forms a notable addition to the literature of the subjects of which it treats.

'A GUIDE TO URINE TESTING,' by Mark Robinson, L.R.C.P., L.R.C.S. (Bristol: John Wright and Co. Pp. 48. Price 1s.), is a slight work written "for nurses and others." It is a compilation of the simpler tests and facts concerning urine, and is of a convenient size to carry in the pocket.

AN 'INTRODUCTION TO THE OUTLINES OF THE PRINCIPLES OF DIFFERENTIAL DIAGNOSIS,' by F. J. Smith, M.A., M.D., F.R.C.P. (London: Macmillan and Co. Pp. 253. Price 7s. 6d. net), is the outcome of an attempt to arrange the old phenomena of disease in such a manner as to show more clearly their fundamental meanings and relationships. The author has utilised the data of physiology and the facts of pathological anatomy as the source from which to draw inferences and deductions, which, in their turn, constitute a critical analysis of clinical symptoms; by this analysis he has endeavoured to lead up to the underlying principles which govern disease as well as health.

'NATURAL AND ARTIFICIAL METHODS OF VENTILATION' are compared in a small book of eighty pages, published by Messrs. Robert Boyle and Son, Limited, Holborn Viaduct, London. One of the most interesting features of the book is a supplement containing reproductions in colours of diagrams illustrating the action of natural and mechanical methods of ventilation.

'KING'S COLLEGE HOSPITAL REPORTS' for 1896-97 and 1897-8. (London: Adlard and Son. Pp. 358 and 270 respectively. Price 2s. 6d. per volume), have come to hand almost simultaneously. Each volume constitutes a permanent record of the more interesting cases treated in the hospital during the year, but there is nothing in the contents of special interest to pharmacists.

'ORTHOPÆDIC SURGERY,' by J. Jackson Clarke, M.B., F.R.C.S. (London: Cassell and Co., Ltd. Pp. 454. Price 21s.), is a work of which the most that need be said here is that it has been written by one of the chief authorities on the subject of which it treats. It is described by the author as a book on the surgery of deformities, based upon their pathology, and giving in a systematised form, an outline of the various therapeutic measures applicable to their treatment.

'ASTHMA,' by Ernest Kingscote, M.B., C.M., L.R.C.S. (London: H. J. Glaisher. Pp. 183. Price 5s. net), is a record of a number of observations taken during some years' special practice. While working at the treatment of chronic heart disease, the author was able to relieve some patients afflicted with asthma, and he now suggests some possible reasons for the relief obtained.

'THE PHOTO-MINIATURE' (London: Dawbarn and Ward, Ltd. Price 6d. monthly) deals in its September issue with orthochromatic photography, in the excellent style familiar to readers of that excellent little publication. The illustrations are numerous and clearly printed.

THE 'ARITHMETICAL EXERCISES IN CHEMISTRY,' by Leonard Dobbin, Ph.D. (Edinburgh: James Thin. Pp. 52. Price 2s.), have now reached a third edition, and the changes and additions made render the book more useful than ever. The series of elementary lessons on chemical calculations which it embodies was prepared at the request of Professor Crum Brown, who has written the preface to the book. The various sections deal with the metric system of weights and measures; thermometric scales; density and densities; the laws of Boyle, Charles and Avogadro, and other principles involved in the calculations required in dealing with chemical changes. Miscellaneous exercises are given, together with much other useful matter, and the book may be commended to the notice of pharmaceutical students as one which they ought to make a point of possessing and using freely.

POTASSIUM PERMANGANATE IN DYSENTERY.—Gastinel finds that rectal injections of solution of potassium permanganate give excellent results in the treatment of dysentery. A 0·5 per mille solution is employed, made warm by mixing ten ounces of a 1:1,000 solution with an equal volume of hot water so that the temperature of the mixture is brought to 112° F. The patient lies on his left side for the first part of the enema, on his back for the second, and on his right side for the remaining third, the injected liquid being retained for from 1 to 2 minutes. If this be done at night, a second enema is given next morning, followed in a few hours by a dose of 15 grains of calomel. If the patient is seen first in the morning, one enema is given, followed by the calomel when ease has been produced. The enemata are repeated, generally every 24 hours, and as the symptoms indicate, are gradually diminished, both in frequency and in strength. The injections are somewhat painful for a time, but are followed by considerable relief. With children, a much weaker solution is used, and the dose of calomel is suitably diminished.—*Med. Press*, **68**, 350.

PHARMACEUTICAL SOCIETY.

"FIRST" EXAMINATION RESULTS.

A meeting of the Board of Examiners for England and Wales was held on Wednesday, November 1,

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's examination:—

Dale, Isabel Marian; London
Felice, Arthur; Malta
Johnson, Martin W., Spalding
Poole, Edward J.; Weston-super-Mare
Robinson, James Dugdale; Streatham
Senior, Arthur Alleyne; Exeter
Sharland, John Howard; Bournemouth
Spurrin, Stanley R., Bethnal Green
Thorne, Ernest George; Swindon

The report of the College of Preceptors on the examination held on October 10, was received. **316** candidates had presented themselves for examination, of whom **156** had failed.

The following **160** passed, and the Registrar was authorised to place their names upon the Register of Apprentices or Students:—

Allen, John; Grimsby
Altree, Edward; Kennington
Anderson, James Michie M.; Forres
Anderson, John Miller; Alva
Anderson, Thomas; Blackburn
Andrews, Hugh; Southport
Attenborough, T. Winfield; Nottingham
Bartleman, George Herbert; London
Bates, Thomas Harry; Birmingham
Baxter, Evelyn Mar. R.; Grangemouth
Bellringer, Harry; Denton
Bennett, Frank Hawkins, Stafford
Beverley, Thomas Latham; Notting'm
Biggam, John William; Whitehaven
Binks, Lilian Maude; St. Austell
Birkett, Robert; Fife
Bond, Francis Collins; Hull
Brinson, William John; Chesterfield
Brown, Gerald Reeves; Hull
Brown, Robert; Richmond
Bullen, Frederick Edward; Streatham
Cadman, Percy; Heckmondwike
Calvert, Sidney; Snaith
Camidge, Edgar Sydney; York
Catlow, Harry; Accrington
Clark, Harry; Settle
Clements, Llewellyn; Burnham
Colebrook, Donald; Plumstead
Collins, Charles Williams; Dorking
Cooper, Reginald; Mkt. Harborough
Cowie, John William; Tillicoultry
Craig, Frank; Inverness
Craven, George Leo; Blackburn
Croasdale, Henry Kirkby; Heanor
Cullingford, Clifford S.; Colchester
Cunningham, Duncan; Glasgow
Davis, John David; Braintree
Dickinson, R. J.; Berwick-on-Tweed
Dodgson, James; Carnforth
Dolling, Sidney John; Chard
Donaldson, John; Cullen
Duncan, William James C.; Aberdeen
Edgar, Allan Herbert; Kennington
Ferguson, Adam; Stirling
Forster, C. H. S.; Bebside Wood
Fowler, Henry; Frome
Freemantle, Frank, Woolston
Freestone, H. C. H.; Nottingham
Fryer, Raymond John; Uppermill
Gale, Arthur George; Penzance
Garbutt, Henry; Stockton-on-Tees
Garment, Wilfrid E.; Northampton
Gaze, John Edwin; Oxford
Gibson, Robert; Bishop Auckland
Greener, John Ebenezer; Shrewsbury
Hallding; Samuel Herbert; Runcorn
Hancock, Harold Holden; Lee
Harries, Evan John; Ammanford
Haycock, John; Leicester
Hedley, Joseph William; Durham
Henderson, Ernest B.; Wakefield
Henderson, Louis Burdett; Edinburgh
Herman, John Bartholomew; Liverpool
Hickson, Frederick; Gainsboro'
Hogg, Andrew; Langholm
Hollows, William Edward; Southport
Homes, Richard Gerald; Cheltenham
Hooper, Albert Edward; Cirencester
Horn, James Richd.; Wath-on-Dearne
Hudson, William; Bedlington
Hugh, William Bryce; Lochgelly
Humphry, Stephen; Dartmouth
Hutchinson, Omer Talon; Sunderland
Illsley, Thomas H.; Barnard Castle
Ingall, Mary Charlotte; Lancaster
Jackson, Edith Mary; Gainsborough
James, Thomas Hutchings; Fishguard
Johnson, Frederick Charles; Dudley
Jones, George Roberts, Amlwch Port
Jones, Rees Trevelyan; Bridgend
Jones, Thomas Ernest; Pontypridd
Jones, Vincent Hadfield; Carmarthen
Jones, Walter John; London
Juniper, Ernest; Epping
Keen, Theodore Stanley; Devonport
Lawrie, William C.; Workington
Leddra, Thomas Carlyle; St. Ives
Lee, Edwin Snow; Crediton
Lewis, Alfred Pearson; Birkenhead
Logan, Herbert Millar; Coatbridge
McDonald, Andrew; Fochabers
Macdonald, Henry W.; Middlesbrough
McLachlan, Douglas; Catford
McPhie, John; Falkirk
Martin, Clarence William; Colchester
Martindale, Leonard; Uppingham
Masters, Isabel; London
Matthaei, Maximilian Joseph; London
Meadows, William Ross; Ilford
Merriman, Charles E. B.; Ilkeston
Milne, John; Penicuik
Mitchell, James; Edinburgh
Mogg, Arthur Thomas; Leeds
Molyneaux, Thomas; Accrington
Morgan, David Thomas, Brixton
Morgan, David Thomas, Aberyswith
Murray, Alec; Leith
Nolan, Walter; Manchester
O'Dea, John; Sneinton
Overend, Frank; Holmfirth
Paddon, Thomas Herbert; Sheffield
Penney, Walter Gordon; Colchester
Piddock, John Hurley; Birmingham
Piquet, Christine Amy; London
Pritchard, Evan Thomas; Cardiff
Purse, Frank, Sunderland
Quarmby, Arthur Henry; Macclesfield
Rees, David Griffith; Swansea
Rennie, John; Aberdeen
Richardson, Barbara; Ruddington
Richardson, James; Larbert
Ridley, Thomas Moore; Carlisle
Riley, Walter; Derby
Robinson, George Lawrence; Stockton-on-Tees
Sagar, Henry; Ashton-under-Lyne
Sample, Arthur John; Whitby
Scott, Frank Branwhite; Brixton
Scrimgeour, James; Perth
Sellors, Reginald Vivian; Kilburn
Shackleton, Stanley Amos; Abergav'nny
Sidebottom, Walter; Accrington
Sinclair, George Gilmour; Thurso
Slawson, Frank; Chesterfield
Sloan, Alan Douglas S.; Dumfries
Smith, Arthur; Bradford
Smith, Frank Ramsay, Liverpool
Soesman, Fanny Eugenie; Southsea
Spencer, John Ernest; South Shields
Spurr, Frank; Birstall
Squire, Ethelbert William; Leicester
Sutton, Jas. H.; Kingston-on-Thames
Tainsh, John Hunter; Edinburgh
Taylor, Arthur; Huddersfield
Thomas, Sydney Moreton; Ross
Thompson, Harry Garlick; Blackburn
Thompson, Thomas W. F.; Edinburgh
Torrance, Jane Flockhart; Wilkieston
Trevorrow, Havelock; Newport, Mon.
Trueman, Joseph Shaw; Whitby
Tucker, Alfred Burnard; Honiton
Usher, Chas. Wm.; Jarrow-on-Tyne
Walker, David; Perth
Weatherell, John; Bishop Auckland
Webb, Donald Rumsey; Runcorn
Wellwood, Robert Douglas; Saltcoats
Wheatley, Alfred R. F.; Loughborough
Willis, Francis Edward; Lee
Winfield, Reginald Webb; Liverpool
Wright, John Wm. Arthur; Bradford
Wynn, Alfred; Walworth

The questions set at this examination were published in the *Pharmaceutical Journal* for October 14, p. 372.

The following is a list of the centres at which the examination was held, showing the number of candidates at each centre, and the result:—

	Candidates.				Candidates.		
	Examined.	Passed.	Failed.		Examined.	Passed.	Failed.
Aberdeen	9	4	5	Leeds	21	10	11
Birmingham	11	4	7	Lincoln	3	2	1
Brighton	4	0	4	Liverpool	16	8	8
Bristol	5	2	3	London	42	25	17
Canterbury	3	0	3	Manchester	28	11	17
Cardiff	6	4	2	Newcastle-on Tyne	13	7	6
Carlisle	8	5	3	Northampton	3	3	0
Carmarthen	12	5	7	Norwich	2	0	2
Carnarvon	3	1	2	Nottingham	20	10	10
Cheltenham	5	3	2	Oxford	2	1	1
Darlington	10	7	3	Penzance	2	2	0
Dundee	8	2	6	Peterborough	2	1	1
Edinburgh	19	11	8	Plymouth	3	2	1
Exeter	7	4	3	Sheffield	5	3	2
Glasgow	16	8	8	Shrewsbury	1	1	0
Hull	3	3	0	Southampton	6	2	4
Inverness	5	3	2	York	7	3	4
Lancaster	6	3	3				

SELECTED PRACTICAL FORMULÆ.

Sulphur Zinc Paste with Sugar.

Menahem Hodara prepares this paste from lanolin and vaseline, of each 20; glycerin, 10; sugar, 20; sulphur, 10; zinc oxide, 20. The author recommends this paste in dermatological practice, and has found it effect rapid cures in lesions of the epidermis.—*Oest. Zeits. für Pharm.*, **53**, 390.

Zinc Gelatin.

According to H. Dik, this is best prepared with the following ingredients: Zinc oxide, 20; gelatin, 20; glycerin, 80; water, 80.—*Pharm. Post*, **29**, 383.

Zinol.

Zinol is a new remedy for gonorrhœa. It consists of a combination of zinc acetate, 1; alumnol (aluminium naphthol-sulphonate), 4; and is prepared in the form of a powder or as tablets. It is best administered as an aqueous injection.—*Pharm. Post*, **29**, 321.

Syrup of Papain.

Papain, 2; distilled water, 3; alcohol (60 per cent.), 10; syrup of orange, 180. Dissolve the papain in the water with a gentle heat, add the solution to the syrup; finally add the alcohol.—*Bullet. de Pharm. de Brux.*, **43**, 279.

Toothache Remedies.

(1) Cajuput oil, 1; clove oil, 1; chloroform, 2. (2) Camphor, 8; chloral hydrate, 8; spirit of peppermint, 120. (3) Clove oil, tincture of Indian hemp, chloroform; equal parts. (4) Peppermint oil, alcohol, ether, tincture of opium; equal parts. (5) Menthol, 8; ether, 100; clove oil, 60; extract of aconite, 4. (6) Eucalyptus oil, 4; mastic, 8; camphor, 45; morphine (alkaloid), 5·5; chloroform, 75; alcohol to produce 150.—*Pharm. Post*, **29**, 393, after *Merck's Report*.

Petroleum Insecticide.

Intimately mix 1 part each of common soft soap and tepid water, then add gradually one part of common paraffin oil, mixing the whole thoroughly with a brush of fine iron wire until a perfect emulsion is obtained. This emulsion may be diluted with 60 times its volume of water, or even more before use. If desired, tobacco juice or other poison may be added.—*L'Union Pharm.*, **40**, 412, after *Horticult. Nouv.*

MIDLAND PHARMACEUTICAL ASSOCIATION.

A meeting of this Association was held at the Great Western Hotel, Birmingham, on Thursday, November 2, 1899, when an address was delivered by Mr. W. Gowen Cross, J.P., of Shrewsbury, member of Council of the Pharmaceutical Society, on

Pharmaceutical Politics.

He said: I am constrained to preface the few remarks which I am about to make this evening with the expression of the great pleasure which the opportunity of addressing a Birmingham audience gives me. Certainly, no more fitting place could be chosen as the headquarters of Midland pharmacy than this great city, replete, as it is, with institutions which themselves constitute the types of their congeners throughout the land. Very early in the history of modern municipalisation did Birmingham exhibit such capacity for self-government that her methods obtained the truest expression of appreciation from kindred bodies, and if "Imitation is the sincerest form of flattery," Birmingham has received sincere flattery by the wholesale borrowing of her methods by other municipalities. She has so fully justified her motto, "Forward!" that whatever failures she may have encountered (and I suppose that some of these have fallen even to her lot), these have simultaneously been overwhelmed and obliterated by the magnificent successes which she has achieved. For her municipality has been the training-ground of statesmen of sufficient calibre to mould the destinies of a world-wide empire. Her School Board is at once a monument of efficiency and an exhibition of how an intelligent community can call into vitality a system of primary education which could only be shadowed (or, at least, slightly sketched) by the best drafted Act of Parliament. Her provision for secondary education is not less admirable, for I was reading only last September what was justly described a "comprehensive programme," which referred to the Municipal Technical School here, with its eight compartments, wherein are yearly granted numerous scholarships and prizes, obtained not only from the usual sources of private munificence, but also from the trade societies which flourish here. And, looking into the near future, we have the Birmingham University, which has recently been called to life, in an almost incredibly short time from its inception, which proves that the spirit of the great Mason still permeates the minds of his fellow-citizens, who would fain wish that he could see in the flesh the splendid supplement to his prescient generosity which the new University will become. Surely, upon such a soil, all that reaches toward the light should flourish and abound, and among the intellectualities which will thrive, it is not too much to hope that our own art of pharmacy will strive for and attain higher spheres of perfection as time rolls on.

It comes to my memory that nearly a quarter of a century back I, for the first time in my life, took a public office, and this was as a member of the Executive of the Chemists' and Druggists' Trade Association, which had its headquarters in Birmingham, and which I always like to believe did some useful work during its ten years of existence. This city, therefore, was for good or otherwise the starting point of my public career, and it gives me great pleasure to be deemed by you worthy to occupy the place which you have given me in your programme this evening. At the commencement of every session it is well to look ahead and consider what policy is best for the present state of affairs, and pharmacy is not exempt from the necessity of having a policy. Just now we who steer the pharmaceutical vessel are more or less pleasantly reminded that we ought to formulate and declare a policy, which the country generally can accept. It seems so easy to do this. Our wants are so obvious, and our service to the public so conspicuously desirable, that it is a matter of State urgency to afford the holders of our diplomas protection from the dangers which surround them and the public, and especially from the dangers which are inherent to the practice of pharmacy by limited liability companies. And was there not before Parliament, debated and carried by the House of Lords to its third reading, a Bill to amend the Companies Acts, which we are promised to see again next session? And was not one of its clauses devoted to pharmacy? True, the treatment proposed to be meted out to us was not the sort of treatment we desire, but that might be the result of misunderstanding, and might be remedied. But how?

The Company Pharmacy Problem.

You all know what happened last month, and of the reference which was made to the Law and Parliamentary Committee of the Council with a view to a clause being drafted in the interest of pharmacy, to amend the Companies Bill. Well, this week you will find that a majority of the committee submitted a clause which would virtually prevent a company carrying on the business of a chemist and druggist or of assuming the titles. I have discussed this proposal in my place at the Council, and it would ill become me to do so here. But I know that you will read that discussion with interest, and perhaps will agree with me that it is just as well that the matter was sent back to the committee for further consideration. For my part I wish to be perfectly just to my colleagues, and to subordinate a personal opinion to the conclusion which will sooner or later be arrived at by the majority of them. And if you ask me what that conclusion is likely to be, I simply reply: Ask yourselves what is the probable outcome of our deliberations, and you will form a pretty just estimate of what twenty-one men, similarly placed to yourselves, are likely to aim at. We cannot attain the impossible, but we hope to make the best of this and every other opportunity which is offered to us.

Criticise our actions, stimulate us with your suggestions, and rest assured that the confidence which you repose in us will not be misplaced. Our policy is to act intelligently at the exact pschycological moment. Yours, and the policy of kindred associations, to collect and provide us with material for con ideration.

The policy of the Midland Pharmaceutical Association appears to me always to travel upon the lines which I have indicated, and although, as a member of it, it would ill become me to speak its praises too loudly, I cannot forbear to congratulate its executive upon the excellences of its procedure, as especially upon its prompt action in securing the co-operation of pharmacy within its sphere of influence, for the University scheme in this city, inasmuch as the prime plank in our platform, is the securing of our educational status. That is why the parent Society still keeps her hold upon the School at Bloomsbury Square—a School she will gladly relinquish when the University centres throughout the country are ready to replace it. And we should like to feel that from the moment a student enters upon pharmacy as a calling he is ever seeking to acquire and utilise knowledge, and that "as riper years shed their snow" upon the head of the pharmacist, enwrapped though he may be with care, and enveloped in business concerns, his life's' plan is to widen and deepen the sources and channels of the huge store of knowledge which he has acquired.

Although I must not divulge cabinet secrets, there is every reason why we should discuss the amendment of the Companies Acts whenever we have the opportunity to do so, and I hope that you will agree with me that no amendment will satisfy us in the least degree which fails to secure for us the individual right to use, and style ourselves by, the titles which we have acquired by examination. It is amazing—but, nevertheless, the highest legal authority tells us so—that the judgment obtained against the Pharmaceutical Society in the House of Lords covers the use of titles. This being so, it is simply wasting powder and shot to seek out a test case and bring it before the Courts, for we should simply get blocked *ab initio*. But the justice of such a position is surely "a mockery of justice," and we have a perfectly logical case in attempting to amend the law.

The Existing Position.

You will remember that the judgment above referred to was given against us mainly upon the meaning of the word person, and it decided that inasmuch as a limited liability company is not a person of the kind referred to in the Act, it is outside the operation of the Pharmacy Act, in so far as the first fifteen clauses are concerned.

Unfortunately, our titles come within this space of the Act, but surely title is essentially a personal matter. It can only be acquired by a person, who, to acquire it, must perform certain personal services who, when he has received it, must use it personally, for he cannot transfer it. And when this person ceases to live his certificate becomes inoperative.

In other words, the Pharmacy Act, for the public good, and apparently that the public may recognise the persons who are to do certain things, distinctly invests these self-same persons with definitive distinctive titles upon their compliance with certain conditions, and surely it is illogical, if not immoral (perhaps both), for that which the law has decided to be a nonentity to assume something which can only appertain to an entity—to pose, in short, at one and the same time as a person and yet not a person.

The absurdity of the position is so apparent that in their attempt to amend the Companies Act which the Government has made, a clause was inserted to protect other titles which, under the exist-

ing judgment, are similarly affected to our own, and in the name of justice we ask for similar treatment. This is altogether different from asking a trading monopoly. It belongs to us personally, and is as useful to the public generally as ourselves that such a distinction should be drawn, and that a company, *qua* company, shall not call itself by a title which it cannot honestly acquire.

We must, therefore, in any amendment of company law, use all the power we can to obtain sole possession of our titles, and we ought to succeed in doing so. I cannot help feeling when I read the reports of meetings, and some of the correspondence which our journals contain from time to time, that a need exists for stating our case plainly. After travelling through all the Courts of law judgment has been definitely pronounced, so that it is not right, and it is certainly unwise, to accuse limited liability companies of acting illegally when they do things which this judgment, the highest in the land, has declared deliberately to be perfectly legal.

And I, for one, am convinced that we shall never prevent companies from carrying on much of the business which at one time was the exclusive property of a chemist.

As to company pharmacy, there is no such thing. It is a misnomer altogether, and but for the assistance of qualified men the pretence of such a thing would be self-apparent.

Whether qualified assistants will ever recognise that by assisting companies to keep open shops as pharmacies, and evade the spirit of the Pharmacy Act, they are cutting the ground from under their own feet, I cannot pretend to say; but we must admit two patent facts by which companies are enabled to masquerade as ourselves—(1st) They obtain assistance from within our ranks, and (2nd) they have the active support of a section of the public. So long as these conditions obtain, we cannot expect Parliament to prohibit company trading in our direction.

How an Impression May be Made.

I agree with a speaker who said recently "that if the Pharmaceutical Society and the whole of the pharmaceutical body were to take up this matter seriously, they would make an impression upon the Legislature." What a picture! The Pharmaceutical Society backed by the whole estate of pharmacy. Would that we could clothe it with living flesh. But so long as qualified men are content to accept the service of companies, it cannot be realised.

Another, in a letter some time back, recommended us to appeal to the sympathy of "the man in the street." Well, we know this gentleman by repute. One of the honourable members for this city recently spoke of his shrewdness, and perhaps rightly, in connection with the matter which he had under discussion at the time. But I am not for appealing to him for pharmacy legislation. He knows nothing about us, and could not therefore champion our cause. Left to public sympathy, our cause could not progress. It is worse than useless to appeal to those who cannot help us. Rather let us go, as we have already gone, to the permanent officials of the Privy Council, and ask that no retrogressive pharmacy legislation shall be allowed—and I do not fear the result. In my opinion it is bad policy to be continually drivelling with our grievances before the public, advertising our disabilities and appearing to seek a monopoly. If we succeed in strengthening the Pharmacy Acts it will rather be at the instance of a responsible official aiming to protect the public—in spite of themselves—than by ourselves seeking the support of popular clamour. In a word, I wish to face things cheerfully and practically. There is, no doubt, in our own ranks more than one development of method which we cannot but deplore the necessity of—which, as educated men, chafes us. An atmosphere of keen trade competition, for instance, is uncongenial with the practice of the ideal pharmacy we were wont to plan out for ourselves in our earlier days. But I would rather divert attention from this state of mind to the undoubted fact that there is a better future in store for those who intelligently seek it. Living things rise to opportunity, and the wise pharmaceutical politician will endeavour to extract the good which he can secure from his surroundings. After all, has not the more modern order of things provided many who otherwise would have become stagnant with opportunities which, under the older *régime*, would have never come in his way? Where, for instance, are the shabby, not overclean pharmacies of olden days? Most of them, I hope, appear in suitable modern garb, and are of increased and increasing value to the public, the physician, and the pharmacist himself.

What to Work For.

I make no excuse (except, perhaps, to the ladies) for introducing pharmaceutical politics to this Association at its inaugural meeting, because it is, in my opinion, the right thing to discuss before the next Parliamentary session opens. And I hope that associations all over the country will endeavour to think out for themselves, with as little prejudice as possible, the question which we have to face, when anything pertaining to company law makes its appearance in Parliament. One thing, I believe, we are all united in: We are determined to secure, if possible, the personal possession of our titles; but before we have secured this point, notwithstanding that justice is on our side, we may have a weary time of waiting, and, moreover, to perform, through our Executive, some task or other which is unpalatable. Personally, I would sacrifice much to prevent limited liability companies trading under the title of chemist, and, although I would not willingly be a party to the regulation of company pharmacy, yet, if Government were to approach the Council of the Pharmaceutical Society, and to state plainly that they were determined to impose in their Act conditions upon companies for the better protection of the public, and invited the Council to assist them in framing these, I should certainly, as a public man, holding a responsible position, not stand aloof from such an invitation. And, thinking of the public whom I am bound to protect, and thinking, also, of my brethren in pharmacy, I would do everything in my power to insure that companies should be bound by the same law as I am myself; and, moreover, that the public should have full opportunity to discern whether the hand into which it is about to place its vital concerns is the hand of a responsible person, with unlimited interests and responsibilities, or whether it is the hand of a mere hireling of a number of unqualified persons, whose responsibilities are carefully limited.

As to minute directions, such as we all observe, being codified and drawn up as regulations to enable stores to flourish, I could not help in such a work—not because my commercial interests would thereby be interfered with, but because I believe the public safety demands that such matters can only be successfully dealt with by the person who himself holds statutory qualification. There is more, after all, in pharmaceutical politics than the matters which I have been discoursing upon. You expect me to discourse upon the popular theme, and the temptation to do so is irresistible—not that I can expect to say anything more than has been said and written upon the subject by men who are better able to give expression than I am. If I may say a word of criticism to my contemporaries in quitting the matter for the present, it is to deplore that so much of what one reads evidences such a lack of knowledge of the actual, as opposed to the ideal, state of the law at the present time, and that so many of the proposed terms of settlement are so obviously impossible. And this after the matter has been discussed in all its bearings for over twenty-five years, during which time no expense has been spared to secure the best legal opinion and to demonstrate the dangers and absurdities of the position to those who alone can take the steps necessary to alter it.

The Prospect Brightening.

It has been said that "until this question is settled the Pharmaceutical Council should suspend its educational work" and "devote the whole of its attention to securing justice for chemists." That would be the experiment of the Frenchman and his horse over again, and without the nutriment so essential to its vitality pharmacy would become inanimate.

There is, however, a sign of better things. It is the movement for greater cohesion in the craft, and I am rejoiced to find that, in greater evidence as one session succeeds another, associations are becoming increasingly living organisms. Time was but few years younger when it was the generally accepted dictum that associations of chemists throughout the country, had either become the pocket boroughs of one or two leading men in their ranks, or had ceased to exist altogether. We heard of libraries being housed in other premises because their original home was closed, and of certain leaders who should and ought to be attending carefully to the good of the body corporate, neglecting golden opportunities, with the result that chemists in certain districts did not unite socially or otherwise. It has been reserved for the present generation of men in our ranks to alter this state of things. Old associations are revivified, new ones are started, and instead of being the one-horsed shows of former years, they are instinct with life, intelligence, and good-fellowship. Thirty-six meetings of the British Pharmaceutical Conference in different parts of the kingdom have largely contributed to this result, but chiefly has the Federation of Pharmaceutical Associations, which was hatched and nursed through its tender years in Birmingham, been the powerful factor in this matter, and I am hoping shortly to infuse this spirit more generally among the local

secretaries of the Pharmaceutical Society, chemists meet now to take council and to sympathise with one another in a deeper, truer sense than they ever did before, at least within my recollection; and it is only, I believe, by such means that a fuller understanding of our wants, our difficulties, and the way to secure and remedy these can be brought about. After all that is argued and debated may the developments of pharmaceutical politics be—the good of the greater number, the unfolding of the many possibilities within our reach, so that when we leave the stage upon which we have played our part, as we all, sooner or later, shall have to do, we may have the satisfaction of reflecting that we each and all at least have striven to do something for its betterment.

CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held at 73, Newman Street, London, W., on Thursday, October 26. The PRESIDENT, Mr. F. W. GAMBLE, in the chair. There was a fair attendance of members. The minutes of the two previous meetings having been read by the SECRETARY, Mr. J. EVANS, and confirmed, Mr. J. C. HYSLOP read paper on

"Ethics as Applied to the Practice of Pharmacy,"

which is printed at page 419.

The PRESIDENT, at the conclusion of the paper, said that it was stated in the pharmaceutical press last year that the subjects of the meetings of the Association embraced almost every subject that was of interest to pharmacy, but he thought they had that night heard Mr. Hyslop speak on a subject that had been absent from the minds of all—that of Ethics as applied to pharmacy. Mr. Hyslop was in a position so speak on such a subject to those of the younger branch of pharmacy because his venerable aspect commanded their reverence and respect. It was a somewhat curious coincidence that at the commencement of the present session the medical profession had been addressed on a similar subject by Sir James Crichton Browne, who spoke on the Attainment of the Ideal. Mr. Hyslop had put before them some ideals, which to him (the speaker) seemed very difficult of attainment. For instance, it would be very nice for the pharmacist to attain to the position of being able to leave his business in the care of his neighbour for a month or two in the same way that doctors frequently do, but he was afraid the pharmacist would find it more difficult to retain his customers under such conditions than was the case with the doctor. Mr. Hyslop had revealed in his paper a wide acquaintance with literature, and although his quotations showed that he was an admirer of Pope, he was evidently ready to deny one of his sayings to the effect that "Whatever is, is right." The address had shown that a knowledge of literature was useful even to pharmacists. With regard to Mr. Hyslop's reference to the poor assistant, it was undoubtedly the fact that he got most of the blame whenever anything went wrong. Perhapsa better state of things would exist when they had a better class of masters.

Mr. T. MORLEY TAYLOR said it had been suggested to him that Mr. Hyslop's address had been so much in the nature of the kindly sermon, that even if they found any point to discuss, they could not criticise it, at any rate not in an antagonistic sense. Mr. Hyslop had placed before them a very high ideal of pharmacy; he (Mr. Taylor) had a high ideal of his calling himself—except in the matter of getting a living—and he expected that every one in that room had too. Mr. Hyslop had hit upon a weak spot when he spoke of the strikingly ready way in which pharmacists fill their pharmacies with quack medicines. He thought the practice was to be deprecated. With regard to Mr. Hyslop's ideal of a pharmacist taking care of another's business, he was of opinion that the minutiæ of each individual pharmacist's business was such as to render that ideal almost impracticable.

Mr. C. J. STROTHER thought that the public was to blame and not pharmacists for the large business done in quack medicines. The public demanded certain articles, and pharmacists had to stock them or lose custom for other things. But, of course, in order to draw trade the real difficulty was that one pharmacist in a place exhibited these goods ticketed at a less price than his neighbour sold them; he in turn retaliated by reducing the price still lower, until finally there was no profit left. He thought the ethics of the future would tend to abolish that state of things by assisting young men to take a firm stand in refusing to deal otherwise than in a straightforward way. He believed that such associations as the C.A.A. exerted a great influence for good in that direction.

Mr. JAMES regretted that Mr. Hyslop had not pointed out the way by which the high ideals he had placed before them could be attained. Personally, he thought that the abolition of the indoor assistant—who often imbibed the peculiarities of his master, and sometimes those of the lady of the house—together with shorter hours, would go far towards producing a class of men of broader mind and better in every respect than the average pharmacist of to-day.

Mr. HYSLOP having replied to the remarks made by the different speakers, a hearty vote of thanks was accorded to him on the motion of Mr. A. Latreille.

MIDLAND CHEMISTS' ASSISTANTS' ASSOCIATION.

The opening meeting of the session was held on the 25th ult. at the Exchange Rooms, Birmingham, the PRESIDENT (Mr. F. A. Spear) occupying the chair. There was a large attendance. Mr. A. W. GERRARD (Oldbury) read a paper on

Pharmaceutical Education,

and dealt with the subject in a very interesting manner. At the outset Mr. Gerrard expressed the pleasure he felt, as a pharmacist of thirty-five years' standing, at meeting the members of an Association, the chief object of which was the betterment of pharmacy. He regarded it as a promising sign of the times that the young pharmacists of a great industrial centre like Birmingham should have brought themselves shoulder to shoulder, determined to support each other, as well as kindred associations, in matters educational, political, and social. All well-wishers of pharmacy should welcome the foundation of such societies, calculated, as they were, under wise management, to exercise a most beneficial influence upon the future of the craft. Mr. Gerrard went on to urge strongly the advantages which good education afforded as a means of betterment. In this lay the pharmacist's salvation. Every effort should be made, therefore, to raise the standard, for it was unmistakably the surest foundation on which to gain the confidence and esteem of the public and the medical profession, as well as the support of Parliament. There was a brighter outlook for pharmacy to-day in the fact that the old Preliminary Examination had had notice to quit. The amount of knowledge it required for a pass had allowed hundreds of young men to squeeze themselves into a calling for which they were totally unfitted. Such men added nothing to the dignity or advancement of the craft; they were a drag on its progress. For long years past the voices of many of their leaders had been raised in favour of this change, and to those men hearty thanks were due. The future effect and influence of the new examination could only be beneficial. The more extended knowledge it required, especially of mathematics, would be of the greatest assistance in enabling students to comprehend the problems of physics and chemistry in a way that the old examination never could. As to want of facilities for obtaining higher education, few excuses could now be offered. There were provided in every good-sized town schools or classes where studies could be pursued at very moderate fees. Only the will and energy of the individual was needed, and, this given, no youth of average intelligence who desired to be a pharmacist need fear the ordeal which was to test his intellectual power. It was cheering to feel that this new and better education must inevitably raise the tone of pharmacy and materially strengthen their claim to a professional status. Going a step further in pharmaceutical education, Mr. Gerrard next discussed the apprenticeship period. At the outset he expressed himself as strongly opposed to the present system. It was most imperfect. Apprenticeship to-day was like an ill-directed journey over a barren plain. He asked those who had taken the journey whether the duties placed upon them were of such a nature as to help them to qualify themselves as pharmacists, or whether they were taught even those elementary first principles which surrounded and underlay pharmacy in every direction? He feared not. They were taught pounding, mixing, packing, labelling, and cleaning—honourable labour, without doubt, but most of it just as well done by a porter or by an intelligent girl. What a

WASTE OF YEARS

such apprenticeship was, and at an age, too, when the brain was receptive and needed mental practice! What a chaos of surround-

ings ! What a chasm those years made between the Preliminary and the Minor ! This worn-out old method badly wanted ringing out and something new ringing in. As regarded one of his own sons, likely to be trained as a pharmacist, his endeavour would be to see that the training given was systematic, and that it continued immediately after the Preliminary. Its main features would comprise science, modern languages, and commerce. There would be no loose wandering or waste of four or five precious years ; each link of the chain would be fitted in its proper order. For apprenticeship was proposed to be substituted a curriculum—one in which the complex art called pharmacy must have a large share. The course of instruction which commended itself to him should extend over three years at the least, beginning with pupilage to a qualified pharmacist in a recognised pharmacy school or institution. The first six months might well be occupied in the pharmacy, so as to bring the youth in touch with the routine of the calling and to give him some idea of his future needs. There were many daily duties best learned at this period—duties which must not be considered undignified, as they were an essential part of the training. He referred especially to lessons in order and cleanliness, which were not only valuable in themselves, but could be made to teach other important lessons. A large share of his own knowledge of materia medica was obtained whilst cleansing a bottle or dusting a drawer. A knowledge of the weights and measures employed should also be thoroughly ground in—both the metrical and British systems, with their relationships. The adoption of the metrical system in the British Pharmacopœia made it almost essential that every pharmacist should possess a set of such weights and measures. Some reading on the subject of pharmacy should then be indulged in, and a note-book kept defining the various processes. After three months of this some of the simply official preparations might be made, such as illustrated the uses of heat, solvents, distillation, precipitation, filtration, percolation, infusion, decoction, and many others. The apparatus required for these was simple enough, and one hour a day was ample for a demonstration. What a help such a beginning as this would be in time to come. Every principal who took a pupil was honestly bound to follow some such course of training, mind. After six months of such training the curriculum proper should commence. The second period ought to occupy at least nine months, spent in attending lectures and classes on physics, chemistry, and botany at a well-equipped and recognised school. Practical classes and demonstrations were of far greater value than lectures. The man who merely attended lectures and read was never so useful at his work, or so thorough in his knowledge, as the man who experimented and read. A day a week at this period might well be devoted to pharmaceutical manipulations showing the co-relationship of the science subjects and pharmacy. Materia medica, so far as it applied to the Minor, demanded attention, but it would more properly follow after instruction in chemistry and botany. Materia medica, as commonly learnt, was almost entirely a feat of memory—more or less a cram of botanical names, natural orders, preparations, and doses. It was intermingled with so much pharmacy that it perhaps mattered little at what period of the curriculum its dry details were absorbed. At the end of the first nine months' lectures the student should be admitted to an examination on the subjects of his teaching. This might be called the first Minor, the passing of which gave no qualification, but relieved the student of some of the elementary work now comprised in the Minor. The result of such an arrangement would be equivalent to dividing the Minor into two parts—a useful and much-needed reform, not only of benefit to the examinee, but to the cause of pharmaceutical education. Speaking as an old examiner, he held that seven subjects in one day's examination was too severe an ordeal. It was an anomaly, and a positive encouragement to the cram, which examiners and others so persistently condemned. Another advantage of a half-way examination was an earlier awakening of interest in work. If the student won his first goal he was stimulated and encouraged to go on. Nearly all professions had

An Intermediate Examination,

marking a period, and suitably testing a student's progress. The pupil having passed his first Minor, a further six months could be devoted to work in the pharmacy, where, fortified with the knowledge of the science subjects, work would become easier to him. At this period galenical pharmacy, prescription readin, and dispensing should have constant attention. It was not too much to ask that the pupil be allowed to dispense, label and finish at least six typical prescriptions a day—simple prescriptions at first, finally examples of those given in the minor examinations. Some time should be devoted to the manufacture of such galenicals as might be conveniently made. A share of time should also be given to the routine duties of the establishment, so as to get a grasp of the very necessary commercial side of the calling. Materia medica must still be kept green. To assist in its study, every pharmacist who took pupils ought to possess a good cabinet of specimens. The formation of such a cabinet was easy and inexpensive, and if well made and maintained, would do service for a life-time. The histological knowledge gained in the botanical course could now be well applied to further the study of materia medica, providing at the same time practice with the microscope. The second period of the curriculum proper, or third year of pupilage, should witness an extension of lectures and classes on general chemistry over another nine months, a good amount of analytical work to be included. As organic chemistry had become so important, it must have considerable attention. Advanced lectures and classes on materia medica and pharmacy must be continued, with practical work in both subjects. As regarded pharmacy, as much as possible on the manufacturing side ought to be practically done for two reasons—first, to encourage the home-made product ; and second, to provide a class of trained men competent to take the position of manufacturers, not only on their own account, but in laboratories where the position was too often held by those outside the pale of pharmacy. A good deal of work and time had to be devoted to prescription-reading and general dispensing, and as regarded teaching the latter, the most rigid rules of accuracy, cleanliness, and neatness ought to be observed ; for the aim of their education was not only to turn out skilled and safe men, but men of order and precision. At the end of this, the last year of the curriculum, the student should enter for the qualifying examination. Whether this be successfully passed or not, there would be several months of pupilage still to run, during which period loyal service ought to be given to the principal, who had helped and encouraged his pupil in the past. That the course depicted might be faulty in detail Mr. Gerrard admitted, but in principle he said he honestly believed it to be sound, and, if patiently and industriously pursued, it would in three years turn out a vastly superior man to that of the four or five years' apprenticeship on old lines. Analysed from

The Financial Side,

such a course of instruction would show itself but little more costly than the one now commonly pursued, for the saving of time and lessening of risks of failure were factors of real value in working out cost. It might be said that what he had urged was all profession, and had no business in it. It was profession, no doubt ; that was just what pharmacy needed to be, and must be. Those were wrong, however, who said there was no business in it. Emphatically, knowledge had good market value. There were a thousand articles needed to-day by the public which few men were better qualified to manufacture than the pharmacist. If they were satisfied to stand in their pharmacies selling the productions of others, making nothing of their own, then he admitted the righteousness of the argument. But it should be borne in mind that the men who did this had mistaken their occupation. As mere factors or dealers, they would be better placed in a grocer's shop, where they would be likely to make more headway. Those who had a good dispensing practice, or had prospects of cultivating one, should give it their utmost thought and care, for good dispensing was the perfection of the art. Failing in this branch, there was still a wide field for choice. Those who turned their attention to manufacture, and pursued it with industry and honesty of purpose, were likely to reap a good harvest. In conclusion, Mr. Gerrard referred to the Birmingham University, and asked whether it did not seem to provide exactly for the educational needs of pharmacy. For the first time commerce was to take its place side by side with science and art. Science they needed, and commerce also. The pharmacist well trained in both held a strong position. Already the authorities of Mason's College had approached the pharmacists of the Midland Counties, seeking to know what measure of support they might expect if they made provision for pharmaceutical education as well as establishing a degree in pharmacy. Such an opening demanded the strongest support, and he trusted every member of the Association would do his utmost to prevent the opportunity offered being lost.

Mr. H. S. Lawton, whilst approving of the curriculum sketched out, thought Mr. Gerrard was aiming a trifle high. Mr. E. Osborne and Mr. G. H. Brunt spoke favourably of the suggestions contained in the paper. On the motion of the President, seconded by Mr. Holland, Mr. Gerrard was thanked, and the meeting ended.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

The first meeting of the session was held in the Lecture Theatre at 17, Bloomsbury Square, on Friday, October 27, at 7 p.m., the Dean of the School of Pharmacy, Professor COLLIE, in the chair. There was a good attendance of students.

The minutes of the last meeting were read and confirmed. A proposed amendment to Rule V., that "the Dean of the School of Pharmacy of the Pharmaceutical Society shall be President and Treasurer for the same year," signed by P. B. Gray and H. Finnemore, was read by Mr. Finnemore. This will be voted on at the next meeting.

The inaugural address, which took the form of a very excellent paper on the development of the present system of scientific education, was delivered by Mr. J. Spiller, F.I.C., and is printed in full at page 418. Mr. Spiller showed two syllabuses of the first classes in scientific subjects held in London, at the City of London School, and also a specimen of carborundum.

Professor COLLIE, in a short speech, moved a vote of thanks to Mr. Spiller for his interesting paper. This was carried with acclamation. The election of officers for the present session was then proceeded with, voting cards having been distributed before the opening of the meeting.

The following names are those of the gentlemen elected:—President and Treasurer, Professor J. Norman Collie; Vice-Presidents, Mr. E. M. Chapman, Mr. Garsed; Hon. Secretaries, Messrs. C. T. Allen and C. W. B. Heslop; Committee, Messrs. F. E. Battershill, H. Deane, F. S. Fox, W. Hellyer, J. S. Hills, and W. Wilson.

The meeting then terminated, and those present partook of refreshments in the Library before leaving the building. An enjoyable evening was spent, and it is hoped it augurs well for the success of the meetings to come.

CAMBRIDGE PHARMACEUTICAL ASSOCIATION.

The seventh annual meeting was held on Friday, October 27, at the Bull Hotel. The President, Mr. Alderman Deck, occupied the chair, and was supported by Messrs. A. Sidney Campkin, J.P., and E. Saville Peck, B.A. There was a good attendance of members.

The minutes of the previous meeting having been read and confirmed, Mr. Cook (Hon. Treasurer) presented his report, showing a balance of 16s. 2d., while £2 had been added to the reserve fund.

Mr. B. SIDNEY CAMPKIN, Hon. Secretary, in his report remarked that the members of the Association had much to congratulate themselves upon, inasmuch as the chemists of the town were practically unanimous in their support, and their knowledge of each other since the formation of the Association had increased, to their mutual advantage. As a body they were more closely

IN TOUCH WITH THE PHARMACEUTICAL SOCIETY,

and individually more interested in the work done by the Council. Again, they were able to instruct themselves by the lectures and papers read from time to time by the members and friends of the Association, and the thought that they had by example assisted in the formation of similar Associations in the country.

ELECTION OF OFFICERS.

The election of officers was then proceeded with, when Mr. Ald. Deck (President), Messrs. A. Sidney Campkin and E. Saville Peck (Vice-Presidents), Mr. H. F. Cook (Hon. Treasurer), and Mr. Bernhard S. Campkin (Hon. Secretary) were all re-elected, with Messrs. C. S. Addison, G. McAvoy, W. L. White, H. J. Parson, E. H. Church, and H. Coulson.

Mr. A. SIDNEY CAMPKIN spoke of the value of the Association and the urgency of close attention to matters pharmaceutical, in view of prospective legislation.

Mr. E. SAVILLE PECK gave an outline of the matters for discussion by the Association in connection with the F.L.P.A. on the 10th of November. Messrs. White, McAvoy, Parson, and Cook having spoken, the meeting terminated with a vote of thanks to the Chairman.

BURNLEY AND DISTRICT CHEMISTS' ASSOCIATION.

The principal business of a general meeting of the chemists of Burnley and district, held on Tuesday, October 31, was the consideration of their position in respect to the proposed legislation on illegal company pharmacy, and the expression of opinion on the various proposals emanating from the trade journals.

Mr. HEATON, the President, said it was comforting to see how eager the different journals were to help them in the matter, and went on to state that the point to determine was whether they could reduce the mass of controversy to one or two concrete resolutions on which they could agree, and which would meet with the approval of the Pharmaceutical Council. Judging from the general drift and tenour of what he had read, he gathered that a spirited policy on the lines of "An Ordinary Pharmacist" would meet the views of the majority of chemists, and the suggested clause (*vide* page 383), in the *Pharmaceutical Journal*, to his mind, reduced the whole question to a succinct and definite issue, and was one on which absolute combination and support could be given. It was the duty of all qualified chemists, be they members of the Society or not, to combine on a question of such momentous importance. If that were done, and their case placed before members of Parliament, and brought prominently before the public by means of the Press, there could be no doubt as to the result. If united, they were a powerful, intellectual, and wealthy body, but unfortunately they had not learnt or wished to understand the power of union and combination. A unique opportunity had now presented itself for unanimity, and it would be interesting to see how chemists responded to the appeal. There were certain unfortunate circumstances in the past history of the Council that would deter many from supporting them in the present crisis. They could not shut their eyes to the fact that for the last twenty years the Pharmaceutical Council had directed its whole and sole attention to matters technical and educational, while in the meantime the company octopus had been allowed slowly and surely to spread his tentacles throughout the length and breadth of the land, and quietly suck the life-blood out of the poor struggling pharmacist. It was only within the last few years, when pressure was brought to bear upon the Council by a comparatively small section of the trade, that it relaxed its apathy and indifference. The introduction of new blood on the Council had been productive of good results, but he was of opinion that if chemists relaxed their efforts with respect to impending legislation and other matters, the Council would certainly relapse into its former state of lethargy.

Mr. COATES moved the following resolution:—"That this meeting of the Burnley and District Chemists' Association resolves to petition the Council to take steps to combat the Bill now before Parliament; also that the Council should be requested to endeavour to have a clause inserted in the Companies Bill to protect the title of chemists and druggists, and to insist that the directors of all companies should be qualified." In doing so, Mr. Coates spoke of the importance of the protection of their titles as chemists. Anything else that might be for the benefit of pharmacy ought to be put on one side until their titles had become protected. By the companies acting as they were doing, the Pharmacy Act was rendered null and void, and practically nothing but a farce. It was not right that any tinker, or tailor, or candle-stick-maker should be allowed to tamper with the health of the public, as was the case at present. The very essence of the Pharmacy Acts was the protection of the public, but the way in which the Companies Acts were allowed to interfere with pharmacy enabled managers and conductors of companies literally to carry the lives of the public in their hands.

Mr. DODSLEY, who seconded the resolution, believed with Mr. Coates that they ought at present to fight simply for the protection of titles.

Mr. LAWTON, of Nelson, and Mr. Stuttard, of Colne, supported the resolution, which was carried unanimously, and a copy of which directed to be forwarded to the Pharmaceutical Council.

Mr. BROWN, the secretary, in presenting his interim report, stated that November 9 would be the anniversary of the first meeting of the Association, and they had great hopes of progress during the next twelve months. Referring to the question at issue he said it was useless going into battle unless they were provided with the sinews of war equal to their opponents; therefore, it behoved every member who considered they were fighting for justice to put his shoulder to the wheel.

PHARMACEUTICAL SOCIETY OF IRELAND.

On Monday evening. October 30, the meeting for the formal opening of this Society's schools and the presentation of a silver medal to the most successful candidate at the Society's examinations during the past year, was held at the Society's House, No. 67, Lower Mount Street, Dublin. There was a numerous attendance of members and students, amongst whom were some ladies. The chair was taken by the President of the Society, Mr. R. J. Downes; and the members of Council present were Professor Tichborne, Messrs. Grindley, Beggs, Wells, and Michie.

The President of the Royal College of Physicians (Dr. J. W. Moore) and the President of the Pharmaceutical Society of Queensland were amongst the visitors present.

The Registrar (Mr. Ferrall) read letters of apology from Sir George Duffey, President of the College of Surgeons, and others who were unable to attend.

The silver medal for the best answering at the examinations held last year was awarded to Mr. W. G. Stratton.

Dr. Ninian Falkiner then delivered an address on

The Education of the Pharmaceutical Chemist.

He briefly sketched the history of the educational movement in connection with the Pharmaceutical Society of Ireland and the formation of the Society's schools, and went on to advise students as to the subjects they should study and the most useful books to use in the study of the British Pharmacopœia. He then dealt with the scientific and commercial training of chemists, and their relation to the public and to physicians and surgeons.

On the motion of the Vice-President (Mr. G. Beggs), seconded by Mr. Kelly, a vote of thanks was passed to Dr. Falkiner for his address.

Mr. Sidney J. Vaughan, President of the Queensland Society, said the Government of Queensland was closely in touch with the pharmacy bodies of the colony, so much so that their Pharmacy College received a subsidy of 100 per cent. of its revenue. They received every consideration from the Government, and were to-day in a strong financial position. They had two Boards in Queensland—a Pharmacy Board and a Pharmacy Council. The Board was under direct Government control, was paid by the Government, and enforced the Acts relating to pharmacy. The Council was appointed by the chemists to watch over trade interests. The Pharmacy Board conducted all the examinations in the colony, and received all the fees for the same. The Pharmaceutical Council and the Society were supported entirely by the contributions of the Council. In Queensland they had not the great bugbear of company pharmacy that they in Ireland and in England had to face, for the law of the Colony forbade anything of the kind. The status of the pharmaceutical chemist in Queensland was excellent.

The President said in Ireland they could not thank the Government for anything like endowment of the Society. They were, no doubt, endowed with the fines recovered in prosecutions, but the defendant usually memorialised the Lord Lieutenant to remit the fine, and he constantly did so.

The proceedings then terminated.

Rapid Method for Determination of Starch.—Potassium hydrate is recommended by D. Crispo for obtaining a solution of starch for polarimetric observation. 3·391 Gm. of the fecula is rubbed down in a mortar with a little water, and transferred to a flask graduated at 200 C.c.; 50 C.c. of 6 per cent. KOH solution is then added with constant agitation, the flask is three-parts filled with water, and heated for 45 minutes on the water bath, with frequent agitation. After cooling, the volume is adjusted to 200 C.c., and the liquid filtered, until a filtrate clear enough to transmit the light in a 200 minim tube is obtained. A slight cloudiness will not hinder this. The result observed × 6 = the anhydrous starch per cent. The suitability of the method for determining the amount of starch in seeds has not yet been experimented on, but probably the results will be vitiated by the action of the alkali on the albuminoids, which give products which are optically lævogyre. —*Annales de Chim. Analyt.* **4**, 289.

LETTERS TO THE EDITOR.

The Company Pharmacy Problem.

Sir,—Permit me to add my thanks to "An Ordinary Pharmacist" for his able contribution in the Journal of the 21st inst. Certainly his suggested clause for the Companies Bill does not go a whit beyond our just rights. Of course, we cannot logically back up that view with argument, while retaining the "Widow's Clause" as that now stands in the Pharmacy Act. There cannot be any difference to the "safety of the public" between a qualified person managing a shop for an indefinite period on behalf of one unqualified widow, and the same being done on behalf of seven unqualified widows?

Nottingham, October 28, 1899. A. Eberlin.

Sir,—I fully expected someone would have written last week to repudiate some of the statements in your leading article of October 21. I suppose all minds were concentrated on that excellent article by "An Ordinary Pharmacist." The part I object to reads as follows:—"The Pharmacy Act has established a legal qualification for the exercise of the business of a chemist and druggist, a test of fitness for carrying it on. . . . A Register . . . and a titular description which enables the public to distinguish persons qualified from those who are not." Very good, Mr. Editor, I wish it was so. But what about the numerous firms that call themselves chemists and no qualified man on the premises? In a northern city there are three large firms using our titles, and how are the public to distinguish between these so-called "public benefactors" and qualified chemists? One is a drapery firm calling themselves chemists and druggists, one a firm of grocers using the enviable title "pharmacists," and the other well-known company, of "cash chemists." If it is illegal for these to use such titles, why does not the Council move in the matter? Why don't they take proceedings against these large firms who are breaking the law in various ways every day, instead of prosecuting what may be termed "poor men" for selling a pennyworth of laudanum, etc.? These people are generally in a very small way of business, and do but little harm to anyone, while these monster firms are simply ruining all branches of our trade, some even going so far as calling ordinary chemists "robbers." The Council should direct all their energy against these "wholesale pirates." Let us have rid of the worst evil first. It is no wonder chemists do not join the Society. What a lethargic body it is! Fancy, after lying dormant adout thirty years, the "poison law" is enforced. The "company problem" has been with us about twenty years, and the members of the Council are just dreaming about it. They will probably wake shortly, but alas! when too late to mend the existing state of affairs I am afraid.

October 28, 1899. Pharmacist No. III. (6/14).

Sir,—I should like to add my expression of thanks to "An Ordinary Pharmacist" for the two able articles which he has given us in the Journal. For a long time the various associations have practically been tackling this important question of company trading, and all have been anxious to adopt some course which would result in uniting the majority of the members of our craft into one solid body throughout the kingdom. Here at last has been presented a policy which can call forth nothing but praise; here is the very idea or ideas for which we have longed, which we can all agree upon and fight for. Already we see that the writer of the articles expresses the opinions of the members in the majority of places, and there seems to be great rejoicing that someone amongst us has at last clearly dealt with this great and vexed question of company trading. What is wanted now is for the Council to act on the ideas. Let the articles be reprinted larger, small type, and copies sent throughout the length and breadth of the land, irrespective of whether the chemists are members of the Society or not. The whole question of company trading bristles with anomalies, and the more we look into the matter the more glaring becomes the injustice of it. There is no doubt, as "An Ordinary Pharmacist" says, that hundreds have embraced our calling under the

mistaken idea that it was proteeted, and have afterwards found out to their sorrow that their chief privileges can be pirated, without the pirates becoming amenable to the law. I wonder how many parents or guardians, when they bring their sons or wards to article to our profession would place them with us if we told them that seven unqualified men could usurp and claim our title without putting their nose inside a pharmacy or passing any examination. But in strict justice we ought to acquaint them with this fact; for, to my mind there is great deception in letting anyone come into our ranks blindfolded. There must be no compromise. Companies of unqualified persons which practise pharmacy are riding very near the edge of the precipice, and it is only by an accident they are able to do as they are. I feel confident, then, that it only requires our case to be thoroughly explained to find many willing hands that will assist us in giving that last push which shall send them to their destruction.

Dewsbury, October 30, 1899. ROBERT GLEDHILL,
Local Secretary.

The Supply of Medicines, etc., to Ships.

Sir,—I enclose you copy of letter forwarded to the Marine Department of the Board of Trade from the Sunderland Chemists' Association, and I shall be glad if you will suggest that all associations interested in the matter should do likewise.

Sunderland, October 27, 1899. R. H. BELL.

[ENCLOSURE.]

Sunderland Chemists' Association,
October 24, 1899.

Gentlemen,—I am instructed by the members of the above Association to draw your attention to the necessity of some means being adopted to secure that ships proceeding to sea shall be supplied with medicine, surgical instruments, and appliances, according to the regulations of your Board. It is within the knowledge of many of our members that at present these regulations are largely disregarded, and that ships are sent to sea in which the medicines are not only deficient in quantity but also of very inferior quality. Having regard to the importance of proper provision being made in this respect, and to the fact that the owners and masters of vessels have rarely the skill necessary to enable them to ascertain if this has been done, we respectfully suggest that competent inspectors be appointed for this purpose and that such inspectors shall have passed the qualifying examination of the Pharmaceutical Society of Great Britain.

I am,
Yours respectfully,
Board of Trade, (Signed) ROBT. H. BELL,
Marine Department. *Hon. Sec.*

Pas Trop de Zèle

Sir,—From the time when Mr. Gifford appeared as an exponent of views for which I have great sympathy, I have watched, with interest, his efforts to impress chemists and druggists with the necessity of asserting their claim to professional position and—as you, sir, have well pointed out—to such small consideration in that respect as the law has provided for. But I must confess that, at times, I have not been able to understand Mr. Gifford's lengthy disquisitions and to have been, reluctantly, compelled to acknowledge the justice of the statement, made by a trade journal, that they are "incoherent." As a case in point, I see in the report of Mr. Gifford's paper last week that he speaks of "official pharmacy," and refers to something different, that may perhaps by implication be termed "unofficial pharmacy." But what are ordinary mortals to understand is meant by these cryptic phrases? I confess they pass my comprehension, and I regret to think that the useful work Mr. Gifford might do towards instructing his brethren may be hindered by such exuberant eccentricities. Other instances of the same kind of obscurity occur in the paper; but I will not occupy your space further than to ask what Mr. Gifford could be thinking of in comparing the claim now made by chemists and druggists for the privileges conferred on them by the Pharmacy Acts, to Shylock's claim for his "pound of flesh"! Could indiscretion be carried further?

Liverpool, October 31, 1899. R. C. COWLEY.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Seeds (W. P. C.—35/5).—They are from *Eragrostis abyssinica.*

Liability of Company Shareholder (C. E. W.—35/28).—You should consult a solicitor on the point.

Mill and Spray (T. G. W.—35/22).—The appliances you ask about are presumably of American manufacture; we have no further information respecting them.

Value of a Business (F. D. P.—35/26).—You cannot go far wrong in purchasing on the terms suggested, especially if you employ a competent valuer.

Dental Qualification (F. W. J.—35/19).—You will find full particulars in the "Students' Number" of the *Pharmaceutical Journal*, published on September 9, last.

Dental Anæsthesia (G. A.—35/6).—A 1 p. c. aqueous solution of cocaine hydrochloride is used for the purpose, being applied by means of a hypodermic syringe. As the operation is not unattended by risk, it should not be performed except by an expert.

Oleum Macis (R. D.—35/21).—True oil of mace is a volatile oil, but the expressed oil of nutmegs is commonly known by the same name, and that is probably intended in most cases when "oleum macis" is ordered.

Toning and Fixing Solution (J. R. S.—35/20).—(1) Dissolve sodium hyposulphite, 4 oz., and ammonium sulphocyanide, ½ oz., in distilled water, 8 oz.; (2) dissolve alum, 200 gr., in distilled water, 1 oz.; (3) dissolve lead nitrate, 100 gr., in distilled water, 1 oz. Add (2) and (3) to (1), boil for ten minutes, cool, filter, and add gold chloride, 7½ gr. Dilute the finished solution with its own volume of water, and immerse the prints after rinsing them in water for five minutes.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have received from Messrs. Branch, Deck, Ellinor, Epton (Miss), Gair, Gerrard, Goodess, Hall, Houghton, Jackson, Jones, Kirkby, Krischke, Lewis, Ling, O'Halloran, Phillips, Robins, Robinson, Spiller, Summers, Wallace, Ward, White, Wilkes, Wilson, Wright, Wyatt, Zimmer.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

VANILLA EXTRACT.

According to W. H. Hess, an extract of vanilla cannot be made artificially that will exactly represent one made direct from the beans, either in respect to chemical behaviour or with regard to usefulness as a flavouring agent. Synthetic vanillin and that extracted from vanilla are identical, and other constituents of vanilla might be replaced, but the resin behaves so differently from other resins that its separation and identification go far to prove that the extract has actually been prepared from vanilla. The beans contain from 4 to 11 per cent. of the resin, which is of a dark red to brown colour, and the colouring matter it furnishes constitutes about half that of tincture of vanilla. The resin is soluble in 50 per cent. alcohol. When weaker alcohol is used for preparing vanilla extract, potassium bicarbonate or other alkali is used to effect solution of the resin, but the addition tends to impair the delicate flavour of the preparation, a disagreeable foreign odour being introduced. Simple tests that have been found useful are a water dilution test, separation and identification of the resin, and tests for caramel or an azo dye, used as colouring matter.—*Journ. Am. Chem. Soc.*, **21**, 719.

ASSAY OF HYDRASTIS.

H. M. Gordin and A. B. Prescott assay *Hydrastis canadensis* by means of standard iodine for hydrastine and standard potassium iodide for berberine. Hydrastine is quite soluble in absolute ether and forms a definite hexa-iodide when a weak solution of any of its salts is added to a large excess of iodine dissolved in potassium iodide solution; berberine, on the other hand, is completely insoluble in absolute ether. The alkaloids of the powdered root, therefore, are first liberated by the action of an ether-ammonia mixture (strong ammonia, 5; alcohol, 5; ether, 30) and, after drying, the powder is extracted with absolute ether. The ethereal extract contains the hydrastine, the amount of which is determined by any suitable method, and the berberine is subsequently extracted from the powdered root by exhaustion with alcohol. The alcoholic extract is diluted with water, the alcohol evaporated off, and the residue taken up with diluted acetic acid. From this solution the berberine is precipitated as berberine-acetone and, after that has been washed and decomposed by acid, the berberine is determined by standard solutions of potassium iodide, silver nitrate, and ammonium thiocyanate.—*Journ. Am. Chem. Soc.*, **21**, 732.

CARAWAY DISTILLATION PRODUCTS.

Schimmel and Co. find that methyl alcohol and furfurol are produced during the distillation of caraway fruits, though not in such large proportions as in the distillation of cloves and clove stems. As in the latter case, the methyl alcohol is intensely yellow in colour, and requires treatment with sodium and lime to decolorise it and free it from its aldehyde-like odour. It is thought that diacetyl is present in the coloured alcohol, for when phenylhydrazine is added the alcohol distils over at its proper boiling point, and diacetylosazone separates out.—*Bericht*, October, 1899.

CITRONELLA OIL.

Schimmel and Co. publish the results of an examination of a large quantity of oil from *Lana batu*, which possessed the following characteristics:—Optical rotation—9°36′ at 20°, s.g. 0·908 at 15°, easily soluble in an equal volume of 80 per cent. alcohol, becoming cloudy with four or more volumes, saponification number after acetylisation = 190·8, calculated on geraniol 61·1 per cent. The oil was found to contain 28·2 per cent. of citronellal, 32·9 per cent. of geraniol, and 8·0 per cent. of methyl-eugenol.—*Bericht*, October, 1899.

SYNTHESIS OF ALBUMIN IN PLANTS.

B. Hansteen has obtained the following results from a series of observations on *Lemna minor*, *Vicia faba*, and *Ricinus communis*. Light plays no direct part, at least, usually in the synthesis of albumin in the green parts of Phanerogams. Under favourable conditions of growth the formation of albumin takes place in them at any time of the year, and without access of light. Its production depends, however, on the presence at the time of special carbohydrates. The amides, amido-acids, and other nitrogenous compounds are not indifferently of use for the formation of albumin. The substance best adapted for this purpose is urea, which is rapidly transformed into albumin, if accompanied in the cell by either cane-sugar or grape-sugar.—*Pringsheim's Jahrbuch f. wiss. Bot.*, **33**, 417.

DWARF HABIT OF PLANTS.

M. P. Gauchery has made an exhaustive study of the phenomenon of "nanism" in the vegetable kingdom. His general conclusion is that the peculiarities which distinguish the external form and the internal structure of plants are, like other characters, largely dependent on the environment, and are displayed more strongly in the vegetative than in the reproductive organs. A dwarf plant is not a miniature of the species with all its organs developed in the same proportion as they are in a plant of normal size.—*Ann. des Sciences Nat. Bot.*, **9**, 61.

FORMALIN FOR ANTHRAX.

Following up the success at first obtained in the treatment of bovine anthrax with injections of formalin, J. H. Bell reports that of twenty-eight cases since treated by the method, twenty-two recovered, four of the six that died being hopeless from the first. The treatment consists of injecting 20 minims of a 1 : 1,000 solution of formalin into the anthracoid swelling in the region of the jaw. The dose is repeated morning and evening for three days, and then once for three days. A draught of cinnamon oil, 1 drachm, in water, 1 pint, is administered daily for three days. To ensure success the treatment should be begun as early as possible in the course of the disease.—*Vet. Record*, **12**, 226.

CACAO BUTTER AND ITS ADULTERATION.

The solid fats obtained by submitting coco-nut fat to hydraulic pressure are stated by A. Ruffin to be the chief adulterants of cacao butter, but other animal and vegetable fats are used for the purpose, so that to obtain a definite opinion as to the purity of a specimen the following determinations are requisite. Specific gravity, refraction index saponification number, iodine number, melting point, soluble fatty acid number. Cacao butter has, according to the author, the following constants:—Sp.g. 0·910, refraction index, 34. Saponification number, 179-180. Iodine number, 48. Melting point, 30°C. Titre of fatty acids, 23°. The addition of vegetable fats will increase the density, and the iodine number, while the other constants will be lowered. Animal fats, on the other hand, raise the melting point and the fatty acid figure, while the refraction index is lowered. Coco-nut fat, however, considerably increases the saponification number and the refraction index, while the other constants are lowered. On etherification of the fatty acids obtained in the presence of alcohol and of sulphuric acid, the characteristic odour of coccinic ether will confirm the presence of coco-nut fat.—*Annales de Chim. Analyt*, **4**, 344.

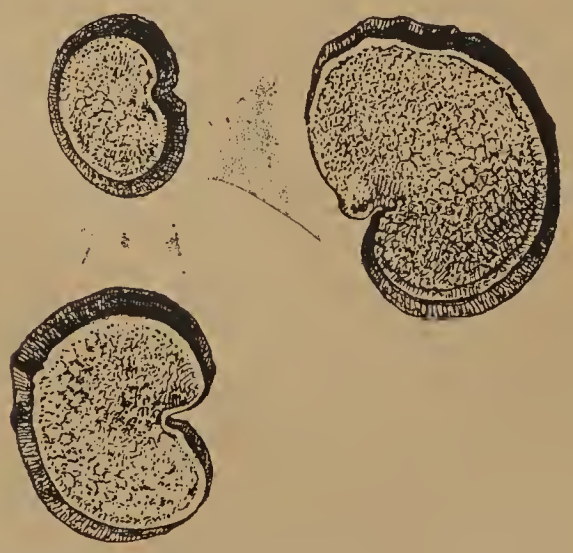
PRACTICAL PHARMACOGRAPHY.

COLCHICI CORMUS.

Macroscopic Characters.

Colchicum autumnale, Linn.—Meadow Saffron, Eng.; Colchique, Safran bâtard, Fr.; Herbzeitlose, Wiesen Safran, Germ. The fresh corm is about 35 millimetres long and 25 millimetres broad, somewhat conical, hollowed on one side where a new corm is in process of development, and rounded on the other, as shown in the illustration. The outer thin brown membranous coat covers an inner reddish-yellow one; internally the corm is white and solid, yielding when cut a bitter milky juice with disagreeable odour. The corms must be collected in early summer, before the plants flower, stripped of their coats, sliced transversely and dried at a temperature not exceeding 65°·5 C. The corm occurs in commerce in the form of dried transverse slices, varying from 2 to 2½ centimetres in the longest, and 1 to 2 centimetres in the shortest diameter; in thickness they are about 2 to 3 millimetres. The margin, which is slightly raised by the greater shrinking of the central portion in drying, presents on its outer surface a dull pale brown epidermis. The transverse surface is white and starchy, and dotted over with minute prominences which, when the surface is smoothed with a sharp knife, appear as darker dots, and are seen, under a good lens, to consist of fibro-vascular bundles. The drug has no odour, but a bitter taste; the fracture is short. Colchicum corms do not appear to be adulterated, and they do not vary much in activity, unless kept for a long time, when they show a decrease in alkaloidal contents.

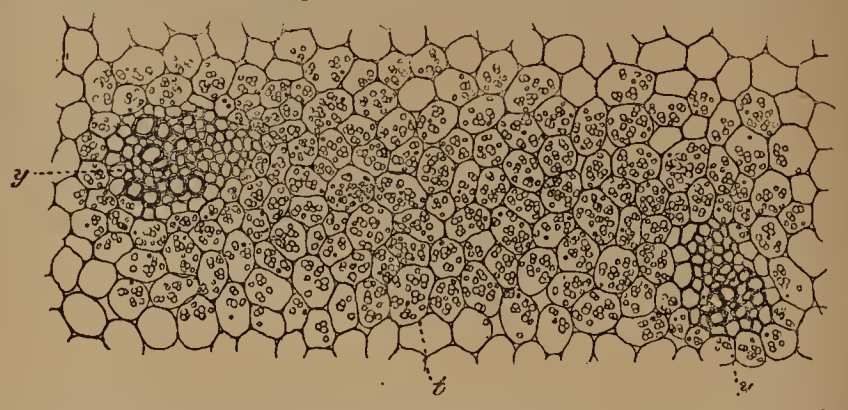
COLCHICI CORMUS.—Natural size.



COLCHICI CORMUS.—Transverse slices. Natural size.

Microscopic Characters.

Fundamental parenchyma.—This is composed of large thin-walled polyhedral, isodiametric parenchymatous cells filled with starch. In it are scattered a large number of narrow vascular bundles.

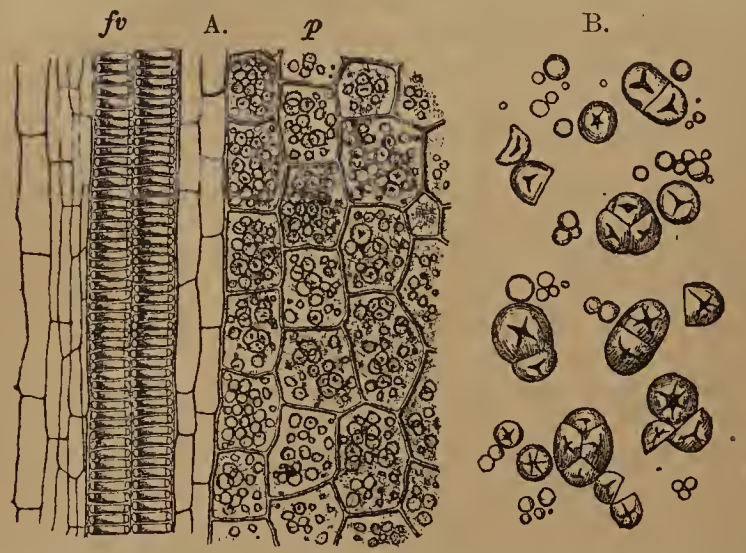


COLCHICI CORMUS.—Transverse Section magnified. *t.* Parenchyma containing starch. *y.* Scattered vascular bundles. (After Berg.)

Vascular bundles.—They consist of only two or three, occasionally four narrow spiral vessels surrounded by a sheath of thin-walled, longitudinally extended wood parenchyma.

COLCHICI CORMUS.—Transverse Section, magnified, showing vascular bundle, *fv.* with four spiral vessels surrounded by wood parenchyma; *p.* Parenchyma containing starch. (After Vogl.)

Starch.—Frequently in compound granules of from two to four grains. The hilum is almost central, star-shaped, and hollow. Well-marked radial lines pass from the hilum towards the periphery; in the compound granules two radial lines in each element unite the hilum with the points of juncture with the neighbouring granules.



COLCHICI CORMUS.—A. Longitudinal Section, magnified, showing xylem bundle with two spiral vessels, *fv.* wood parenchyma, and parenchyma containing starch, *p.* B. Starch granules, highly magnified. (After Vogl.)

Distinctive characters.—The absence of crystals, specialised receptacles of any kind, pitted vessels or cells, sclerotic cells, and epidermal tissues. The presence of the peculiar starch granules with a hollow hilum.

LOCAL PHARMACEUTICAL ASSOCIATIONS AND THEIR FEDERATION.*

BY JOHN SMITH,
Chairman of the Federation of Local Pharmaceutical Associations.

On a recent occasion I dealt with the subject of the Federation in its relation to the Pharmaceutical Society, and, arguing from well-known facts, attempted to show that the success of the Society depends upon local organisation; that this local organisation can be most successfully undertaken by the local associations; and that the Federation of these associations can be made an instrument of communication between the Society and the associations. On the present occasion I propose to deal more particularly with these local bodies and the aims and duties of their Federation, but it may be that to follow up an argument I may find it necessary to touch ground I have already covered. The objects of local pharmaceutical associations are many, and closely resemble those of the Pharmaceutical Society itself in many ways. Not the least important is the fact that their members are men who are vitally interested in pharmacy, or what used to be called the drug trade, as the means of providing a livelihood for themselves and their families. As this is affected by legislative enactments, favourably or unfavourably, and the Pharmaceutical Society is the representative body of registered chemists, with an elected council through which government and departmental negotiations are transacted, the necessity for a connecting link between the Society and the associations is obvious. There are between forty and fifty local associations having no official or other connection with each other or with the central organisation, the Pharmaceutical Society. Without a Federation clearly there is something wanting. The suggestion has often been made that each of these should become a branch of the parent body, and that a proportion of each member's subscription should be returned to the local associations to meet current expenses. I need not explain this suggestion in detail, because at the present time, looking at the financial side of things, it is scarcely practicable, though some day it may be an accomplished fact.

Mr. Newsholme's Scheme.

Mr. Newsholme, like others, has seen our defectiveness in local matters, and has elaborated a scheme which would bring a larger number of registered persons into the main organi ation, and add to the usefulness of local men in dealing with their Parliamentary representatives. This scheme has been several times alluded to lately, and I looked up the report of the address containing it. I must say I was surprised to find how closely Mr. Newsholme's plan and that of the Federation resemble each other, and if personal credit in the matter is of any importance I willingly concede it to Mr. Newsholme for being first in the field. The principal objects of this scheme are precisely those of the Federation as set forth in the rules. If there is any marked difference in method it is that Mr. Newsholme relies more upon spontaneous and individual effort, while the mainspring of the Federation scheme is collective effort. I am not discussing abstract principles, nor raising the question of collectivism as opposed to individualism, nor am I referring to any particular towns or districts when I say that in this particular matter we are considering, after years of trial, it is beyond dispute that the individual effort is not forthcoming. It is positively and unmistakably inadequate to supply the assistance needed. I may say, though, that if collectivism in this connection has any value at all it is that through it individual effort is inspired. It is better that reliance should be placed upon an association of men equally interested, who, while delegating certain duties to one of their number, would stimulate each other and help their officers by friendly interest, and even criticism, rather than upon an isolated and uncared-for individual. Our Birmingham friends hit the mark when they conceived the idea of a Federation of local pharmaceutical associations. Though not at that time connected with the Federation, I have watched its career with some interest, and I clearly recollect that in its early days it was regarded with distrust. To speak plainly, the object of its existence was believed to be to overbear the Council and its general attitude towards the Council one of hostility. Time has shown the error of that view, and I have the best authority for saying that was never at any time the policy of the Federation. Granting that the Council of the Pharmaceutical Society represents the opinions of the majority of the members, hostility would be uncalled for and mischievous. It is time enough to be antagonistic when there are antagonists to deal with. It is not the duty of the Federation to advocate any particular set of ideas nor to take charge of the interests of individual members of the Council, and so long as that body represents and endeavours to carry out the wishes of its constituents the Federation will supply a much-needed support. Good intentions may be frustrated and the work of a friendly body hindered by prejudice; but no one who has any knowledge of recent affairs can doubt that the Federation has come to stay. Year by year, in spite of doubts and misconceptions, it has grown in strength and influence and is now established on a firm foundation.

The Constitution of the Federation.

I may here refer to the present constitution of the Federation. At the last annual meeting it was decided to appoint an executive committee, and the representatives comprising it were selected from different parts in Great Britain. Each of these takes his share of responsibility for the year's work, and we are not now dependent upon the zeal of an individual officer. This arrangement is not without its drawbacks, but they are more than balanced by the gain. The plan that we are at present engaged upon is, allowing for some difference in detail, the same as that recommended by Mr. Newsholme, and we shall be glad to have the benefit of the experience of the Sheffield and Bradford Associations in the efforts they are pursuing. If the Federation can assist them in any way they may command us. I take it that the operations of the York hire Associations are to be confined to the limits of the county, but those of the Federation must cover as far as possible the whole of Great Britain. After the last annual meeting the first step taken was to inform the Council of the Pharmaceutical Society of the adoption of a resolution and of the revision of the rules in which the objects of the Federation are explained. The second was by circular to every local secretary to seek information respecting districts not so represented, and upon other matters. Following that, those who replied are asked to obtain nominations for the districts they named. When the full list of local secretaries is published, each one will probably be asked to take advantage of the assistance of the Federation to form an association of registered chemists in his locality, which it is hoped would unite with the Federation to make it a powerful representation of the pharmaceutical community. I am convinced that greater success would in most places attend this move if the outside help offered were called in. There is a choice of lines upon which these associations might be run. In some of the large centres it might be possible to adopt the rules and methods of one or other of the older associations now in existence; but the point I wish to emphasise is that in every town where five (or perhaps three) chemists can be found to take some interest, however little, in pharmaceutical affairs an association ought to be formed. It is not known from day to day what circumstances may arise to make it important that there should be local instruments at hand to deal with them. It would not be wise, perhaps, except in towns where the number of chemists is very large, to commence with the usual monthly meetings; when trade subjects have been exhausted interest would wane, and it would be difficult at a future time to restore vitality. It would be better, therefore, to meet at longer intervals, and special meetings called when

* Read before the Manchester Pharmaceutical Association, on November 8.

necessary. Besides the subjects which it will be the duty of the Federation to suggest local or other topics will no doubt arise which one or another of the members may wish to bring before his brethren in a conversational way rather than after the manner of formal meetings. A suggestion has been offered that the chemists in several small towns should unite to form an Association, and meet in one or other place in order of rotation. This plan would no doubt answer where the towns are included in a comparatively small area; but, generally speaking, I think men would soon tire of travelling any distance to attend the meetings, and it would be a serious mistake to commence on lines that would not be permanent. Neighbouring Associations could exchange courtesies, or act together on occasions of social gatherings or special meetings; but, personally, I think it eminently desirable that every Association, even if its membership be only three, should have a separate existence. I would suggest that the smaller Associations should not be too ambitious at the outset. Many have been formed from time to time, and dissolution has taken place because interest could not be sustained. When those local Associations have been formed, it may be expected that the local secretary will be the organising agent in his district, and that he will also be the representative on the Federation.

The Company Pharmacy Problem.

What has been done in the last three months, though it has involved a great deal of correspondence and expenditure of time, is little more than preparatory, but I think the most important we could undertake at the time. I hope that what is being done towards improving our machinery, in view of possible legislation in the coming session of Parliament, will meet with the approval of the Manchester Association. We have been taken to task for not formulating a programme for a year at the Plymouth meeting. Events move so rapidly, and circumstances may change so quickly, that it might be a mistake to tie the hands of the Executive Committee by setting out a definite programme. Who of the representatives at Plymouth, for instance, foresaw what would be the state of mind of some of the members of the Council as exhibited at the last meeting? It is, nevertheless, open to every affiliated association to suggest subjects for discussion, not only at the annual meeting, but to the Executive Committee, through the honorary secretary, any time during the year, and I may say that communications of that kind are desired. This committee realises that the Federation in its corporate capacity speaks not the view of one or of a few individuals, but expresses the opinions of the general pharmaceutical body through their local associations. Organisation cuts two ways. A central or elected body is nearly powerless and little more than a fiction unless it has organised support from outside, which outside organisations will claim to have a voice in the policy of the elected representatives. This is a reasonable proposition which is stated here on abstract grounds, and there appears to me but one logical conclusion in our own case—that is, that the Federation must support the elected representatives in carrying out the wishes of the pharmaceutical body, and that members of the Council should avail themselves of the co-operation and assistance the local associations are prepared to give. But suppose an occasion to arise when the Council proposes to take action to which the majority of pharmacists are believed to be opposed, it would be the duty of the Federation to ascertain as clearly and unmistakably as possible the opinions of its component parts. Never has the necessity for some such body been as urgent as now. The Council of the Pharmaceutical Society has undertaken to produce a clause dealing with company pharmacy, which it will try to get embodied in the Companies Bill. I have no authority at present to speak on behalf of the Federation, but I have a perfect right to express my own personal opinion, and I do so with full knowledge that it would be useless to go to Parliament unless we go as a united body. and therefore I say that in my official capacity I am prepared to do what I can to carry out the wishes of the majority, while in my private capacity I am free to advance my own views. The clause that has been presented to the Council by the Law and Parliamentary Committee appears to me to have been amended or constructed by those opposed to it, with the intention of making its provisions more assailable, and I am not sorry that it has been sent back for reconsideration, but I hope the principles it contains will be retained in its successor. There is an Act of Parliament—the Interpretation Act of 1889—which provides that, in the construction of every enactment relating to an offence punishable "on indictment or on summary conviction," the expression "person" shall include a body corporate; but, unfortunately, that does not apply in our case except as regards Section 17 of the Pharmacy Act of 1868, that being the only Section under which penalties are recoverable on summary conviction. It seems to me that the application of the provisions of the Interpretation Act to pharmacy law generally is what is wanted.

The Position of the Society's Council.

Previous to the last election for members of Council I advocated the claims of Mr. Glyn-Jones, on the ground of his ability and organising capabilities, and no one who has read the report of the last Council meeting can question that ability. At the same time I am convinced that if it had been known that he was going to take the position he has on the question of company pharmacy, he would not have had the opportunity of expounding his views in the Council chamber. I gather from the report of the meeting that he and those with him took good care to have the meaning of the clause expressed in plain English, and they certainly contrived to make it as blunt and unacceptable as possible. At the commencement of his speech, when moving his amendment, Mr. Glyn-Jones is reported to have said that "the Council was agreed that there should be one and the same law for individuals and companies"; but what do he and his friends mean? Is it that individuals should be permitted to practise pharmacy without registration and examination as companies do, or do they mean that those constituting companies may not carry on the business without qualifying in the same way that individuals do? The whole of his speech conflicts with that sentiment excepting where he says that "the Council had the right to insist that no one of the qualified men should become the servant of unqualified masters." His solution of the matter appears to be that the person who has ultimate control of the business (if such a position is possible where the shares are held by the public) should be a registered chemist. This proposal would meet with the same opposition as that embodied in the Committee's suggested clauses. It would be opposed with the same determination and would have the same influence against it for reasons that must be apparent even to supporters of the proposal. The situation is, I think, that when the Companies Bill is produced it will contain a clause which would place companies of unregistered persons in the same position as registered chemists in regard to the selling of poisons and the use of chemists' titles, and must be met with a counter proposal if the Council cannot get the clause replaced by one of its own. At least five different important suggestions have been placed before us, but I cannot refer to them in detail here. I may say, however, that there are two which might be called extreme proposals. One would accept and regulate the usurpation of the chemists's position by companies and the other adopts the principles of the clause referred back. The remaining plans are somewhere between these two. Now, I feel strongly that there is no halfway house. If we voluntarily surrender the principle known as qualified ownership we are driven from point to point until we arrive at a position we cannot logically evade—that is, that an individual grocer or other dealer should be allowed to carry on the business of a chemist and druggist provided he has a qualified assistant. There is some satisfaction, however, in finding that only three, or, at the outside, four, members of the Council spoke in favour of the surrender plan, and perhaps some of these will buckle up by the December meeting. I think we may infer from the remarks of the speakers at the last meeting that when the next recommendation of the Committee appears the advocates of the policy of surrender will count three in the voting.

THE COMPANY PHARMACY PROBLEM.—III.

BY AN ORDINARY PHARMACIST.

Though speech, according to Voltaire, is employed by men to conceal their thoughts, it has never yet, so far as I am aware, been authoritatively held that the written word can fulfil a similar function. I have been surprised, therefore, to find that the case which I thought I had stated plainly, for the benefit of my fellow pharmacists, should apparently remain far from clear to certain of our leaders and representatives on the Council of the Pharmaceutical Society. I have also been amused to note that the strongest arguments relied upon last week by some members of that Council, in favour of official recognition of unqualified company trading in pharmacy, were based on certain passages quoted from articles written with the object of showing the injustice and inexpediency of taking up such a position.

Where the Inconsistency Lies.

It has been somewhat rashly assumed that the views I expressed in my first and second articles are not consistent; but brief reflection will show that the inconsistency rests with those who have attempted to justify themselves in committing a grievous error, by quoting selected passages apart from their context. For example, Mr. Glyn-Jones has ventured to insinuate that the local secretaries and others who took the trouble to write to the *Pharmaceutical Journal*, expressing approval of the position taken up in my first contribution, are less likely to approve of the second article, wherein I pointed out that companies of duly qualified persons are quite different from companies of unqualified persons, and need not be interfered with. The fact that the Pharmaceutical Society's Law and Parliamentary Committee chose to adopt a garbled version of the clause I suggested for the Companies Bill, which would—as Mr. Glyn-Jones alleged—have the effect of interfering with companies consisting of legally qualified persons, does not affect my position in the least. I did not propose that registered chemists should be prevented from combining and forming joint-stock companies, nor can I see how any such proposal could be reconciled with ordinary ideas of justice.

Companies *and* Companies.

Neither have I contended, as Mr. Walter Hills suggested, that company trading is altogether immoral. I am not concerned about the morality of company trading, as such; but thought I had made it clear throughout that I was protesting against the business of a chemist and druggist being carried on by companies of unqualified persons. In the few places where I used the word "companies" alone, it is obvious to any unprejudiced reader what kind of company is referred to, and I regret that any of our representatives on the Council of the Pharmaceutical Society should have felt their case—for the surrender of chemists' privileges—so weak as to need bolstering up by an attempt to place a false interpretation upon language that is quite definite. I should have thought very little consideration is required to show that the clause I suggested for the Companies Bill (*ante*, p. 383) would not prevent properly-constituted companies—*i.e.*, associations of duly-qualified persons—from carrying on the business of a chemist and druggist; though it would prevent a company, as such, from assuming any title implying registration under the Pharmacy Acts, and would also make a company amenable to all other provisions of the Pharmacy Acts in the same manner as an individual or natural person. Companies of persons not registered under the Pharmacy Acts naturally occupy quite a different position, and unless means can be devised for enabling such companies to bring themselves into line with properly-constituted companies, they ought to be prevented from carrying on the business of a chemist and druggist in any shape or form.

Opinions Expressed by Members of Council.

I take it we may assume that to be the opinion of Messrs. Allen, Atkins, Carteighe, Grose, Newsholme, Park, Warren, and Young, all of whom voted for the clause brought up at the last Council meeting by the Law and Parliamentary Committee. With regard to the remaining members of Council, Mr. Cross has declared (see *ante*, p. 428) that he will be no party to regulating company trading; Mr. Harrington, in presenting himself as a candidate for the Council (see *P.J.*, April 22, 1899, p. 380), expressed the opinion that the Companies Bill "ought to be amended so as to prohibit the practice of pharmacy and the use of pharmaceutical titles by any association of unqualified persons"; Mr. Harrison says he has no sympathy with company trading, and does not wish to regulate companies in any way whatever (see *ante*, p. 428); Mr. Hills, some months ago, expressed his belief that the Council, in making the famous suggestions to the Lord Chancellor, was "really acting as the mouthpiece of nearly all registered persons throughout Great Britain." The question before the Council, he then said, was: What is keeping open shop? and "the suggestions now made reverted to the principle underlying the Pharmacy Act, 1868," that a person keeping open shop should be qualified and registered. (See *P.J.*, February 4, 1899, p. 104.) Dr. Symes now thinks (see *ante*, p. 429) it is "hopeless and impracticable" to attempt to prevent companies of unqualified persons from carrying on the business of a chemist and druggist, but in 1881 (see *P.J.*, January 22, 1881) he thought it was essential that "the individual proprietors of chemists' shops should be qualified, and that the employment of a qualified servant cannot confer qualification on the employer." What the present views of Messrs. Bateson, Corder, Johnston, Savory, Storrar, and Southall may be is not yet clear, but Mr. Glyn-Jones apparently desires to recognise and regulate companies of unqualified persons, while Mr. Martindale seems to agree with Messrs. Cross and Harrison that nothing beyond the restriction of titles should be asked for at present.

Opinion *versus* Action.

But, leaving the realm of opinion, we find that out of the nineteen members of Council who acquiesced in the suggestions sent to the Lord Chancellor in February last, only eight voted last week in full accord with the principle of those suggestions at the Council meeting; three among the faint-hearted were presumably re-elected, in May last, on the assumption that they would maintain that principle. Apparently, the nine members who voted with Mr. Glyn-Jones for the amendment he proposed are not all in accord as to the best means of attacking the company pharmacy problem. Most of them, indeed, seem to have objected to the proposed clause simply because they thought nothing more ought to be attempted at present than the restriction of pharmaceutical titles to legally qualified individuals. The Council ought, at least, to be unanimous as to the absolute necessity of that restriction; but the eight members who voted for the adoption of the Law and Parliamentary Committee's clause wish to go further. So does Mr. Glyn-Jones, for, according to Mr. Carteighe, the undisclosed clause drawn up by Mr. Glyn-Jones does not practically differ, so far as its probable effects are concerned, from the clause submitted to the Council by the Committee. It would be interesting, therefore, to know what manner of clause that "wonderful panacea" can be. So far as can be gathered from the report of the discussion at the Council meeting, it proposes to do, in a roundabout way, what the Committee's clause would do directly—*i.e.*, prevent companies (? of unqualified persons) from using the title and carrying on the business of a chemist and druggist. If, however, Mr. Glyn-Jones does not propose to put a direct stop to unqualified company trading, we must suppose that he aims at effecting the desired end by imposing regulations which would seriously hamper the carrying on of the business by companies—so that they would probably count the cost too great and turn their energies to better account.

What the Public Interest Requires.

But is it conceivable that such a plan would succeed? Are not the supporters of companies at least as far-seeing as their opponents? Would not the inconvenient regulations stand a fair chance of being successfully opposed; would not, also, the implied acquies-

cence in the existence of companies of unqualified persons be pounced upon with avidity and used as a weapon against us? Moreover, pharmacists, so far as I know them, prefer straight fighting, and they would rather go direct to the point than work up to it by a corkscrew path. As Mr. Carteighe said last week, our strong position is being able to say that what we ask for is in the public interest. It is undeniably in the public interest that none but legal holders of a statutory qualification should be permitted to assume any title indicating that qualification; it is further desirable, in the public interest, that all statutory poisons should be dispensed and sold by legally qualified individuals, also that no unqualified person or persons should be permitted to exercise any control over the conduct of the business of a chemist and druggist. If we would choose a selfish course and adopt the line of least resistance, we may rest content with the protection of our titles; for there is little doubt that if we protect those titles we shall maintain our hold upon the bulk of pharmaceutical practice, as is the case with medical men and dentists. Such a course would be a very easy one and success might be regarded as a certainty from the outset.

What we Should Strive For.

But, in the public interest, we ought to strive for more. Qualification to practise pharmacy is either required or it is not. If required, it ought to be vested in the proprietor of a business, whether he employ qualified assistants or not, for, as Dr. Symes has pointed out, "employment of a qualified servant cannot confer qualification on the employer." No one has yet called in question the desirability of protecting the public by imposing restrictions on the practice of pharmacy; in fact, further restrictions are continually being suggested from outside. Let us, then, insist upon equality of treatment all round. If one proprietor must be legally qualified, let all proprietors be equally qualified—permit no person of any kind, without a proper legal qualification, to exercise a controlling influence over the business of a chemist and druggist. That, at least, in addition to the protection of titles, is required in the public interest, and pharmacists who have the courage of their convictions should strive to obtain nothing less. It may be desirable for the present to abstain from asking for more; but whilst I would forcibly deprecate "crying for the moon," I would as strongly urge our leaders to eschew excessive modesty and to demand—in the public interest, as well as in the interests of those they represent—that pharmacists should "possess the earth" to a fair and reasonable extent.

THE CHEMISTRY OF ESSENTIAL OILS.

The Chemistry of Essential Oils and Artificial Perfumes. By Ernest J. Parry, B.Sc. (Lond.), F.I.C., F.C.S. Pp. i.—viii., 1—411. Price 12s. 6d. net. London: Scott, Greenwood and Co., 1899.

The group of proximate principles included by the term essential oils must always possess great interest for pharmacists. They are found in varying proportions in the tissues of many plants used as remedial agents, often constituting the odorous principles so characteristic of many articles of the vegetable materia medica. In addition to their use in medicine many of the aromatic drugs and their essential oils find important applications as condiments, flavouring agents and perfumes. The pharmacist by virtue of his training ought to be in a favourable position to command a considerable proportion of the trade in these products, and those who wish to take advantage of their opportunities should not fail to keep themselves well abreast of the rapid progress which has been made within comparatively recent years in our knowledge of the chemistry of essential oils. How rapid this progress has been can best be realised by comparing the information relating to essential oils contained in the text-books of chemistry and materia medica published ten or fifteen years ago with that relating to the same substances in the work which constitutes the subject of this review. Mr. Parry has done good service in carefully collecting and marshalling the results of the numerous researches published in various parts of the world. The outcome of his labours is the production of a fairly complete account of the oils which constitute important articles of commerce. Many of these are still subjects of contention between different chemists who have investigated them, but Mr. Parry seems to have endeavoured to give his readers a fairly balanced account of the claims of the contending parties.

As an introduction to the systematic study of the essential oils, which forms the major part of the book, several chapters are provided which deal with matters of general application. These relate to the chemical relationships of the various classes of bodies found as constituents of essential oils, and the methods of manufacture and analysis. With regard to the classification of the constituents of essential oils, one may regret that the author has not adopted a scheme founded more directly upon the modern system of classification of carbon compounds. This enables one to explain clearly the difference in behaviour of the terpenes, for example, belonging to the alicyclic or hydro-aromatic derivatives and such purely aromatic bodies as cymene and thymol. These introductory chapters will be found useful in affording explanations of the facts and figures given in the section dealing with the individual oils. To the student of pharmacy they will also supply fuller information than is to be found in the text-books of organic chemistry.

In the description of the individual essential oils, an account is given of the chief commercial varieties, their constituents, and valuation by analysis where processes are available. The author agrees in the main with the constants given in the 1898 British Pharmacopœia. The descriptions given form, naturally, an extension of and commentary upon the official characters and tests. They provide also an explanation of the official monographs, and show the bearing of the characters and tests upon the valuation of the oils and the determination of their purity.

Chapters are also given dealing with terpeneless oils and artificial perfumes. These include a useful summary of matters of scientific and commercial value relating to these bodies, which no manufacturer can afford to neglect. Many useful hints are afforded, showing the most advantageous methods which may be employed, and the book concludes with an appendix; comprising a table of constants of the more important essential oils.

DETERMINATION OF FAT IN CONDENSED MILK.

The following method has been devised by A. E. Leach for the determination of fat in condensed milk. Weigh out 40 Gm. of the sample and make up to 100 C.c.; withdraw by means of a pipette 15 C.c. of the solution, corresponding to 6 Gm. of the sample, and transfer to a 50 C.c. test bottle, with neck graduated to read to 0·1 per cent.; then pour in water till the liquid nearly reaches the neck of the bottle, and add 3·5 C.c. of an aqueous solution of copper sulphate of the strength of 69·28 C.c. per litre (Fehling's copper solution). Shake the bottle well, and allow the contents to settle. The precipitate, which consists of proteids with the fat, subsides more quickly if the bottle is cooled in iced water. Draw off the clear supernatant liquid, which contains the sugar in solution, by means of a small-stemmed pipette of a capacity of 50 C.c., the upper end of which is fitted for convenience with a piece of rubber tubing. Twist lightly about the lower end of the pipette a small wisp of absorbent cotton to serve as a filter. After the liquid is drawn up into the pipette remove the cotton wad from its lower end by lightly rubbing it against the inside of the neck of the bottle as the pipette is withdrawn. Wash the precipitate three times by decantation, and then add 25 C.c. of sulphuric acid, the usual centrifugal method being followed. The reading to tenths, multiplied by six, gives the percentage of fat in the sample. The foregoing method is employed in the laboratory of the State Board of Health, Massachusetts.—*British Food Journal*, **1**, 236.

ANCIENT HISTORY MORE OR LESS RELATING TO "COMPANY PHARMACY."

The second attempt to obtain amendment of the Pharmacy Act, 1868, was brought about in consequence of representations made to the Home Secretary and to the Privy Council as to the supply of poisons in wholesale trade and in the form of stamped medicines, as well as the sale of poisonous articles and corrosive liquids for use by grooms and farm servants.

The first step taken by the Council was to recommend the addition of several articles to the poison schedule in February, 1882. At the August meeting of the Council a letter from the Privy Council Office was read, announcing that the additions of nux vomica and its preparations was approved; but after careful consideration—and pending the consideration of the expediency of further legislation with reference to the sale of poisons—their lordships were of opinion that it was "not desirable to add to the restrictions on the sale of the acids and other articles referred to in the resolution."

At the Council Meeting in December, 1882, the President announced that a Bill was being drafted, by request of the Privy Council, to express the views of the Council as to "amendment of the law in regard to the sale of poisons," and at the meeting in January, 1883, the draft was considered and referred back to the Law and Parliamentary Committee, with power to confer with the Privy Council. At the meeting in February the Council resolved to adopt the draft Bill and send it to the Lord President as being adapted to the condition of pharmacy then existing; though not providing for all that might be desired in the interests of pharmacy and of the Society, the Bill was commended as fully and consistently meeting the requirements of the time.

The Pharmacy Act Amendment Bill of 1883 comprised provisions that were intended in the first place to remedy the defect of the 1868 Act—by specific provisions as to the application of the law to corporations—to qualification of the proprietor of a chemist and druggist's business, as the person responsible for its conduct—to the employment of legally qualified persons in all chemists' shops—improvement of the machinery of registration—extending the application of the Act to the entire professional business of supplying, dispensing and compounding medicine—establishing the one qualification of pharmaceutical chemist for the practice of pharmacy in the case of all persons passing the examination after 1886, as well as making membership of the Society open to all persons registered. The Bill also provided for regulating the sale of various articles of a dangerous nature, with a view to public safety and so as not to interfere with trade conditions of their supply—for improvement in the education and training of persons intending to take up the practice of pharmacy—and for regulation of the sale of stamped secret preparations containing poison, which has since been effected without amendment of the Pharmacy Act.

That Bill was essentially a Pharmacy Bill and not a mere Sale of Poisons Bill; several of its provisions were similar to those of the 1881 Bill, and some of them would have helped to improve the practice of pharmacy, in a manner conducive to the interests of the public and to those of persons engaged in that occupation. The following extracts from correspondence relating to the Bill will show that its advantages in those respects were recognised by many, if not by all, chemists and druggists.

B. S. Proctor—regarding "salvation by Act of Parliament as of limited value"—expressed the opinion that if chemists and druggists could clear from their minds the craving for somebody to do something for them, they would see that, in regard to the proposed regulation of the sale of poisonous articles, the Bill was fairly framed for "its legitimate work," without confounding trade transactions with work properly belonging to the practice of pharmacy. The provisions for preventing the keeping of branch shops in charge of unqualified persons, and for fixing upon the proprietor of a business the responsibility belonging to him in that capacity, were approved as tending to the advantage of pharmacists, as well as the public. Hope was also expressed that chemists and druggists might have "unity enough to sink little differences and support a measure moving them one step in advance."

George W. Sandford saw in the Bill much to advance the education and qualification of future pharmacists; but thought the means proposed to increase public safety were quite inadequate—each shop should be in charge of a qualified person, leaving no question as to "branch" or "principal."

Alex. Kinninmont thought the "measure at once reasonable and practicable"—calculated to assure the safety of the public in a still greater degree than the 1868 Act had done, without being open to the charge of "attempted monopoly"—the provision as to branch shops would "not infringe the just rights of anyone" while facilitating the discovery of the "real proprietor" of a chemist and druggist's shop.

George Mee regarded the Bill as defining the undefined, without departing from the original position of the Pharmaceutical Society.

Joseph Hallawell, *Liverpool*, thought the Bill "as nearly like a perfect Pharmacy Act" as circumstances would permit; that it would meet evils hitherto untouched, and should receive "approval by a large majority"—that the provision as to persons certified to be able and fit to dispense all medicines being alone allowed to do so, would be "appreciated by all but the incompetent and unreasonable"—affording "many a despairing pharmacist a sight of a clear and straight way out of difficulties which are now a source of danger and discontent."

B. Dickins, *Liverpool*, thought the Bill one that chemists and druggists might receive with favour—"has reasonable claims and reasonable concessions, and provides wisely for the educational needs of the future."

John Wade, *Pimlico*, thought the Bill was like the product of the mountain in labour—he failed to see "any important advantage" it would give, except to the public—expected it would have provided for many things it did not deal with.

J. Rymer Young, *Warrington*, objected to the proposal to make all future qualified persons pharmaceutical chemists and eligible as members of the Society, as practically abolishing the Major qualification.

J. Hart, *Manchester*, thought proposal as to pharmaceutical chemist qualification might excite opposition, though the educational provisions should induce Major men to take consolation that if they suffered, the future of pharmacy would "have a brighter look-out."

George Burrell, *Montrose*, thought that the proposal to give up the privilege of being the exclusive vendors of poisons was retrogressive—the objection to it "intelligible and relevant," but that under the influence of free trade principles the Council had been obliged to "yield to the remorseless logic of facts"—perhaps the true position of pharmacists would never be clearly defined until a dyspeptic Cabinet minister took a wrong dose—approved of the provision that there should be a legally qualified person in charge of every shop; but objected to making the passing of the Preliminary Examination a condition of apprenticeship.

Henry H. Pollard, *Ryde*, objected to the distinction between "poisons" and "poisonous" articles as too fine for Parliament or the public to appreciate.

Edmund Jones, *Hanley*, expressed sympathy for chemists and druggists who have to compete with drysalters and herbalists in country places where medical men dispense their medicines—desired that the sale of all British Pharmacopœia preparations should be confined to legally qualified persons; but would still feel thankful if the proposed amendments were passed.

D. Ogilvie Evans, *Bolton*, objected to the provision as to "poisonous articles" as "necessitating new labels"—also to the

absence of provision for "compulsory prosecution" of unqualified persons selling poisons under the labels of registered chemists and druggists.

JOHN J. SMITH, *Liverpool*, wished that branch shops were unlawful; but pointed out that where they were numerous, as in Liverpool, and generally in charge of unqualified persons, difficulties would be created by the provision that every shop should be in charge of a legally qualified person.

EX-PHARMACIST, in a long letter, pointed out that the operative provisions of the 1868 Act—creating a recognised grade of chemists and druggists—merely regulated the sale of scheduled poisons, and reflected "the views of the Government rather than those of the pharmaceutical body"—that in regard to the practice of pharmacy those provisions were too incomplete to prevent interloping—the worst form of competition—while the essential feature of the draft Bill was the real restriction "of the practice of pharmacy to qualified pharmacists"—characteristic of professional status, together with the prospective "extinction of the secondary grade of chemists and druggists." The Bill would provide for the realisation of the object that was the "*raison d'être* of the Pharmaceutical Society, the kernel of the policy which its founders and their successors have been labouring to consolidate for the last forty years"—on that account the Bill deserved "the loyal support" of those who should be united by "a common interest"—otherwise the favourable opportunity would be lost, and the elevation of pharmacy to professional position would be indefinitely postponed.

RICHARD REYNOLDS expressed the view that the Bill promised light where there had been darkness—should receive hearty support on all the principles by which prudent men regulate their actions—that it was on "lines consistent with the greatest chance of viability"—that while giving greater effect to the contract made by the State in 1868, it would ameliorate some anomalies, "so that unqualified persons should not usurp the functions of those who had complied with the law."

C. B. ALLEN, *Kilburn*, expressed full approval of the Bill—was convinced that "the educated public" recognised the pharmacist as having claims to consideration which no other keeper of a shop could urge—that members of Parliament would admit the same if the circumstances "were properly represented to them."

THOMAS HART, *Stockport*, thought that, though the Bill would be a disappointment to those chemists and druggists who had cherished utopian ideas of legislation securing to them a monopoly a more generous consideration of its provisions would secure the support of "all interested in the progress of pharmacy."

J. C. SHENSTONE, *Colchester*, loyally admitted that the Council in framing the proposed Bill had presumably been guided by considerations which would probably have induced him to agree more fully with the provisions contained in the Bill—acknowledged that chemists and druggists could not expect legislation creating a monopoly in their favour, and that in attempting to fling mud at the Council "most of it must come back" upon themselves—expressed the opinion that the sale of the articles requiring to be labelled poisonous would not well assort with the business of a chemist, and that those whose business partook of the nature of the oil and colourman's would not be injured by the requirement of labelling—that a chemist and druggist could not honourably take an apprentice who had not passed the Preliminary Examination.

C. J. S. THOMPSON, *Liverpool*, thought the steps taken by the Council tended to elevate the position of pharmacy in the country and would be appreciated by all who had "the true interests of the body at heart."

JOHN WADE, replying to an editorial criticism of his objection to the provision that every chemist and druggist's shop should be in charge of a legally qualified person, explained that his contention was that "if co-operative stores and corporate bodies could become proprietors on condition of having legally qualified managers of their business, orthodox pharmacists should enjoy the same privilege." [Unfortunately that view has now been extended to any unqualified individual.—ED. *Ph. J.*]

AN ASSOCIATE, *Darlington*, recalling the fact that, in different courts of law, judges had been undecided as to the intention of the Pharmacy Act—thought that the Bill would not be in danger because chemists and druggists asked "that a loophole in the 1868 Act should be stopped"—referring to Mr. Frazer's opinions, could not see "that free trade in pharmacy is at all desirable."

F. B. BENGER, referring to an editorial comment on the proceedings at a meeting at Manchester, explained that regret was felt on account of the Council relinquishing the claim that poisonous articles should be included in the schedule of poisons, that being considered a sacrifice of principle.

W. WILKINSON wrote to the same effect, and somewhat naïvely suggested that the small attendance of registered chemists at the Manchester meeting was not due to indifference, but perhaps to their not perceiving how a Bill that could be submitted "to the Legislature only on the ground of regard for public safety, should be considered necessary in the interests of pharmacy."

The provisions of the Bill met with very general approval throughout the country so far as opinion was expressed: they were very fully discussed at meetings of the trade association in Birmingham, at Edinburgh, Liverpool, Sheffield, Leeds, and Manchester, without any essential alteration being suggested. But opposition came from an unexpected quarter, and G. F. Schacht, following out the line of action he had taken while the draft was being prepared, entered a protest against the provisions for regulating the sale of "poisonous articles" and the one relating to branch shops, as involving departure from the broad principle of the Society that the sale of poisons should be confined to educated persons, and that the qualified proprietor of a business was to be responsible for the acts of his assistants.

At the Glasgow Chemists' and Druggists' Association, Mr. Daniel Frazer delivered a remarkably discursive address on the proposals of the Pharmacy Act Amendment Bill. Speaking from the point of view that regarded chemists and druggists only as traders, he expressed amazement at "the judicial blindness of the wise men at Bloomsbury Square" in proposing the changes that the Bill would bring about. Dismissing Mr. Kinninmont's approval of the Bill as due to "his usual honest impetuosity," Mr. Frazer contended that the provisions for regulating the sale of "poisonous articles" operated in the direction of grasping at a monopoly—that with exception of a dozen co-operative stores, chemists and druggists had a practical monopoly of dispensing—that the terms of the preamble—the lawyers' mode of getting at the proprietors of co-operative stores—would make unqualified assistants of chemists and druggists liable for sales of poison instead of the real seller or keeper of a shop. In conclusion, the speaker urged that at the close of the struggle into which the Council of the Society and the Trade Association proposed to enter, the protection of titles might be "the only shred of protection" left to chemists and druggists. He therefore advised withdrawal of the Bill, exhorting chemists and druggists to "rest and be thankful" for such protection and privileges as they had.

In the annual report of the Council at the annual meeting in 1883, attention was specially directed to the fact that, for any Pharmacy Act Amendment Bill to become law, thorough support of the measure by the trade at large, as well as in Parliament, was essential, while the President pointed out that, to be brought forward as a Government measure for the Bill its provisions must meet the views of the Privy Council as to the working of the law and as to the deviation from it that was considered desirable.

No progress was made for several months, until in February, 1884, when, in reply to a request that a deputation from the Council and the Trade Association should be received by the Privy Council, an intimation was received that the Government proposed to introduce a Bill confined to "the sale of poisons," and that the Lord President would receive a deputation on the subject after the

Government Bill had been introduced. Thereupon the Council expressed regret that this decision had been formed, stating its opinion that the law relating to the sale of poisons could not be satisfactorily amended "without at the same time dealing with the Amendment of the Pharmacy Acts." That was the last of the second Pharmacy Acts Amendment Bill.

WOOD-TAR CREOSOTE.*

BY LYMAN F. KEBLER.

Creosote is a complex mixture of phenoloid compounds, the proportions of which are materially influenced by the kind of wood employed for distillation, the methods resorted to for purifying and removing the creosote from the distillate and the amount of certain constituents removed from the creosote proper, by fractional distillation.

The above mixture of compounds consists chiefly of several homologous series, prominent among which are the acid methylic esters of catechol, but any of the compounds contained in the following table may be met with :—

Names.†	Formula.	Boiling Point.
MONOHYDRIC PHENOLS.		
Phenol, carbolic acid,	C_6H_5OH	182° C.
Paracreosol, cresylic acid,	$C_6H_4(CH_3)OH$	203° C.
Xylol, or phloral,	$C_6H_3(CH_3)_2OH$	220° C.
METHYL ESTERS OF DIHYDRIC PHENOLS.		
Guaiacol or methyl catecholate,	$C_6H_4\{OCH_3\}{OH}$	200° C.
Creosol or methyl methyl-catecholate,	$C_6H_3(CH_3)\{OCH_3\}{OH}$	219° C.
Homocreosol, or dimethyl-guaiacol,	$C_6H_2(CH_3)_2\{OCH_3\}{OH}$	230° C.
Cœrulignol, or propyl-guaiacol,	$C_6H_3(C_3H_7)\{OCH_3\}{OH}$	241° C.

Creosote is generally supposed to consist, for the greater part, of guaiacol and creosol, the former predominating in one case and the latter in another. This idea has become so prevalent among some that they thought guaiacol to the extent of sixty or more per cent. could easily be obtained by fractionating a good quality of creosote. Such may have been the quality of creosote years ago, but things have changed. It is claimed that when a demand arose for guaiacol and its salts, the proportion of this valuable compound began gradually to diminish, until to-day it has become difficult to purchase creosote containing 20 per cent., and an article containing 60 per cent. is a curiosity. The above demand may have had an influence, but the writer is inclined to look at it somewhat differently. The high percentage of guaiacol reported by some workers was probably due to faulty methods of analysis.

A. Béhal ‡ and E. Choay, on fractionating genuine beechwood creosote and analysing those portions coming over between 200° and 210° C., and 200° and 220° C., found them to have the following composition :—

	Boiling-Points. 200-210° C. Per cent.	Boiling-Points 200-220° C. Per cent.
Monophenols	39·00	39·00
Guaiacol	26·48	10·72
Creosol and homologues	32·14	39·98
Loss	2·38	1·30

The above analyses indicate that a specimen of creosote containing 25 per cent. of guaiacol is a fairly good one. Other recent analyses contribute towards this view. But it must be remembered that, while the larger proportion of the guaiacol distils between the above temperatures, not all comes over. This is well shown by the results of the present investigation. Those samples beginning to boil at about 210° C. (corrected) contain the largest amount of guaiacol. The probable reason for finding the guaiacol in higher fractions is that we find it almost impossible to closely separate by fractionation the various components of complex mixtures, like creosote. It has been found that a fraction of creosote coming over between 200° and 210° C. may contain a goodly per cent. of phenol having a boiling-point 20° below the lowest boiling-point. And the same fraction has been found to contain more than one-third its weight of creosol, a body having a boiling-point of 219° C.

It is sometimes very difficult to differentiate between the various creosotes. Especially is this the case when slight admixtures are dealt with. Qualitatively, beech and oak creosotes are alike. This is probably true of other creosotes. E. Hirschsohn* has compared beechwood tar with the tars of birch, fir and juniper. Apparently he has established identity tests for the several products when unmixed. But it is the writer's experience that when mixtures of the above substances are met with, many uncertainties present themselves.

Distinctive tests for creosote itself are found in books, but they are of little service in practice, where positive results only can be relied on. For example, carbolic acid, cresylic acid and creosote can readily be distinguished from one another, but it is quite a different thing if mixtures of these substances have to be dealt with. The simultaneous presence of these substances seriously modifies the identity tests.

Oak wood creosote is much more caustic than beechwood. This is due to the fact that the former contains a larger proportion of the monophenols and a correspondingly smaller amount of guaiacol than the latter. Both contain about the same amount of creosol and its homologues. Pine wood creosote distilling between 200° and 220° was found† to contain 40 per cent. of monophenols, 20·3 per cent. of guaiacol, and 37·5 per cent. of creosol and its homologues.

There is also some difference in the specific gravities of the various creosotes. The U.S.P. requires a specific gravity not lower than 1·070 at 15° C., while the B.P. is more rigid, in that the lowest limit cannot be below 1·079 at 15° C. The former can easily be met with by a creosote that does not contain any guaiacol. It seems desirable to make this requirement slightly more rigid.

From the above statements, it can readily be seen that the analyst is liable to be confronted with considerable vagueness when he attempts to identify the various creosotes and mixtures of the same. But be this as it may, we are, nevertheless, able to get at the quality of a creosote very closely by careful examination, as the data in the table below will show.

No.	Specific Gravity.	Boiling-Point Celcius.	Per Cent. of Substance Distilled Between the Following Temperatures, C.° Corrected.					
			?-200°	200-205°	205-210°	210-215°	215-220°	220-238°
1 ..	1·0748	195-224	5	34	26	23	6	3
2 ..	1·0748	195-222	20	20	30	19	7	1
3 ..	1·0650	210-238	00	00	00	30	25	40
4 ..	1·0642	208-238	00	00	2	37	21	36
5 ..	1·049	188-220	18	12	12	39	14	—
6 ..	1·069	200-225	32	18	10	24	9	4

No.	Colour.	Reaction.	No. of C.c. of 7·5 Per Cent. NaOH Solution Required to Dissolve 2 C.c. of Creosote.	The Glycerin-Water Test.	20 C.c. of Alcoholic Potash Mixed with 1 C.c. of Creosote.
1 ..	Nearly colourless	Faintly acid	9	Normal	Crystals in 15 minutes Solid in 40 minutes.
2 ..	Nearly colourless	Faintly acid	8	,,	No crystals in 5 hours Solid in 18 hours
3 ..	Amber	Faintly acid	9	Emulsion	Crystals in 4 minutes Solid in 15 minutes
4 ..	Straw colour	Neutral	7	,,	Solidified almost immediately
5 ..	Nearly colourless	,,	8	,,	Solidified on cooling
6 ..	Nearly colourless	Faintly acid	8	Normal	,, ,,

* Research Committee E, Pharmacopœia Revision. Reprinted from the *American Journal of Pharmacy*.

† After Thorpe, *Dict. of Applied Chemistry*, vol. i., 614.

‡ 1894, *Comp. rend.*, 119, 166.

* 1898, *Pharm. Ztg. f. Russl.*, 35, 801.

† 1894, *Comp. rend.* 119, 1276

No.	Per Cent. of Guaiacol.	Per Cent. of Potassium Guaiacol and Creosol.
1.....	None	60
2.....	,,	48
3.....	8	60
4.....	16	106

The six samples were obtained directly, as far as could be ascertained, from as many manufacturers. The boiling-points, as well as other tests, show that all of the samples fail to comply with the U.S.P. requirements. There was a slight residue in every case on distillation. The alcoholic potash-creosote mixture proved the most interesting. With Nos. 1, 2, 3 and 4 the mixture was made at the ordinary temperature, and the last two according to the directions of the Pharmacopœia.

The guaiacol was estimated by the following process:—Mix 5 C.c. of creosote with 50 C.c. of a 20 per cent. alcoholic solution of potassium hydrate; in from ten to thirty minutes a crystalline mass will result, due to the combination of guaiacol and creosol with the potassium. Press crystalline mass between filter paper until dry, place into a test-tube, add 5 C.c. of 10 per cent. sulphuric acid, heat mixture a moment and the guaiacol and creosol will rise to the surface of the liquid. Dilute sufficiently with water so that the oily portion will sink to the bottom, decant aqueous portion and add 4 C.c. of concentrated ammonia water. A hard crystalline compound is immediately formed with the guaiacol, and after some time a semi-crystalline mass results with the creosol. On treating the above crystalline mixture with benzin, all but the ammonium compound of guaiacol is dissolved, and separation can be effected by decantation and washing or filtration and washing. Acidulate the solid residue with 10 per cent. sulphuric, extract the guaiacol by means of benzin and evaporate in a tared vessel.

To differentiate between creosote and phenols, thoroughly agitate one volume of the creosote with diluted glycerin (three of glycerin to one of water), then set aside for separation. The diminution in the volume of creosote indicates roughly the amount of soluble impurities.

The barium hydroxide test for cœrulignol and other high-boiling constituents was also applied, but their presence was not revealed in any case.

The collodion test, the ferric chloride test, and the bromine te t did not give results on which any reliance could be placed.

In the writer's experience the pharmacopœial requirements should be based on the following points:—Physical appearance, reaction, solubility, specific gravity (not below 1·080 at 15° C.), boiling-point (200 to 220° C.), reaction with a 20 per cent. absolute alcoholic potassium hydrate solution, and a test for neutral oils, although this is indicated by the boiling-point.

THE INDIAN AND COLONIAL ADDENDUM TO THE BRITISH PHARMACOPŒIA, 1898.*

Some time since a letter was received by the Pharmacy Board and the Pharmaceutical Society of Australasia from the Premier, asking that the Imperial Government might be furnished through him with such suggestions and recommendations as might be deemed desirable in support of the project of the Medical Council. A joint committee from the Board and Society were appointed to deal with the matter. This committee invited the co-operation of the medical societies of Victoria in order that the recommendations might receive the approval of the medical profession, and Drs. D. Grant and Jamieson were appointed as representatives of the Medical Society of Victoria, and Dr. P. B. Bennie, of the Melbourne Medical Association.

* From the *Australasian Journal of Pharmacy* for September.

Several meetings of the committee were held, and the following is the report to be furnished to the Premier for transmission to the Imperial Government:—

Report of a committee appointed by the Pharmacy Board of Victoria and the Pharmaceutical Society of Australasia, consisting of Mr. Plowman, F.R.C.S., Eng., Dr. F. Hobill Cole, Messrs. H. Francis, D. McAlpine, A. W. Craig, M.A., and H. A. Woolnough, to consider the report from the Pharmacopœia Committee of the General Medical Council on the proposed Indian and Colonial addendum to the British Pharmacopœia of 1898, with a view of making suggestions in the direction of any alterations, but chiefly of replying to the queries in the draft addendum.

It has not been considered by this committee desirable at the present time to make any recommendations concerning new drugs or preparations not already made by the Victorian Branch of the British Medical Association.

It has also been decided by this committee to restrict its attention to those drugs mentioned under the head of Victoria in the report of the Parliamentary Committee of the General Medical Council.

The recommendations are also necessarily incomplete owing to want of time to carry out investigations with sufficient fulness to give definite replies to the inquiries contained in the report above alluded to.

ACACIAE CORTEX.—This committee still considers it desirable that this bark shall be made official.

The following is the description:—

Acacia Cortex. The dried bark of *Acacia decurrens*, Willd.; the Sydney black wattle; or of *Acacia mollisima*, Willd.; the Victorian and Tasmanian black wattle. Obtained from wild or cultivated trees not less than seven years old. When dried to be kept one year before use.

Description of commercial samples of barks of *Acacia mollissima*, Willd., and *Acacia decurrens*, Willd., black wattle.

In long strips from one to two inches broad, somewhat twisted and incurved, varying in thickness from $\frac{1}{16}$th to $\frac{1}{8}$th inch, external surface, greyish brown, but darkening with age, with irregular longitudinal ridges, and often with ashy-grey blotches, inner surface, cinnamon colour to ruddy, smooth; fracture brittle irregular and coarsely fibrous, light coloured when fresh; odour, faintly tan like; taste, astringent. The bark is richest in tan material when between six and ten years old.

ACONITUM NAPELLUS.—This plant is not grown for commercial purposes in Victoria. It has been grown experimentally with success in the colony, and the description of the whole plant grown here corresponds generally with that of the plant grown in England.

DUBOISIA AND DUBOISINE.—In view of the facts that our knowledge of the chemistry of duboisia is still incomplete, that salts of hyoscyamine and hyoscine are now official, and that probably duboisine so-called is either a mixed substance, or does not exist as a distinct alkaloid, it may be advisable to defer its inclusion in the proposed addendum. At the same time, in the opinion of this committee, duboisia is a drug, which may, on further investigation, be found to have a distinctive value of its own, so that the original recommendation should not be lost sight of.

EUCALYPTI GUMMI.—The restriction of this to the product of *Eucalyptus rostrata* was due to the fact that this true "red gum" is more soluble in water than exudations from other *Eucalypts*. This committee would prefer to see this true "red gum" alone official, but as a lozenge is already in the Pharmacopœia made from eucalyptus gum soluble in water from 80 to 90 per cent., this committee would not actually oppose the use of the official eucalyptus gum for the preparations already recommended.

FOENICULI FRUCTUS.—The description of fennel fruit grown in Victoria does not differ in any important respect from that of the fennel fruit now official.

Grindelia Robusta.—This committee is unaware that *Grindelia robusta* has been recommended by the Victorian authorities for inclusion in the proposed addendum. This committee does not think it desirable at the present time to make any special recommendation concerning it.

Kino Eucalypti.—This committee entirely approves of the proposed use of "Botany Bay Kino" in the Australasian parts of the empire when it possesses the characters and responds to the tests of the official Kino.

PHARMACEUTICAL SOCIETY.

Donations to the Library and Museum.

At a meeting of the Library, Museum, School, and House Committee, on Wednesday, November 8, the Librarian and Curator presented the following reports of donations:—

To the Museum.

Messrs. Hearon, Squire and Francis, London:—Specimens of small senna leaves (*Cassia obovata*), an empty civet horn, and of bright coloured Sierra Leone chillies.

Messrs. Dalton and Young, London:—Specimens of the following India rubbers:—Mollendo, Mozambique, Java, Penang, Rangoon, Central American, Mangabeira, Pemmican Ball and Pemmican Slab, and a fine specimen of seeds of Croton Tiglium.

Messrs. Lambert and Strong, London:—Specimen of *Munronia pumila*.

Mr. J. Wheeler, Ilfracombe:—Specimens of Betulin, Pyrobetulin anhydride, Pyrobetulin, Boric Acid filmed with Pyrobetulin anhydride, and specimens illustrating the application of the anhydride in pharmacy and the arts.

To the Herbarium.

Mr. W. Wilkinson, Manchester:—Fasciated flower-stem of *Chrysanthemum uliginosum*.

Mr. E. Mellor, Hemel Hempstead:—Specimens of *Euonymus europæus* in fruit.

The Curator:—Specimens of *Crocus sativus*, Linn., and *Crocus sativus*, Tenore.

To the Library in London.

City of London College:—Calendar, 1899.

British Pharmaceutical Conference:—Year-Book of Pharmacy, 1899. Two copies.

Mr. R. Bremridge;—Year-Book of Pharmacy, 1899.

School of Pharmacy Students' Association:—Papers read 1898-99, vol. 25.

Agent-General for Queensland:—Guide to Queensland.

EXTRACTS FROM CONSULAR REPORTS.

The Quantities of Rubber which weekly pass through Kumasi (Gold Coast), from Ashanti to the coast during the season, is estimated at from 70,000 to 90,000 lbs. There are other roads to the coast by which rubber is carried in large quantities from west and east, but the main supply from the west and north of the Colony now goes through Kumasi, as being the safest road to travel. The need for railways throughout the Colony is greatly felt by those interested in the rubber and timber trade. The whole of the rubber is at present brought down to the coast on the heads of carriers, ten shillings being the minimum cost of each carrier from Kumasi to Cape Coast. To bring down 70,000 lbs. of rubber requires 1,400 carriers, thus making the total cost for transport alone for an eight days' journey £700. Rubber is one of the chief sources of wealth in the Colony; the trees and vines which produce it are found in the many swampy regions of the Colony, and, as no cultivation is needed, very little skill and not much work, there is no difficulty in getting the natives to collect it. Given improved transport, it is believed that the output of rubber from the Colony could be trebled, besides releasing from the duties of beasts of burthen hundreds of human beings who could be far more profitably employed for the benefit of trade. Moreover, it is generally believed that rubber would still retain its price even if the output could be doubled in one year, because so many new applications of the material would arise that the supply would not be sufficient.

A Hydropathic Establishment has been opened this year at the mineral baths of Ilidze, near Serajevo, and is reported to be largely frequented. It is expected that the establishment will prove a further attraction to this bathing resort. The water from the hot mineral springs was formerly only employed for bathing, but during the last two seasons many patients have partaken of the water, it is said, with very successful results.

The Demand for Drugs and Medicines in Persia is reported to have been less last year than in previous years. Colonel M. J. Meade, her Majesty's Consul-General at Bushire, is of opinion that the probable cause of the diminution is the inability of the poorer classes to purchase drugs and medicines rather than because of any particular improvement in the general health.

The Supply of Persian Opium in 1898, according to a recent report, was short of the demand, the year's transactions showing a decrease of 2,03,900rs. (£12,744). Prices obtained in Hong-Kong and London, however, are said to have been remunerative, and the opium has gained much favour in Formosa. The shortage is attributed to the failure of the cultivation in Kerman and increased overland traffic with Afghanistan.

The Rose Crop in Persia last year was also much smaller than usual owing to a scanty rainfall, and the continuance of the plague in India is said to have caused a further fall in the export of rose water.

The Demand for Indigo in Eastern Roumelia, Vice-Consul McGregor reports, is on the decline, and aniline dyes are steadily coming to the front. Indigo, chiefly Madras, Bengal, and Java, is used in fair quantities, but very little goes directly from the United Kingdom, as Austrian and German merchants are said to be pushing their trade by selling half-cases, and even smaller quantities, when necessary.

Otto of Roses.—The total yield of otto of roses in Eastern Roumelia last year was about 2,000 kilos., or one fourth less than in 1897, and only about half the crop of 1896. This decrease is attributed to the changeable weather which prevailed during the winter months, it being most unfavourable for the cultivation of the rose fields; the atmospheric conditions during the period of distillation, however, were all that could be desired. According to a recent report, Europe, as well as America, bought less than usual in 1898, although prices were low, ranging from £25 to £30 per kilo.; a fact which tends to prove that adulteration of the otto is still largely practised. The system on which the production of the oil is carried on, it is stated, is to a certain degree responsible for this state of things. It appears that the peasants and small proprietors, who receive cash advances from the leading merchants in Kazanlyk, Karlovo, and other centres, usually distil the oil on their own premises without any effective supervision, and thus have every opportunity of practising adulteration with impunity, the oil of geranium being introduced into the country in sufficient quantities by Jews and gipsies from Adrianople, in spite of the endeavours of the Government to suppress the traffic.

A Central Distilling Establishment is needed for the effective prevention of systematic adulteration of the otto of roses, but although several leading merchants are fully alive to the harm which adulteration must eventually cause to the trade, the diminution in the yield, which would be the consequence of conveying the roses from a long distance under a burning sun, makes it almost impossible to entertain the idea of such an establishment. A remedy is, however, in the hands of the buyers, as a consistent refusal to purchase adulterated otto would doubtless conduce to an improvement in the primitive and unsatisfactory method of production at present in vogue.

The Import of Chemical Products into Mexico during 1898 increased by some £31,806 compared with the previous year, the total values being £344,809 in 1897, and £376,615 last year. Of this caustic soda and potash represent a value of more than £4,000 above what was imported in 1897. The increase in the imports of these articles being due to the cotton mills, bleaching works, and soap factories that have lately been established in the city of Mexico, Guadalajara, Monterey, and several others in the State of Coahuila, owned by a syndicate known as the "Compañia Industrial Jabonera de la Laguna," the local production of chemicals not being sufficient for the consumption. The remainder of the increase is placed under the heading "Miscellaneous Drugs and Chemicals," which covers the imports of patent drugs and medicines; and other special preparations not otherwise specified.

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.

Styrax Præparatus.—The oxidation test with potassium bichromate indicates the presence of cinnamic acid. Cinnamic acid is phenyl-acrylic acid, $C_6H_5{\cdot}CH{=}CH{\cdot}COOH$. It is the simplest member of the group of unsaturated aromatic acids. Bodies containing a side-chain attached to an aromatic nucleus show very similar behaviour towards oxidising agents—the elements of the side-chain, down to the last carbon atom attached to the nucleus, being removed as carbon dioxide, and water and benzoic aldehyde or acid are formed. The aldehyde is first produced, and by further oxidation yields acid. Thus cinnamic acid,

$$C_6H_5{\cdot}C{:}H{=}CH{\cdot}COOH,$$

yields benzoic aldehyde $C_6H_5C{\cdot}O{\cdot}H$.

Syrups.—Seven new preparations have been added, and three syrups omitted. The latter include the syrups of mulberries, poppies, and subchloride of iron. The last mentioned, although introduced in the 1890 Addendum, was seldom used. Syrup of mulberries had also fallen into disuse, while syrup of poppies is now regarded as an unsatisfactory preparation, owing to its liability to variation in potency. Omitting minor changes, the following alterations may be noted :—

Syrupus Aurantii.—The use of tincture from fresh orange peel will produce a syrup of improved aroma and flavour.

Syrupus Aurantii Floris.—The use of boiled water throughout the process is presumably intended to produce a preparation as sterile as possible, in order to prevent the development of moulds which destroy the aroma of the syrup.

Syrupus Ferri Iodidi.—The strength has been increased from 4·3 grains per fluid drachm to 1 part in 10 parts by measure, *i.e.*, 1 grain in 11 minims, or 1 gramme per 10 C.c. To verify this, remember that an excess of iron is employed, and that the quantity of ferrous iodide formed is, therefore, based upon the quantity of iodine in the formula. Now, 251·80 parts of pure iodine (2I) will produce 307·40 parts (FeI_2) of ferrous iodide, and taking the metric quantities of the official formula

$$83 \text{ grammes of pure iodine will produce } \frac{307{\cdot}4 \times 83}{251{\cdot}8} \text{ grammes } FeI_2$$

$$= 101{\cdot}3 \text{ grammes.}$$

But iodum B.P. is only required to be 98·7 pure ; therefore, on this basis, we should obtain

$$\frac{101{\cdot}3 \times 98{\cdot}7}{100} = 100{\cdot}0 \text{ grammes,}$$

and this quantity is contained in 1,000 C.c. of finished syrup. The useless and clumsy performance of boiling the solution of ferrous iodide with some of the syrup is now omitted.

The test depends upon the conversion of the iodide into sodium iodide. Ferrous iodide solutions cannot be directly titrated with silver nitrate, for although the reaction between the two bodies resembles that of other iodides—

$$FeI_2 + 2AgNO_3 = 2AgI + Fe2NO_3,$$

there is no means of indicating the end of the reaction during titration, because potassium chromate forms an insoluble iron chromate when added to the iron solution. The ferrous iodide is therefore converted into insoluble carbonate by reaction with solution of sodium carbonate—

$$FeI_2 + Na_2CO_3 = FeCO_3 + 2NaI.$$

In order to avoid the trouble of washing the bulky iron precipitate in order to collect all the sodium iodide in the filtrate, the method is adopted of diluting the reaction mixture to a measured volume, and then filtering off for titration an aliquot part thereof. The 25 C.c. of filtrate in the official test is therefore equivalent to $2\frac{1}{2}$ C.c. of syrup. Taking the lower limit of volumetric silver nitrate solution, 16 C.c., and according to the equation—

$$\underset{168{\cdot}69}{AgNO_3} + \underset{148{\cdot}78}{NaI} = AgI + NaNO_3$$

$$1{,}000 \text{ C.c. N/10 } AgNO_3 \equiv \frac{148{\cdot}78}{10} \text{ grammes, NaI}$$

but by the equation—

$$\underset{307{\cdot}4}{FeI_2} \times Na_2CO_3 = FeCO_3 + \underset{2\times147{\cdot}78}{2NaI}$$

this quantity of sodium iodide is also equivalent to

$$\frac{307{\cdot}4}{2\times10} \text{ grammes of ferrous iodide.}$$

$$\therefore \quad 1{,}000 \text{ C.c. N/10 } AgNO_3 \equiv \frac{307{\cdot}4}{20} \text{ grammes } FeI_2.$$

$$\therefore \quad 1 \text{ C.c. } \text{,, indicates } \frac{0{\cdot}3074}{20}$$

$$\text{and } 16 \text{ C.c. } \text{,, ,, } \frac{0{\cdot}3074 \times 16}{20}$$

$$= 0{\cdot}2459 \text{ grammes.}$$

By the same method of calculation the higher limit — 16·5 C.c. will indicate 0·254 grammes FeI_2 in 2·5 C.c. of syrup.

Syrupus Ferri Phosphatis.—The preparation of ferrous phosphate by reaction between ferrous sulphate and sodium phosphate has been replaced by the simpler and more convenient method of direct solution in phosphoric acid. Note that sufficient phosphoric acid is employed not only to convert the iron into phosphate, but also to keep in solution the ferrous phosphate which is insoluble in water.

Syrupus Limonis—Instead of infusing the peel in the boiling juice, it is now to be extracted with strong alcohol, and the resulting tincture added to a syrup prepared from lemon juice. This change will be found a great improvement. Note that filtration of the lemon juice is not attempted, so that the resulting syrup will not be bright.

Syrupus Scillæ—The sugar has been slightly reduced to avoid crystallisation in cold weather.

Syrupus Sennæ—The senna is now to be extracted by repeated maceration with 20 per cent. alcohol in place of water. Only the third expressed fluid is to be evaporated in order to avoid the prolonged application of heat to the previously expressed and stronger portions. The use of weak alcohol as a menstruum will no doubt prevent the fermentation to which the 1885 B.P. syrup was liable.

Syrupus Zingiberis.—Owing to the omission of tinctura zingiberis fortior from the 1898 Pharmacopœia, directions are given for the preparation of a strong tincture specially for the syrup.

The new formulæ include the following :—

Syrupus Aromaticus

Syrupus Calcii Lactophosphatis.

Syrupus Codeinæ—Codeine phosphate is used for this, as the alkaloid itself is not sufficiently soluble in water.

Syrupus Ferri Phosphatis cum Quinina et Strychnina.—A syrup containing these constituents has long been known as Easton's syrup. The original formula of Easton included the preparation of ferrous phosphate by precipitation, and has not been found to possess good keeping qualities. The present official formula is more satisfactory.

Syrupus Glucosi.—This is a useful pill excipient. Its advantages are that pill masses made with it do not harden and become crumbly so quickly as those made with simple syrup, owing to the uncrystallisable nature of the glucose, while the pills so made are not so hygroscopic as those made with glycerin or syrup and glycerin.

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

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ATTEMPTED PHARMACY LAW AMENDMENT,

And the Causes of its Failure in the Past.

The utter breakdown of the so-called Pharmacy Act, 1868, caused by the House of Lords' decision in 1881, left the position of chemists and druggists, even as "a trading community," so precarious, that their apparent acquiescence in that decision seems, at the present time, to have been very remarkable. It certainly shows that the great majority of the body had not been inspired with the idea that chemists and druggists required in their own interests to distinguish themselves as being something more than mere traders—that they failed to perceive the full extent of the disadvantage to which they were exposed, by the Pharmacy Act being regarded as dealing chiefly with "the sale of poisons" and essentially a measure for creating a trade monopoly, rather than one for ensuring the safety of the public. Their prevailing indifference, in those respects, was due to defective perception of the fact that the professional practice of pharmacy was the only part of the chemist and druggist's business for which any kind of State protection could be expected. Owing to that deficiency, the pharmaceutical chemist has had on his shoulders, as an obstructive burden—like the Old Man of the Sea—the typical chemist and druggist, imbued with trade notions, little different from those of the grocer, the ironmonger, or the publican. The same state of mind has to a great extent prevailed with judges, members of Parliament, and Government officials, with naturally consequent disadvantage to the entire body of registered chemists and druggists; but more especially to those among them who aspire to professional status—who endeavour by qualification and conduct to assist in establishing a professional craft of qualified pharmacists.

The failure of the attempt made in 1881 by the Council of the Pharmaceutical Society to obtain amendment of the law—such as would secure efficiency in regard to public safety and the intention that it should regulate the practice of pharmacy—can scarcely be regarded as surprising, when the conditions and ideas then prevailing are considered. The very modified expression of the principle of the Pharmaceutical Society, which had to be adopted in the Act of 1868, in order to secure the great advantage of incorporating "persons known as chemists and druggists," gave an obvious preponderance to a part of their business that appeared to be distinctly of the nature of ordinary trade. The sale of the articles that were made poisons by the Statute, was thought to be of more importance than the dispensing of medicine, and to be more in need of regulation in the public interest. Among other circumstances placing the professional part of the business comparatively in the background, was the frequently mixed and miscellaneous nature of the trade carried on by chemists and druggists, as well as the very small extent to which any practice of pharmacy entered into their business. The great majority desired to be regarded as members of "a trading community" they willingly gave ear to assurances that their welfare was to be sought by assertion of free trade principles, rather than by establishing a professional status; though, strangely enough, that teaching was combined with advocacy that chemists and druggists should enjoy privileges appertaining only to persons engaged in professional occupations.

When the second attempt to obtain amendment of the Pharmacy Act, 1868, was made in 1883 the number of registered persons (13,665) was very little greater than it was in 1881, and those who had passed the qualifying examination amounted to only 40 per cent. as compared to 36 per cent. at the earlier period. It may therefore be inferred that the conditions above referred to had not been materially altered. The subjects to which the attention of Government departments had been called, in connection with amendment of the law, related to the supply of poisons and poisonous articles in various ways that were essentially trade transactions. The communications from the Privy Council and other Government departments, related specifically to the trade aspect of the matter: they showed express disinclination to allow amendment of the law as to "the sale of poison" to be trammelled by amendments relating to the practice of pharmacy and "the status or organisation of the Pharmaceutical Society," or even to take any cognisance of chemists and druggists in connection with such matters. After the lapse of fifteen years there will probably be less tendency, in official quarters, to regard persons registered under the Pharmacy Act, 1868, simply as traders, since the conditions have now become very different. Notwithstanding the discouraging influence of the fact that the slender protection of the practice of pharmacy, afforded by the Legislature in 1868, has long been extinguished, there has been loyal observance of the law in regard to qualification: for the number of persons qualified by examination, now amounts to upwards of 80 per cent. of those whose names are on the Register.—Does that altered condition furnish possibility of securing the "two essential factors" of suitable Pharmacy Law Amendment—viz., the hearty support of most registered persons, as well as their recognition, by the Government, as being something more than mere traders?—Does it admit of "protection of those who carry on the business of chemists and druggists"?

ANNOTATIONS.

TO BE ONE-SIDED is as much a reason for reproach as being irrational, or unjust—obviously the Society's Journal should uot be censurable on any one of those grounds. But there are propositions which do not reasonably admit of more than one view and the confession must be made that, under such an impression, the opinions and arguments put forward in this Journal with regard to the subject of "company pharmacy" have been those considered to be consistent with commonsense, with public interest, with the object of the Pharmaceutical Society, and with justice to legally qualified chemists and druggists. An objection has, however been made that "a one-sided position" should have been taken by the Journal, in regard to a subject on which the Council is apparently divided. Without acknowledging the implied rebuke as being merited, it may, however, admit of an invitation being given to any member of the craft who may desire to advance contrary arguments, in support of "company pharmacy," advocacy of which has—it must be admitted—been regarded as more suited to the pages of a mere trade organ, than to those of the Pharmaceutical Society's official Journal.

THE COMPANY PHARMACY PROBLEM is still to the fore in our pages, the Chairman of the Federation of Local Pharmaceutical Associations leading off with a vigorous appeal for union amongst the registered chemists of the country, and a suggestion that the provisions of the Interpretation Act, 1889, should be made applicable to pharmacy law generally. That Act—passed after the House of Lords' decision in the case of the London and Provincial Supply Association—was intended to bring joint-stock companies within the scope of other Statutes which render certain acts punishable when performed by individuals. It provides that, in the construction of every enactment relating to an offence "punishable on indictment or on summary conviction," whether contained in an Act passed before or after the commencement of the Interpretation Act, the expression "person" shall include a body corporate, unless the contrary intention appears. Unfortunately, the penalty provided by Section 15 of the Pharmacy Act must be sued for, in England, by civil process; offences under that Section are not "punisbable on indictment or on summary conviction" and, consequently, the provisions of the Interpretation Act do not apply. To put the matter briefly, if all offences under the Pharmacy Act, 1868, could be dealt with in police-courts instead of county courts, joint-stock companies would be persons within the meaning of that Act.

THE POSITION OF THE COUNCIL is summed up by Mr. Smith as being a choice of one of five different important suggestions. The extreme proposals are acceptance of the usurpation by companies of the chemist's position, on the one hand, and—on the other—absolute prohibition of unqualified company trading in pharmacy, The remaining plans are somewhere between those two, but Mr. Smith feels strongly that there can be no half-way house. "If we voluntarily surrender the principle known as qualified ownership we are driven from point to point until we arrive at a position we cannot logically evade—that is, that an individual grocer or other dealer should be allowed to carry on the business of a chemist and druggist provided he has a qualified assistant." The letter of Mr. Harold Matthews, printed at page 466, shows that the same idea is already taking shape in the minds of some grocers, and there is not the least doubt that it represents the only logical outcome of "the policy of surrender." If once the principle of proprietary qualification were relinquished, nothing would be necessary but the qualification of assistants—the individuals who actually hand over scheduled poisons to the purchaser. Behind them would be capitalists who might, or might not, be legally qualified persons, and we should be confronted with the curious anomaly of the qualified assistant conferring qualification on his employer, a position which Dr. Symes has well described as an impossible one.

"AN ORDINARY PHARMACIST" sums up the position as to "company pharmacy," defending himself against charges of inconsistency, and pointing out what reform in the law is urgently required, in the public interest. Sceptical about the feasibility of any scheme for checking the development of unqualified company pharmacy by imposing irksome restrictions and regulations, he urges registered chemists not to "cry for the moon," but to demand that they should "possess the earth" to a fair and reasonable extent. That he interprets as implying restriction of pharmaceutical titles to duly qualified individuals; the dispensing and sale of all statutory poisons by registered persons only; and the prohibition of any control over the conduct of the business of a chemist and druggist by persons who are not legally qualified. He contends that the clause suggested in the first article he contributed is fully capable of satisfying the legitimate aspirations of pharmacists, without interfering with proper business developments; while at the same time, it would prevent the usurpation of chemists' titles by unqualified persons, and put companies on a proper footing. The keynote to the article is to be found in the words "equality of treatment all round"—either free trade in pharmacy or a proper restriction of titles and practice.

THE FIRST EVENING MEETING of the Pharmaceutical Society for the present session will be held at 17, Bloomsbury Square, London, on Tuesday next, November 14, when Professor J. Reynolds Green will lecture on the biology of yeast, and Professor H. G. Greenish will read a paper on spurious Alexandrian senna. The chair will be taken by the President—Mr. William Martindale—at eight o'clock precisely. It is hoped that a large number of members of the Society will make a point of being present and also bring any friends who may be interested in the subjects announced for consideration. By an unfortunate slip the word "next" was inadvertently printed after "Tuesday" in the notice published last week; apologies are therefore due to anyone who failed to note the discrepancy in the date, and came to the Society's House with the object of attending the meeting, on Tuesday last.

THE CHEMISTS' BALL FOR 1900 will be held at the Portman Rooms on Wednesday, January 17, that date having been decided upon at preliminary meeting held at 16, Bloomsbury Square on Monday afternoon last. The Committee to make arrangements consists of the following gentlemeu:—Mr. William Martindale (Chairman), Dr. John Attfield, Messrs. J. W. Bowen, M. Carteighe, T. H. Francis, J. F. Harrington, E. W. Hill, Walter Hills, J. H. Mathews, A. J. Phillips, A. C. Preston, J. C. Umney, and William Warren (Hon. Secretary). The names of any gentlemen willing to act as stewards and assist in making the last ball of the nineteenth century a success, should be sent as early as possible to the Hon. Secretary, Mr. William Warren, 24, Russell Stree Covent Garden, W.C.

THE 'YEAR-BOOK OF PHARMACY' FOR 1899 surely establishes a record by the promptitude with which it has made its appearance—nearly three weeks earlier than last year. The contents of the book are arranged on the same familiar plan, and the numerous abstracts, formulæ, etc., should prove as useful as ever. The proceedings at the Plymouth meeting are, of course, printed at length. The only absolute novelty in the book is the list of local corresponding secretaries, which now appears for the first time. The members of the Conference may once more be congratulated on receiving such an excellent return for the small subscription they pay.

A Commonsense Judgment has been delivered by the Supreme Court of Tennessee, in connection with an attempt which has recently been made to compel pharmacists to place poison labels upon bottles, etc., containing medicines ordered by and compounded from a physician's prescription. The *Pharmaceutical Era* points out that there is a Statute in Tennessee which requires that a labe bearing the word "poison" shall be placed upon any bottle or package containing any poisonous liquid or substance, but the Supreme Court has decided that a physician's prescription absolves the pharmacist from that duty or responsibility in the matter of labeling. The decision, as might be expected, is very acceptable to both pharmacists and physicians. The latter, in particular, object to having their medicines labelled "poison," on the ground that the effect upon the patient would be harmful and that such a practice would tend to the disparagement of the physician's ability and reputation. As the *Era* remarks, the application of a poison label to medicine dispensed from a physician's prescription would afford no protection to the patient, but, on the contrary, might cause harm to all concerned. Poison laws are of the utmost value when applied to ordinary sales, and such application is, doubtless, all that was intended by any of the Statutes in force in the United States. In Great Britain and Ireland, as is well known, special exemptions are provided in the Pharmacy Acts for medicine dispensed by duly qualified persons, but it is satisfactory to find that no special legislation has been required to effect the same purpose elsewhere.

Ships' Medicine Chests appear to be considered unnecessary by the *Medical Press*, which comments on the letter recently sent to the Board of Trade by the Sunderland Chemists' Association. The question whether ships' crews are any the worse off by reason of the inability of captains to administer medicines is said to be a debatable one, and our contemporary would limit a captain's medical functions to the administration of purgative medicines (put up in suitable doses), diarrhœa mixture, ipecacuanha wine, or syrup of ginger. The administration of quinine might not prove beyond his capacity, but the prospect cannot be regarded with equanimity of the ship's master administering morphine, or mercury, "or even pilocarpine for the purpose of making the hair grow or otherwise." The *Medical Press*, therefore, would limit the contents of a ship's medicine chest to the simple remedies mentioned, in addition to surgical dressings, splints and bandages. But that is not the question. The Board of Trade, acting on statutory authority, from time to time publishes scales of medicines and medical stores suitable for different ships and voyages, and owners of ships are expected to provide those medicines and stores. But no means appear to be taken to insure the carrying out of the Board of Trade regulations, and it is alleged that ships are sent to sea with medicines of inferior quality or in insufficient quantity. The Sunderland Chemists' Association, therefore, has made the eminently sensible suggestion that competent inspectors—preferably registered chemists—should be appointed by the Board of Trade, to see that the regulations are carried out.

The Limits of Accuracy in Technical Analysis were discussed by Dr. Grossmann in an address delivered at the opening meeting of the Manchester section of the Society of Chemical Industry, last week. He pointed out that, in carrying out an observation or experiment, it is not sufficient that analysts should be able to do their work carefully. It is even more important that they should inquire what errors they may be liable to commit, and thus be able to prevent, remedy, or correct those errors. That truth has long been recognised in physics and astronomy. It has been applied to chemistry in theoretical investigations, notably in the determination of atomic weights, but it has not received the attention in technical analysis which is due to it. As an illustration, Dr. Grossmann referred to the uncertainty that exists in regard to atomic weights and how it affects analysis, and he also showed that measuring instruments are not always satisfactory. He suggested that analysts should get over those difficulties by making check tests with pure chemicals under exactly the same conditions as those under which the actual analyses will be done.

The "Kromaz" System of Colour Photography was described at a recent meeting of the London and Provincial Photographic Association by Mr. Gowenlock, who explained that the system is based upon the fact that all colours are equivalent to, or can be matched by mixtures of, the three primary colours—red, blue-violet, and green. The novelty of the system is that there are two pairs of stereoscopic images, instead of three, the right eye being made to see one colour, the left the second colour, and both eyes the third colour. There are thus four colour records. Two are due to the green, and form a stereoscopic pair, and two are due respectively to red and blue-violet, forming in themselves a second stereoscopic pair. The four records are secured upon one half-plate by two successive exposures. The red and blue records are taken together simultaneously, by the first exposure; the two green records are secured by the second exposure. In the first exposure it is necessary to equalise the exposures for the red and blue by slowing the action of the latter to the time required by the red. That is done by the insertion of an orthochromatic screen in front of the blue-recording portion of the plate, thus following Dr. Joly's process. A single-lens camera is used, and the stereoscopic effect is secured by the use of stereoscopic mirrors, which are supported immediately in front of the lens and transmit two images to the plate. To the back of the camera is attached a repeating back, taking a half-plate slide in which are placed the red, blue, and green screens. Any ordinary front-focussing camera may be used, and the adaptation required is by no means extensive. Plates sensitive to all the colours of the spectrum are necessary, and the colour screens sent out with the apparatus are adjusted to those plates. After exposure, development is proceeded with as usual. Further particulars of this interesting process are given in the *British Journal of Photography* for November 3.

Petroleum Lamp Accidents should be reduced in number if due attention be paid to the suggestions for securing safety given in a circular issued by the Public Control Department of the London County Council. In the first place the public are cautioned never to burn oil which has a flashing point of less than 100° Fahr. Then, it is urged that lamps should be strongly made, and be kept thoroughly clean. In choosing a lamp it should be seen that the reservoir is thick and strong, and not made of thin glass or china; that the burner is strong, and is securely connected to the reservoir by screwing into the collar; and that the lamp has a broad and heavy base. The wick should be soft and not tightly plaited, and should quite fill the wick tube without having to be squeezed into it. The wick should be frequently renewed, and before being put into lamps it should be dried at a fire and then immediately soaked with oil. In managing a lamp care should be taken that the reservoir is filled with oil before the lamp is lit; that the burner is kept thoroughly clean, that all oil is wiped off, and all charred wick and dirt carefully removed before lighting. When first lit the wick should be partially turned down and then gradually raised, but the wick is not to be left turned down and, in extinguishing lamps which have no extinguishing apparatus the wick should be turned down until there is only a small flickering flame—flat piece of metal should then be placed on the to pof the chimney, so as to close it entirely. Cans or bottles used for oil should be free from water and dirt, and should be kept closed.

PHARMACEUTICAL SOCIETY OF IRELAND.

Meeting of the Council.

The monthly meeting of the Council was held on Wednesday, November 1, at 67, Lower Mount Street, Dublin.

The President (Mr. R. J. Downes) was in the chair, other members of the Council present being:—Messrs. Grindley, Wells, Kelly, Michie, Dr. Walsh, Professor Tichborne, Montgomery (Belfast), Jameson (Belfast), W. J. Baxter (Coleraine), Bernard, Simpson, and Porter.

Question of Reciprocity.

The PRESIDENT, after welcoming the new member, Mr. Jameson, said there was another matter to which he wished to refer. Mr. Sidney Vaughan the President of the Queensland Pharmaceutical Society had been with them at the meeting on the previous evening. The Council of the Pharmaceutical Society of Queensland had asked him to have a conference with the Councils of that Society and of the Pharmaceutical Society of Great Britain on matters which they wished to have discussed. One of those was the question of reciprocity. His Council had sent a copy of its regulations, and also information as to the examination.

It was decided that the reception of Mr. Vaughan should be put on the agenda paper for the next meeting.

Proposed Pharmacy Act for the Isle of Man.

A letter dated October 25 was read from Mr. G. A. Ring, Attorney-General of the Isle of Man. It stated that hitherto there had been no Pharmacy Act in that island, and that he was about to introduce one based on the lines of the English Act of 1868 and the Irish Act of 1875, and intended to adopt the English and Irish registrations. The writer asked for information as to the existing pharmaceutical and chemist qualifications in Ireland and a number of other points. The reply which the Registrar had sent was also read.

The PRESIDENT: It will be an advantage to us if that is carried into effect.

Mr. BERNARD said it would be well to point out to the Attorney-General of the Isle of Man the serious flaw that existed in the Acts of the Irish Society, in consequence of which limited companies were enabled to evade the original intentions of the Act of Parliament. The expression of opinion by the Lord Chancellor of England should also be sent to him; and he might thus be enabled to frame his Act so as to prevent the occurrence of such abuses in his dominion.

Mr. WELLS: He is going to pass a special Act for himself, and they are about to accept our qualification in lieu of an examination of their own. We ought to take the opportunity of thanking him for taking us into consideration, for I think it is a very great matter for us.

Mr. BERNARD: Don't you think we should help him by pointing out the flaws and difficulties we labour under as regards company pharmacy?

Mr. WELLS: I endorse everything that you have said. I only want to add our thanks.

The draft reply to the letter of the Attorney-General of the Isle of Man was approved of, and the Registrar was directed to write thanking him for his proposed acceptance of the Irish qualification, and pointing out the disadvantages that would accrue from the recognition of company pharmacy.

The Proposed Library.

The next business was the consideration of the following resolution, which was passed at the last annual meeting, on the motion of Mr. Kelly:—

That it is desirable that a library on a practical basis be established, available to members, associate druggists, and students ofschools of botany, materia medica, and chemistry; and that books considered necessary for reference be added to the present stock, and a catalogue of same be provided.

Mr. KELLY, in moving that the foregoing resolution be acted on, said that having regard to the length of time that the Society had been in existence, it was time that such a library as that which he proposed should be formed. Besides being a benefit to their rising juniors, it would tend to bring the licentiates of the Society together more than they had been in the past. The Society had been making great strides; theoretical chemistry was about to be taught in their schools; and other branches of study bearing on the pharmaceutical profession might have to be added. It was therefore absolutely necessary to have a library, with books that could be referred to on difficult points.

Mr. BAXTER seconded. A lengthy discussion then took place, during which Dr. WALSH and Mr. WELLS—judging from the attendance at the evening meetings, at which on one occasion only three persons were present, including the lecturer and the President—pointed out the possible difficulty of getting students to make use of the library.

Finally the motion was altered by omitting the words after "chemistry," and adding "that the matter be referred to the School Committee to carry out details"; in that form it was passed unanimously.

Donations.

Donations were received from the editor of the *Chemist and Druggist* of copies of works entitled 'Diseases and Remedies,' 'Pharmaceutical Formulas,' 'The Art of Dispensing,' 'Veterinary Counter Practice,' and Proctor's 'Manual of Pharmaceutical Testing.'

On the motion of Mr. GRINDLEY, seconded by Mr. WELLS, thanks were voted to the donor.

Question of Prizes.

A report of the School Committee stated that they did not consider it expedient to award prizes for papers read at the evening meetings.

The PRESIDENT said he had proposed that these prizes should be given because he thought it would induce their licentiates to read papers, and that the education not only of the students but of the licentiates themselves would be thus promoted.

After some discussion the report of the Committee was adopted.

Other Business.

Mr. F. N. Binks was elected Professor of Theoretical Chemistry. Mr. Binks held the Young Scholarship at Anderson's College, Glasgow, for three years.

On the motion of Mr. BERNARD, it was ordered that copies of the examination papers should be placed on the table at the Council meeting next succeeding each examination.

On the motion of Mr. GRINDLEY, seconded by Mr. WELLS, the following gentlemen were elected members of the Society:—Messrs. A. J. Cahill, Dublin; G. G. Dixon, Mallow; and T. L. Foster, Belfast.

Messrs. J. T. Chamberlain (Dublin) and J. Hewton (Ballinasloe) were nominated for membership.

Other business having been disposed of, the Council adjourned.

Evening Meeting.

At Dublin, on Monday, November 6, the opening meeting of the Society for the winter session was held at 67, Lower Mount Steert, the PRESIDENT, Mr. R. J. Downes, in the chair.

The minutes of the last meeting were read by the HONORARY SECRETARY, Mr. H. O'Connor, M.P.S.I., and on the motion of Mr. D. McGREGOR WATSON, M.P.S.I., they were adopted. Apologies for non-attendance were received from Messrs. J. Tyrie Turner and J. Armstadt Ray, B.A. Mr. J. Burnett wrote regretting that pressure of business would not allow him to contribute a paper during the forthcoming session. Messrs. J. Armstadt Ray, F.C.S., J. Smith, M.C.P.S.I., and W. V. Johnston, M.P.S.I., were re-elected reporters in chemistry, botany, and pharmacy respectively, and the following were elected as a committee for the ensuing year:—Miss Ada Wyatt, and Messrs. H. O'Connor, George Brown, J. Tyrie Turner, D. M. Watson, and J. Michie. Mr. H. O'Connor intimated his intention of not further acting as honorary secretary, and Mr. W. V. Johnston kindly undertook the duties for twelve months certain.

The PRESIDENT referred briefly to the work of the past session, and paid a high tribute to the reporters—especially to Mr. Ray, who, he said, was a first-class officer. He would not call on the reporters to act as *ex-officio* members of the Committee. but he would be very glad to see them present as often as possible. The Committee formed the business part of the meetings. He must say that, good as the reporters had been in the past, he hoped for better results from them in future, and anticipated some interesting reports from Messrs. Ray, Smith, and Johnston in the coming sessions. With regard to the contemplated museum in connection with the evening meetings, he understood that an estimate for a mahogany case had been obtained from a local firm, but the price was excessive and the matter had dropped for the present. What was most wanted was for the members to rally round the evening meetings. The question of prizes was at present an open one, but it had not been overlooked. It had been suggested that the evening meetings were held with closed doors. He wanted to make it clear that those meetings were open to all licentiates and students connected with the Society's

school. He remembered when the old Dublin Chemical Society was in existence, the members of the Society had cards of invitation supplied to them to invite outsiders to the meetings. They could have similar tickets now, which could be dated and signed by the member or members issuing them. In a word, the licentiates had the opportunity of attending the evening meetings, but not of voting thereat.

Mr. Watson: If you give the licentiates the privileges of members they won't become members or pay for what they can get free.

The President feared that the evening meetings were not such as to induce the great bulk of licentiates to become members, owing to the want of interest taken by the very men concerned.

Mr. Johnston: If we give a decent syllabus and offer some instruction we may get additonal members.

The President: This room is an open one. If a licentiate comes here and offers useful information we are always very glad to get it, but when certain conditions of membership are laid down the line must be drawn somewhere. The meetings, however, are practically open, and nobody is ever questioned when he comes here as to whether he is a member or not.

Mr. Johnston said that this was not made clear in the beginning, and it kept away a number of licentiates who might otherwise have attended.

Mr. O'Connor said the matter had long since been set right and the syllabus altered accordingly.

The President, in reply to a question, said that membership conferred the right to vote at the annual meeting of the Society, entitled the member to become a candidate for a seat on the Council, and to receive a weekly copy of a trade journal. About seventy notices were sent to the members and the Council in respect of each evening meeting. It was thought that the evening meetings were at present notified too far ahead, and arrangements were made to have postcards sent about three days beforehand in future.

Mr. Johnston advocated the sliding scale of recruiting members for the evening meetings. First, he said, make licentiates of the members.

A syllabus for the winter session was approved of, after which the President moved, and Mr. Watson seconded, a very hearty vote of thanks to Mr. O'Connor for his zeal and energy while acting as honorary secretary. The resolution was carried with applause and

Mr. O'Connor having suitably expressed his acknowledgments, the proceedings terminated.

GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

At the weekly meeting of this Association, held on Friday evening, 27th ult., the President, Mr. J. P. Gilmour, delivered an address on

The Assistant: His Fortunes and Future.

Mr. Gilmour began by saying that he proposed to present a descriptive sketch, and critical study, of what might be called the middle stage in the life-history of the pharmacist. Casting about for biological analogies to this cycle, the familiar case of the metamorphic insect had occurred to him, only to be rejected, for while there was unquestionably a close resemblance between the grub or caterpillar, crawling unhastingly and devouring every digestible and many indigestible things on its devious course, and the artless apprentice, it was preposterous to suggest that the slumbering pupa could be the analogue of the "live" assistant of advertisement fame, or that of the gorgeous imago, unless indeed, it were that of a dusty moth, flitting about in the sunshine sampling the nectar in every opening flower, was to be compared to the prosaic, bespectacled, and aproned pharmacist of our workaday world. He had been equally unfortunate in other attempts to find a good, working analogy. The promise of a canine comparison was impaired by the consideration that even the long-suffering, and long-suffered apprentice, might resent being likened, albeit metaphorically, to a puppy, and that the appellative "old dog" was hardly respectful to a M.P.S. in business for himself. As a *pis aller*, he had been driven back on a piffling parody of Shakespeare's timeworn lines:—

> "All the world of pharmacy's a stage,
> And all its men and women merely pill-layers.
> Their acts being three dru(d)gging ages."

It had cost him a poignant spasm of regret to be obliged to keep that "gay and festive cuss," the apprentice, in the background for the purposes of this address. In spite of all its drudgery and servitude, one invariably looked back on his apprenticeship with something of the tenderness cherished for the memories of school-life, of his first pair of breeches, or his calf-love. The epic or the comedy of the apprentice was still to write, but it seemed doomed to continue *in posse*, since the apprentice of the old type was a vanishing quantity.

The term "assistant" was one of those euphemisms to which our age was so weakly addicted. We might change the name, but the fact endured. This process of accommodation always reminded him of Artemus Ward's plan of transforming the figures in his "moral waxworks." He had an effigy of Captain Kidd, the pirate, which was generally very popular; but when the show visited religious towns, where unconverted pirates were at a discount, Artemus touched up the figure suitably, and labelled it John Bunyan, or John Knox, or John Wesley, according to the susceptibilities of the place. They might write "principal" for "master" and "assistant" for "servant," but that did not, and could not, alter the fundamental, legal, and moral relations of employer and employed.

There were two principal phases of assistant life:—(1) The official and economic phase. (2) The student phase. Those were, or ought to be, interdependent, but could be considered most conveniently apart.

The Assistant in His Official and Economic Capacity.

Having given some account of what he called the humours, harassments, and lessons of shop-life, with several amusing and instructive illustrations under each head, Mr. Gilmour proceeded to treat of the economics of the assistant's status. The two outstanding economic evils in the assistant's lot were:—(1) Long hours, and (2) low wages. Long hours of labour arose either from a general or a special cause, or from both. The general cause of the inordinately long working-day in all civilised countries was the redundancy of drones in the community. This was not political theory, but economic fact. The special cause in the case of the trade of pharmacy was the so-called emergency demand for medicines, a demand which, curiously enough, reached its minimum between twelve midnight and nine a.m., and its maximum between six p.m. and midnight. So much for the diagnosis of the disease. The prognosis depended on the regimen, which must be heroic, even if it ran on evolutionary lines. If we were to imitate the bees, whose social system has been the text of so many ethical formulas, we should cast out the drones and leave them to perish; but since we have a reputation for humanitarian science to maintain, we must seek to eliminate the gratuitously unproductive classes by educative or legislative methods. Such gradual movements don't promise speedy relief for the hapless victim of the present system. If we are to anticipate the course of economic development, it can only be by modifying the action of the special cause which lengthens the already excessively long working-day of the pharmacist, and this reform depends on factors which we have yet to consider.

Low Wages.

There are always some ill-informed or narrow-minded assistants who take the view that employees as a class are responsible for the pittance which they receive as a reward for their labour. Such malcontents usually refer to particular instances, and so fall into the common logical error of setting up a special case as a general rule. The public fall into a similar fallacy about druggists' profits. What Adam Smith said about apothecaries' profits is applicable *mutatis mutandis* to the present-day druggist.

"Apothecaries' profit is become a by-word, denoting something uncommonly extravagant. This great apparent profit, however, is frequently no more than the reasonable wages of labour. The skill of an apothecary is a much nicer and more delicate matter than that of any artificer whatever; and the trust which is reposed in him is of much greater importance. He is the physician of the poor in all cases, and of the rich, when the distress or danger is not very great. His reward, therefore, ought to be suitable to his skill and trust, and it arises generally from the prices at which he sells his drugs. But the whole drugs which the best employed apothecary in a large market town will sell in a year may not perhaps cost him above £30 or £40. Though he should sell them, therefore, for three or four hundred, or at a thousand per cent. profit, this may frequently be no more than the reasonable wages of his labour, charged in the only way in which he can charge them, upon the price of his drugs. The greater part of the apparent profit is real wages disguised in the garb of profit."

Independently of the element of skill, the question of magnitude of consumption comes in. This is glanced at in the above passage, but not stated expressly. The profits upon the sale of any commodity, allowing for competitive pressure, are determined by the

intensity and pitch of the effective demand. In plain terms, a consumer goes to his grocer daily and buys largely, but to his doctor or druggist only a few times a year, and buys sparingly, and to the undertaker, usually by deputy, once only, for a final outfit. In terms of the argument, therefore, these sellers must earn a nominally high profit. Now, economic doctrine gives us an equally clear and convincing account of the conditions which regulate wages in any occupation. Those are, as Adam Smith first pointed out, mainly five:—

(1) The agreeableness or disagreeableness, the honourableness or dishonourableness of the occupation.

(2) The ease or difficulty, cheapness or expense of entering upon the occupation.

(3) The constancy or inconstancy of employment.

(4) The trust or confidence reposed in the employee.

(5) The probability or improbability of success in the occupation.

These conditions never act singly, but always in combinations of two or more of this set of five factors, and it would take the higher mathematics to prove the number of combinations that are possible with such a set. In the light of these general principles the problem of the causation of the low wages of assistants in the drug trade is easily solved. The poor pay does not necessarily arise from the cupidity of employees, but is a resultant of these causes—namely, that (1) pharmacy is a fairly agreeable and honourable or genteel calling; (2) that there is no great difficulty nor expense in acquiring proficiency as an unqualified assistant, or even in getting the legal qualification; (3) that the employment is steady; (4) that the probability of success as an assistant, and even as a pharmacist in business for himself, is high. The advantage which should accrue to the assistant in respect of the trust reposed in him is practically neutralised by the combined action of the other four causes. Having detected the sources of an evil, it is always easier to suggest means for its abatement or removal. In this case palliative methods are more obvious than a course of curative treatment. To raise wages provisionally we must increase the difficulty and expense of entering the profession, and agitate for an enforcement of the law which now nominally protects the qualified assistant. Things have been drifting in that direction for some years. Nothing is more certain than that the Pharmacy Act of 1868 did not contemplate the legal qualification of the assistant. The definition of the word "seller," imported into the Act, is a judge-made formula, but the legal fiction is proving itself a blessing in disguise, since it has quickened the demand for the qualified assistant, and so improved his status. Any gain on these lines must, however, be temporary, nor will a stiffer examination and more stringent pharmacy laws do more than postpone the return to the old, low level of status and wages. The spread and cheapening of secondary education will soon increase the supply of stuff out of which assistants are made, and we shall reach the stage, at which Germany stands, where a highly-trained scientific man can be got to fill a responsible position at £100 a year. There is only one real preventive of this eventuality, and that is to raise the standard of comfort. This can be brought about in two ways:—(1) By the growing tendency towards easier and more rational conditions of life all round, and (2) by organised effort on trades' union lines by assistants themselves. The first was more likely to be stable and persistent as a product of social development; but it was too remote to be satisfying, and one had sometimes to hasten the parturitive processes of Nature The alternative course is difficult but feasible. The objections to the principle of combination to raise wages or better the employees' condition were mostly academical, or were inspired by sinister interest. What were the legal and medical professions, and all close corporations or syndicates which combined to maintain or raise fees and prices, but huge trades' unions? Surely no one could deny that in following these illustrious examples the assistant would be worthy of his masters?

The Assistant as a Student.

Even ten years ago the assistant preparing for the Minor could learn his theory at home and do all his practical work in the back shop. All that seemed prehistoric now, when it was seriously proposed that that disappearing type, the apprentice, should pass the Prelim. before he entered a shop, as if there were some sort of pre-established harmony between any person and any profession. There would be more reason in the proposal when the pharmaceutical Prelim. came to be identical with the medical Prelim., although even then it would probably be a counsel of perfection. At present, the student was the victim of a transitional movement, and evolution told them what became of intermediate forms. The present standard of the Minor was above the *sine curriculo* and below the curriculum level; hence the anomaly of day classes which inflicted all the hardships without any of the advantages of a prescribed course of study. As regards the Minor itself, it was defective alike in form and process. Now that there had been plain speaking in influential quarters about the arbitrariness and backwardness of a system of examination that compelled the candidate to pass in all his subjects or fail in all, it was to be hoped that there would be a full and fruitful discussion of the subject in all its bearings. As it stood, the Minor was about the most primitive and antiquated examinational mechanism in the country. Touching the nature and scope of the Minor as an examination, it was neither properly scientific nor adequately technical; but these defects were due largely to developmental conditions. And its *modus operandi*, especially in relation to the oral part of the examination might be vastly improved by substituting a written examination, whenever practicable, for the *viva voce* method, which had undoubted advantages, but was always heavily handicapped by the "personal equation" of idiosyncratic examiner or idiosyncratic student. The greater part of the examination in botany, pharmacy, materia medica, theory of chemistry, and prescription reading could be conducted in writing, even more efficiently than at present. The necessity for reform in these directions was all the more imperative in view of the probability that with the division of the examination and the adoption of the practice of referring a candidate in the subject or subjects in which he is deficient, the standard of the Minor will reach the level of the present Major.

Having seen the assistant safely through the Minor, it is assumed that he will seek the earliest opportunity of starting business for himself. Under the old system it sometimes happened that an assistant grew grey in service, and even died in it. In the meantime, while qualified assistants are relatively scarce, most of them can get a chance of setting up on their own account; but, as the supply once more overtakes the demand, openings will become proportionately fewer, and many assistants will have to be content to plod along the dusty road to death as assistants until the end. It is the evil fashion of the world to treat such lives as if they were failures. But it is gradually coming to see many things in a new light. The spirit of romance teaches us to expect that the hero will always attain wealth and renown, and the villain misery and death, and even the most familiar example of Hogarthian realism shows us the industrious apprentice going on from strength to strength until he is made Lord Mayor of London, while the idle apprentice sinks from depth to depth of infamy until he gets a last lift on the scaffold. The estimable persons who applaud these symmetrical models never stop to reflect that we can't all be rich and renowned, or even Lord Mayors of London. Indeed, it is just because many of us are too scrupulous or too unenterprising to compete for such dignities that they are open to the few, and these not always the most worthy. It is a laudable ambition to aspire to the Presidency of the Pharmaceutical Society, and fulfilment of it may mean moral as well as administrative merit; but worldly success doesn't always spell moral worth, and in spite of the rabid rhetoric of the cantankerous Carlyle, the world owes less to its great men than to the vast body of obscure, decent people who do their duty in a quiet but forceful way.

A short discussion followed, but the general opinion seemed to be that detailed criticism should be left to a future occasion. One member expressed the opinion that the formation of a trades union would only be a method of boycotting the masters. Increased wages must come from the public, not from the masters. As the public wished them to keep open till late he did not see how they could avoid doing it. Two or three times measures had been taken to reduce the hours, but without avail, as some masters always stood out. In reply Mr. GILMOUR stated that the reason they had to work so long was because of the number of drones in the community. It was a curious thing, however, that the demand for drugs was at its minimum between twelve midnight and nine o'clock in the morning, and at its maximum between six p.m. and midnight. He saw nothing to hinder a reasonable arrangement being come to between the druggists in a certain district to keep open by turns. The masters might not like a proposal to form a trades union; but the masters had formed a combination among themselves, with the understanding to keep wages at a certain level. Mr. Gilmour was thanked heartily for his address.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

The opening meeting of the session was held on Wednesday, November 1, Mr. Fraser McDiarmid, President, in the chair.

Mr. Lennox (Secretary) read the

Prize Committee's Report,

from which it appeared that Mr. G. P. Grainger, 6, Polwarth Crescent, had gained the McLaren Prize, value £2 2s., to be expended in any course or courses of instruction in the subjects of the Minor Examination approved by the Prize Committee.—Mr. David McLaren, in presenting the prize, congratulated Mr. Grainger, and intimated his intention of presenting the prize again, when he hoped there would be a good competition.

The President then proceeded to deliver an address on

The Position of the Pharmacist in the Body Politic.

He referred to the abolition of the Preliminary Examination, the expanding syllabus for the Minor, and the increasing fees for examinations as constituting a very effectual barrier to the ingress of all but the elect, and urged that none can complain of this. Division of the Minor Examination was advocated, the speaker expressing the opinion that a candidate might be allowed to pass in two or three subjects at a time, instead of demanding a full acquaintance with six at a sitting. This is a method allowed by other examining bodies, and ensures a better equipment in the examinee. It was further suggested that the time is ripening for the enforcement of a curriculum of study. Few have the time or means for acquiring a practical scientific knowledge during the long hours of apprenticeship, and must undergo a voluntary course of study at a school of pharmacy. From the volunteer to the conscript is but a stage. Dispensing and pharmacy, of course, are best learned in the shop, in the daily round and common task. Unfortunately, in many towns, dispensing forms but a minute, even a negligible, portion of the work, and pharmacy is rapidly becoming a lost art owing, in some measure, to the great elaboration of processes imposed by successive Pharmacopœias, both in the preparation and standardisation of galenicals. The examination barrier having been passed, the registered "chemist and druggist" should enrol himself among the members of the Pharmaceutical Society. Union is strength. Medical men and lawyers, among the professions, and all the great trades, have their unions, and can largely accomplish their desires. Passing from internal affairs, the speaker next referred to the relation of chemists to the medical profession. He thought there was a tendency to adopt too menial a view of that relationship so far as chemists are concerned. The words "handmaid" and "cook" were not dignified. The ideal ever before both professions should be "prescribing by the medical man, dispensing by the pharmaceutical man," but the application of a little common sense would show that there are times and circumstances in which practice must fall somewhat short of profession. There should be an arrangement—perfectly open and honourable—whereby each participates in the cure of disease, performs the work for which he is specially trained, and receives his due share of the reward. With regard to the relationship of chemists to the public, it cannot be said that chemists have shirked the responsibility imposed upon them by the Pharmacy Act of 1868, though in recent times the privileges supposed to have been conferred by that Act have been slipping from their grasp, owing either to a defect in the Act or in its interpretation. What one unqualified man may not do with impunity it has been declared not unlawful for seven unqualified persons to do. Chemists were agreed that no artificial person should be allowed to continue to usurp the pharmaceutical titles. But what's in a name or title if the substance it implies is vanishing? Upon that point there was great diversity of opinion, and the old war was waging between justice and expediency. It behoved every registered chemist to have his opinion, and to declare it. Suppression of companies appeared to be outside the region of practical politics. Any attempt to read "limited company" or "corporate body" into the word "person" might work havoc in the ranks of friend as well as foe. It was vain also to suggest qualified directorship. The only practicable conclusion appeared to be regulation of companies, while insisting upon qualified managership. In conclusion, the speaker deprecated the growing tendency on the part of the public to doctor itself, and asked whether chemists might not with advantage do what they could to save the public from the effects of placing undue reliance upon the supposed virtues of quack nostrums. It was, he said, a difficult question, especially as not all nostrums are unworthy, some being imitated in the Pharmacopœia or otherwise. But surely it needed no training in therapeutics to be assured that remedies purporting to cure anything or everything, from rupture of the aorta to broken chilblains, should be left to the dispensing of the market cheap-jack, and not advertised as being "sold by all respectable chemists." The most effective method which any class of men can adopt for securing their political rights and advancing their professional standing consists not in disputation and warm argument, but in a steady and persevering attention to intellectual improvement, and the establishment of such regulations as are calculated to ensure collective privileges by increasing the amount of individual merit.

Mr. Harley (Vice-President) moved a vote of thanks to Mr. McDiarmid for his address.

Mr. John Bowman (Leith) seconded the motion, and in doing so mentioned that he would be glad to continue his Botanical Prize of £1 1s. for another session.

Mr. David McLaren said he had listened with much pleasure to the address. In regard to the hard battle referred to, he thought it was most unfortunate that the Society consisted of a minority of registered chemists. They were not in a favourable position for making much advance unless that minority could be turned into a majority. The majority evidently wanted a share of all the loaves and fishes, and why they did not join the Society was one of those things he had been quite unable to get an answer to. It was only when the Society was properly supported by the registered chemists of the country that the Council would be able to go to the Legislature and effectually demand the full recognition of the rights of chemists and druggists.

Mr. Boa said he had much pleasure in supporting the vote of thanks to Mr. McDiarmid for his interesting and delightful address Though he had not indicated anything very specific, he had made suggestions on several points which might develop into something useful if taken up by those who tried to legislate in pharmaceutical matters. He trusted they would have a successful session, and that the papers read at the meetings would be as good as usual.

The motion was passed with acclamation, and Mr. McDiarmid briefly replied.

Mr. J. G. Sclater was elected Treasurer in place of Mr. McCutcheon, who is leaving town; and Mr. W. F. Buist was elected assistant secretary, in place of Mr. Kidd, resigned.

CHEMISTS' ASSISTANTS' ASSOCIATION.

The annual *réunion* of some two or three hundred members, new and old—assistants of to-day and of times long past—and a sprinkling of patrons, took place on Thursday evening, November 2, in the Throne Room, King's Hall, Holborn, Mr. P. W. Squire in the chair, his companion in the vice-chair being Mr. William Warren, member of the Pharmaceutical Council. It is an encouraging sight, and augers well for future pharmaceutical unity, to see employers and employed seated together enjoying the social pipe. This feature of the annual *réunion* evidently appealed to Mr. Warren, who, in replying to a vote of thanks—to which reference will be made later—urged the necessity for the cordial co-operation of proprietors and assistants against

The Common Enemy—Company Pharmacy.

The Committee had arranged an excellent entertainment of vocal and instrumental music, humorous sketches and recitations, which, under the efficient management of the hon. secretaries, Mr. Charles Morley and Mr. T. Edward Lescher, was brought to a successful issue. One item, not down on the printed programme, gave general satisfaction, viz., a recitation "Leetle Yawcob Strauss," by Mr. T. Morley Taylor, past-president of the Association, and a first-class amateur reciter. During an interval, after the toast of "The Queen, and Success to Her Majesty's Forces in South Africa" had been honoured and the National Anthem sung with patriotic fervour, another item—apparently unofficial—was announced by the vice-chairman; this was of a practical character, taking the form of a collection

In Aid of the Widows and Orphans

of the soldiers killed whilst fighting against the Boers. It was an appropriate finish to the enthusiastic outburst of patriotism which preceded, and although there was a suspicious murmur in at least one quarter that savoured of grumbling, like true Britons everyone seemed to contribute his mite, the sum collected for the *Daily Telegraph* Fund amounting to £6 7s.

VOTES OF THANKS.

The PRESIDENT, Mr. F. W. Gamble, then proposed a hearty vote of thanks to the Chairman and Vice-Chairman. He said that perhaps no name was better known throughout the pharmaceutical world than that of Mr. Squire. By his aid most of those present had gained their first professional knowledge. Mr. Squire having led them in their studies, his presence there that night was in the eternal fitness of things. Mr. Warren had been the very enthusiastic manager of the Chemists' Balls for several years, and was consequently well-known ; moreover, he was a member of a body to which that Association had before time extended its sympathy—the Pharmaceutical Council. It was at the present time burdened with a very great responsibility, and he hoped it would be able to carry that burden to a satisfactory conclusion, a conclusion that would be to the ultimate benefit of every member of the craft.

The CHAIRMAN briefly replied to the vote of thanks, and expressed his pleasure at being present that evening.

THE COUNCIL AND THE COMPANY QUESTION.

The VICE-CHAIRMAN also replied. Referring to the remarks made by the President, he said if pharmacy was to be a calling worth following, the cordial co-operation of proprietors and assistants was most necessary. If they were not to be led in bondage by company pharmacy, the Council must have the assistance of both wings of the pharmaceutical army. As would be seen from the report in the Journal there had been a battle royal at the Council meeting held the previous day. The question was whether company pharmacy should be abolished or regulated? If that question was to be settled satisfactorily the Council must have the support of all the forces it could command.

The second part of the programme was then proceeded with, a very enjoyable evening terminating by the singing of "God Save the Queen."

MIDLAND PHARMACEUTICAL ASSOCIATION.

This Association inaugurated the winter session with a meeting held at the Great Western Hotel, Birmingham, on the 2nd inst. The PRESIDENT (Mr. Jeffrey Poole), was in the chair, and there was a large attendance.

Alderman W. GOWEN CROSS, J.P., of Shrewsbury (a member of the Pharmaceutical Council) delivered an address on

Pharmaceutical Politics,

which will be found, printed in full, at page 438 of last week's issue. At the conclusion of the address,

Mr. A. SOUTHALL moved a vote of thanks to Alderman Cross, remarking that by the paper they had been inspired for some hard work. As pharmaceutical chemists they wanted someone to guide and lead them in the matters of which Mr. Cross had spoken. It seemed that the Council of the Pharmaceutical Society was too timid to move in such matters. The members were pretty nearly divided as to the matter of altering the Companies Act, and he hoped that Birmingham might be able to suggest something which might be helpful to the Council. Mr. Cross would be satisfied, apparently, if they kept their titles, but that would not satisfy him (the speaker). He thought they ought to be able to regulate, and regulate successfully, what companies should do, and to do something to prevent them doing harm to pharmaceutical chemists.

The vote was seconded by Mr. W. JONES, who also referred to the question of company trading, and urged that something should be done to afford pharmacists something in the shape of protection. When a man, after years of labour, had earned his diploma, he should have some better prospect than the possibility of opening a shop and being opposed by a cutting process in the adjoining shop. He was as much entitled to protection as a solicitor, for instance, and he hoped such protection would be provided in the Companies Bill.

The meeting heartily accorded the vote, and Mr. CROSS briefly acknowledged it.

A programme of music was afterwards gone through, in which Mr. S. J. Halliday, Mr. S. Stoddard, and the Moseley Quartette took part.

LEEDS CHEMISTS' ASSOCIATION.

The thirty-first annual general meeting was held in the Church Institute, on October 31, the PRESIDENT (Mr. E. Yewdall) in the chair. The HON. SEC. (Mr. W. D. Pollitt) read the following report :—

ANNUAL REPORT.

"The Committee has to report that during the past year the aim and object of the Society have been kept steadily in view. In consequence of extensive structural alterations the room formerly used as a library has been demolished. The book cases and the materia medica cabinet have been moved into a more commodious room upstairs, which is lighted by electricity, and can be readily made comfortable for students. A meeting of the members was held to consider the draft Pharmacy Bill, which was well and carefully criticised, and it was agreed that the prospect of legislation for removing some of the abuses at present existing in the State regulation of pharmacy was gratifying, and it was hoped would eventually result beneficially. The regulations for the storage of poisons which had been sanctioned by the Privy Council were discussed, and the ways and means of conforming to each regulation afforded a pleasant opportunity for the interchange of opinions. Several bottles for the storage of poisons, and labels to be attached to other bottles for preventing mistakes, were shown, and examined. The Committee is alive to the interests of the trade in connection with the proposed Companies Bill, and will carefully watch its progress, and if possible get such clauses added thereto as will meet the wishes of the registered chemists of this city. There has been a slight increase of members, although death has removed Mr. Chadwick, and Mr. E. Brown has retired into the country."

The financial statement was read, and showed a small balance due to the Hon. Sec. The report and balance sheet were adopted on the motion of Mr. BRANSON, seconded by Mr. BOWMAN. On the motion of Mr. WORFOLK, seconded by Mr. ANNING, votes of thanks were accorded to the Pharmaceutical Society for the gift of the *Pharmaceutical Journal*, and to the Executive Committee of the British Pharmaceutical Conference for the gift of the 'Year-Book of Pharmacy.'

ELECTION OF OFFICERS.

The following were elected officers and Council for the ensuing year :—President, Mr. E. Yewdall, Ph.C.; Vice President, Mr. G. W. Worfolk ; Hon. Treasurer, Mr. J. J. Anning; Hon. Secretary, Mr. W. D. Pollitt. Council : Messrs. F. W. Branson, F.I.C.; F. C. Long, Ph.C.; W. Johnson, R. Reynolds, F.I.C.; S. Taylor, and G. Ward, F.I.C. Auditor, Mr. J. H. Beacock.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.

The Annual Dinner of this Association was held at the Freemason Hall, Plymouth, on Wednesday, November 8.

The PRESIDENT (Mr. F. MAITLAND) occupied the chair, being supported by Mr. G. T. W. Newsholme (Vice-President of the Pharmaceutical Society), Messrs. J. Davy Turney, J. A. Lamble and F. Downing (Vice-Presidents of the Association) ; Messrs. C. J. Park, W. H. Woods, F. W. Hunt, J. K. Bond, B.A., G. Breeze, J.P., C. T. Weary, H. P. Hearder, Condy U'Ren, R. F. Roper, J. H. Bailey, Martin Johnson, J. W. B. Swainson, H. D. Davey, S. A. Perkins, E. W. H. Green, F. H. Ralph, M. Ryall, G. Fairweather Lamble, Blackmore, Pote, Venn, R. R. Rodd, W. W. Blight, A. Maitland, H. Roberts, A. Debnam, T. W. Ginn, F. Mortimer, J. Balhatchet, H. Whitfield, W. W. Wakeling, J. Perry, W. Pryor, Baker, F. Mabin, S. E. Venn, W. Hartnall, F. Underhill, R. Quance, and others.

After an excellent dinner, the usual loyal toast was proposed by the Chairman and duly honoured.

Mr. R. F. ROPER, in proposing the toast of

THE PHARMACEUTICAL SOCIETY,

said its path at the present time was beset with difficulties, in meeting which it deserved the very best support, not only of its members but of every chemist on the Register. As was well known, those difficulties had arisen through the incomplete Act of 1868, supplemented by the pharmaceutical Majuba of 1881. There could be no doubt that had the Council of that day displayed the same energy in dealing with the matter, in the direction of pressing for fresh legislation, as had been

exercised by the Council of late years, the result would have been more satisfactory to the calling of pharmacy, but the Council had to deal with things as they existed, and it was a hopeful sign that it should now be so much in earnest over the necessity of an exhaustive consideration of the line of action necessary to adopt. In view of the contents of the Companies Bill he was sure that the greater extent to which the members of Council could take their constituents into their confidence the greater would be the interest and support accorded them. At the same time, he considered it obvious that the Council had not made the greatest possible use of the Society's existing machinery and that of outside organisations, so as to focus the requirements and opinions of chemists who, as a body, are somewhat difficult to get at and, when got at, are slow to realise the possibilities of a united front, the fact being that a man who spends from twelve to fourteen hours a day in the drudgery of his business is not in the best condition to take up energetically even his own defence. So long a confinement had a great tendency to take the backbone out of a man; frequently all he asked was to be let alone and exist as best he might and, of course, grumble at all things pharmaceutical. Chemists must, therefore, look to the Council, as leaders, to ascertain what is best. In the interests of those who from various circumstances rarely attend meetings, as well as those whose opinions receive more ventilation, he hoped and believed chemists would not look in vain for the adoption by the Council of a line of action best calculated to promote the well being of all; it would then remain to be seen if there was sufficient latent energy amongst the chemists of the country to give the support necessary to carry the adopted policy to a successful issue. At the last Council meeting the Council was unanimous in its determination to protect chemists' titles and, after careful reading of the speeches made, he must say, that whilst his sympathies were with the minority over the question of dealing with the stores, his judgment was with the majority. The minority were perfectly logical in the position they took up; but was it capable of practical issue? He regretted to say he thought it was not.

Mr. Newsholme, in responding, said that he had been connected with the Pharmaceutical Society for a considerable number of years, and had visited a number of associations throughout the country. He had noted particularly the progress made by the Plymouth Association, which had done work which would tell to the great advantage of chemists, not only of the district, but of the country at large. Many associations of a similar nature had sprung up throughout the country during the last few years, and he had very much at heart the question of organisation. He had advocated that there should be local secretaries in each Parliamentary division, who should be in a position to educate members of Parliament on the question of the rights and wants of pharmacists. It was very unfortunate there should be the existing anomaly in the law regarding pharmacy. He thanked Mr. Roper for his mild criticism of the Council, and should like to say, with reference to the Act of 1868 and the decision of the House of Lords of 1881, that the Council of that time did try to amend the same, and various Bills were introduced which dealt with that question and many others. Amongst other Bills, the Council introduced the Bill of 1883, which would have established a compulsory curriculum. That would have been the best thing for the present-day pharmacists. He was very glad, as a member of the minority, to have Mr. Roper's sympathy, and hoped, before very long, that the minority would be turned into a majority. He was one of those who believed that it was not the business of the Council to see that companies were regulated. With regard to the practice of pharmacy, the Lord Chancellor said he could not see why a company should be allowed to do what an individual should not do, and he took it that companies had no right to practise pharmacy, notwithstanding the decision of the House of Lords. In 1868, pharmacists were given certain privileges, and it was in the education of the vendors that the only safeguard to the public lay. They would depart from that position if they now consented that individuals who cannot pass the examinations may form a limited liability company and control the sale of poisons. Whatever was to be done, however, in any direction must receive the individual support of every chemist of the country, as it was useless going to the House of Commons to ask for anything to be done unless the Council was supported by every pharmacist in the country. They did not want more than was right, but they must try to stick to the principles laid down in 1868 for the protection of their titles and the sale of poisons.

Mr. Park also responded. He remarked that if a person representing a drug company was prosecuted, he sheltered himself under the Companies Act, and he thought it was quite time there was legislation on the subject.

Mr. Blight, in proposing the toast of

"The Local Association,"

remarked that the matters mentioned by Mr. Newsholme and Mr. Park should be supported, not only in the interests of chemists but of the public at large.

Mr. Maitland (President), responding for the local Association said it would be unnecessary to recapitulate the work of the past year, as only recently the annual report had been issued. He was pleased to say the Association was in a very flourishing condition, they now numbered 141 members, and were steadily increasing. The most important event of the past year was the meeting of the British Pharmaceutical Conference; everyone seemed pleased, and the Association could congratulate itself upon its success. In educational matters good work was still being done for the Juniors, and though the valuable services of Messrs. Reade and Johnson had been lost, they had fortunately obtained in Mr. H. Marston Morgan a splendid substitute, who was ably conducting a class in pharmacy during the winter session. The trade section is still highly appreciated by the members, and is in good working order, there being some prospects of still further developments. As to the future of the Association, that could very well be left to the members themselves, they must be watchful, and render all the help possible to the parent Society, as it is only through them that any redress could possibly be obtained. They had heard this evening of some possible legislation affecting chemists, but whatever was tried for, all members were agreed that their title must be protected.

Mr. Lamble then proposed the toast of "The Honorary Members and Visitors," which was responded to by Mr. J. Kinton Bond, after which the proceedings then terminated.

MANCHESTER PHARMACEUTICAL ASSOCIATION

The second meeting of the session was held at the Victoria Hotel, on Wednesday, November 8. Mr. Harry Kemp presided, and, introducing Mr. John Smith, of Liverpool, said that gentleman might not be so well known to many of those present as to himself. He had had the pleasure of his acquaintance for a great number of years, and as far as pharmaceutical matters were concerned his heart was in the right place. They might not always see eye to eye on matters of pharmaceutical polity, but he said emphatically that he was most energetic, most enthusiastic, and most conscientious, and whatever he said or did was done in all honesty and candour. He had been, as they knew, a candidate for a seat on the Pharmaceutical Council. Unfortunately, he was not successful. He was not going to flatter Mr. Smith, but he might say, without drawing any invidious distinctions, that, in his opinion, he would have been much better on that Council than some of their present representatives. He now had pleasure in calling upon Mr. Smith.

In his opening remarks, Mr. Smith said the Chairman had remarked upon his candidature at the last election. He did not wish it to be thought that he was on an electioneering expedition. As far as he saw at present, he should prefer to make himself useful outside the Council, and if it was thought he could do any good, in conjunction with his colleagues on the Executive Committee of the Federation, he should prefer to remain outside and in that position. Mr. Smith then proceeded to read his paper on

Local Pharmaceutical Associations and Their Federation,

which is printed in full at page 447. In conclusion Mr. Smith said: I have wandered from the subject of my paper this evening, but the importance of the circumstances must be my excuse. My views on the pharmaceutical position may be open to criticism, therefore I do not ask this meeting to commit itself by vote. An opportunity will no doubt be provided within the next week or two for your Association to make known its opinions upon the very difficult question the Council of the Pharmaceutical Society has to solve.

Mr. Kirkby said he had very much pleasure in proposing the best thanks of the meeting to Mr. Smith for his excellent paper. The subject was hardly a new one, but whilst coming to the meeting that night he could not help thinking that Mr. Smith would be tempted to deal with matters which had occupied the attention at the last Pharmaceutical Council meeting. All of them were agreed, he thought, on one point, and that was, that it is eminently desirable that, by some means or other, pharmacists through-

out the country should come into correspondence and into touch with one another, in order that their influence may be more felt in pharmaceutical politics. They all deplored that so small a proportion of pharmacists of the country were associated with the parent Society. Within their own recollection many attempts had been made to generate in the minds of pharmacists some enthusiasm for the parent Society. What the actual obstacle was perhaps hardly any one of them could indicate. No doubt a variety of causes operated against the enlargement of the Society. Mr. Smith referred incidentally to the history of the Federation. It had a history of probably five or six years, and it had occurred to him that the one thing absolutely necessary for the Federation, in order to make it more acceptable to pharmacists at large, was some kind of policy. He had looked year after year for

THE FORMATION OF A POLICY

of some kind. The utmost he had been able to gather was that it was willing to help and support the Pharmaceutical Council in everything that was good, and that it would oppose it in everything that was evil. Beyond that, he had not seen it had a mind of its own. Possibly that might be due to a change of officers year after year, but if they had one officer, a secretary or a president, remaining in office, they might be more successful in that respect, and the Executive Council which had been formed might formulate a policy. Where business had to be done by correspondence a large amount of time was wasted in getting the views of individual members If they had an opportunity of meeting two or three times a year, they might possibly draft a policy of some kind. Mr. Smith had referred also to the fact that the Federation was living down the distrust which first appeared to arise in the minds of some as to its possible hostility to the Pharmaceutical Council. He thought the members of that Council were satisfied that the aims of the Federation were in accord with their own. Concerning the thorny question of company pharmacy, he supposed they all had a little difficulty in saying just what they would like. A large amount of correspondence had taken place in the papers, and the majority of those who had written the letters had given expression to what they would like to see brought about. The time had come when, as a community, they must try and find out what it was possible for them to obtain, and not so much what they would like to obtain. He thought they might congratulate themselves as pharmacists that the policy of silence in the Pharmaceutical Council had come to an end. Many things had contributed to bring that about, but he must say that the last report of the Council was the only one he had read with satisfaction for some years past, simply because one had felt, formerly, that there was a show being enacted for the benefit of the readers of the *Pharmaceutical Journal*. That policy he hoped had passed away for ever, and he hoped henceforth they would know in what position each man stood who wanted to be on the Pharmaceutical Council. They might expect that next year a larger amount of interest would be taken in the elections, and that the members would see that every man's votes would be thoroughly criticised, and in what direction his work had tended. To come more closely to what they might hope to get,

THERE WERE TWO FACTORS WHICH STOOD OUT,

or should stand out, very plainly before them as pharmacists. One was that when the Act of 1868 was given to them by Parliament, it was undoubtedly a compromise, and was intended simply to safeguard the public in the matter of poisons. The judgments which had been obtained in the courts of law since that time had evidently been given on that understanding. The last information they had from the Legislature was that they would give nothing to pharmacists in the nature of a monopoly except what was for the public good. At the same time, he thought they were entitled to take it for granted that, when the Legislature demanded that pharmacists should undergo an advanced system of education, in order to qualify for the stiff examinations to be afterwards passed, it was thought only right they should have something in the nature of a *quid pro quo* in return. He was very much interested in regard to what Mr. Walter Hills stated in his speech last week. He said he had had a conversation with a member of Parliament, and he left it to be inferred that the member of Parliament thought they had very little chance of getting a measure passed enabling them to return to the state of things which was thought to be possible under the 1868 Act—that they had to reckon with company pharmacists on the ground that companies had got vested interests, and that those interests had so become intertwined, so to speak, with those of the community at large, that there was very little chance of their being done away with. He (Mr. Kirkby) was not satisfied that was quite the right way to put it. His experience, when he had put the facts historically before medical men and others outside Parliament, had been that they all thought it was

VERY HARD LINES FOR THE PHARMACISTS,

and he could not help thinking that if some member of their body who had the facts at his fingers' ends would write a short account of the ins and outs of the matter, and it could be distributed generally, they would feel that theirs was a case in which injustice had been done. He hoped the Federation would be able to do something on those lines. It would come even better from an outside organisation of that kind than from the Pharmaceutical Council itself. What was the best thing to be done was rather a puzzle. It was said in the Council chamber to be a matter of tactics at present; but while that might be so he thought it would be well that they, as pharmacists, should insist upon the fact that there was a principle at stake, which they must adhere to. It was a matter in which the public welfare was involved; and, secondly, it had to do with men who had a vested interest, seeing that they had to have a high education and undergo much technical training to qualify them for the work. In that way they would be more likely to obtain a larger measure of justice than if they simply left members of Parliament to understand that they were trying to obtain a monopoly.

Mr. A. J. PIDD having seconded Mr. Kirkby's motion,

Mr. WALTER GIBBON, in supporting, said Mr. Smith had emphasised in his mind the saying—organise, organise, organise. Real organisation was the thing which had been felt necessary for many years past in regard to pharmacy, and he believed that the Federation which Mr. Smith had advocated so strongly that evening had a great future before it in that respect. The Pharmaceutical Society itself was primarily an educational body, and he might add also a Parliamentary body; but they must have some other body to assist it in organisation, and that they had in the Federation. In regard to the observation made by Mr. Kirkby as to the conversation Mr. Walter Hills spoke about, his experience coincided with that gentleman as to the impossibility of obtaining a monopoly, but he contended that they could have pharmacy regulated in such a manner as to do justice to the qualified chemist, especially in connection with the dispensing department. He trusted that the Federation would initiate a policy so as to bring about that desirable organisation which had been lacking in the past.

Mr. LANE said the matter was one of very great importance from the view of the pharmacist. It was very important that the public interest should be thoroughly protected, and he believed that in going to Parliament the Pharmaceutical Society had that end in view, and that it was for the public good. They had, however, to look at the question in a practical manner, and he held it was not necessary that the actual proprietors of a shop should be qualified men. All that was necessary for the public safety was that the men in charge should be properly qualified, and he thought those seemed to be the lines on which they would have to go to Parliament. He agreed with Mr. Smith as to the work which it was within the province of the Federation to perform. Although they had not seen much result from it at present, he thought it would have an excellent growth in the future, and that it could be a great support to the Pharmaceutical Society in putting forward definite conclusions arrived at by the local associations.

Mr. GRIER said he had not come to any conclusion on the question of company pharmacy, but, to be logical, he thought chemists would have to give up branch shops if it was not legal for a company to carry them on.

The CHAIRMAN put the vote of thanks, which was carried by acclamation. Subsequently, referring to a remark of Mr. Kirkby, he said he was in at the birth of the Federation, and he had been almost afraid he was going to be in at the death; but he trusted they had now arrived at a point when that suckling would develop into vigorous growth. Mr. Kirkby had expressed a hope that the Federation would formulate a policy. He might tell Mr. Kirkby and those present that the one strong point which had been urged against the Federation from its very inception was that it should not formulate a policy, but that it should look to the different local associations to formulate that policy, and that the Federation should then try and carry it out. They were not there to hinder or to be antagonistic to the Pharmaceutical Council. Loyalty to that Council was one of the keynotes of the Federation as a whole, but that did not, of course, apply to every individual member. He himself thought the Pharmaceutical Council would make a great mistake if it attempted to legislate to regulate company phar-

macy. There could not be any reason why six or seven men should not be allowed to do what it was perfectly competent for each of them to do as individuals, but that did not say they were to admit that any six people who liked to band themselves into a company should be allowed to carry on a business which, after all was said and done, was a personal business.

Mr. Smith having replied, the proceedings terminated.

LETTERS TO THE EDITOR.

The Company Pharmacy Problem.

Sir,—Kindly correct your report of what I said at the Council meeting, in last week's issue of the *Pharmaceutical Journal*. Thus, at p. 429, left-hand column, line 18, for "unobtainable," read "unattainable," and at line 20, in place of "*chemists* had enjoyed the privilege of carrying on their practice for the last twenty years, and were now beginning to assume the chemists' titles," read "*companies* had enjoyed," etc. Wm. Martindale.

10, *New Cavendish Street, London, W., November* 7, 1899.

Sir,—I am reported in the *Pharmaceutical Journal* of the 4th inst. to have said at the last meeting of the Council that I "did not object to a qualified person being the servant of an unqualified person." I beg to point out that I distinctly said that I did object to such an arrangement. Whilst asking you to make this correction, I should like to take the opportunity of saying that I referred on that occasion to Mr. Rutherford Hill's recent address, with the object of expressing an opinion that, if it were found expedient by many of our well-trained pharmacists to develop their business in other directions than that of pure pharmacy, it was undesirable to prohibit them, by Statute, from taking advantage of the limited liability principle. I ask you to allow me to make this explanation, as the condensed report of my remarks does not appear to make my meaning as clear as I could wish.

225, *Oxford Street, W., November* 7, 1899. Walter Hills.

Sir,—As an individual pharmacist I beg to be allowed to give expression to my astonishment that ten members of the Council of the Pharmaceutical Society have yet to make up their minds whether or not it is right for companies of unqualified persons to practise pharmacy. The proceedings at the last Council meeting must have struck consternation into the heart of many a pharmacist throughout the country. Surely the Council is prepared not only to defend our titles but also to insist on the justice of restricting the practice of pharmacy to qualified persons on the lines proposed by the Lord Chancellor for dentistry, etc.! Recently in discussing the company pharmacy question with the president of one of the most influential provincial grocers' associations I was informed that if the practice of pharmacy by companies of unqualified persons is legalised the grocers of this country will inaugurate amendment of the Pharmacy Acts, their object being to gain for individuals the right bestowed on corporations, viz., to practise pharmacy by the employment of duly qualified assistants. I commend this possibility to the serious consideration of members of the Council of the Pharmaceutical Society. To abandon the principle now at stake without making a vigorous endeavour to uphold it would be to weakly betray both the interests of the public and those of every person at present qualified under the Pharmacy Acts.

Clifton, November 4, 1899. Harold E. Matthews.

Sir,—The policy of the Council in drawing up a clause for the Companies Bill should be to construct it so as to express what we think reasonable and just to all likely to be affected by its operation, and, at the same time, to be capable of modification to meet the views of others who differ from us, and are strong enough to command attention. I have no great respect for those who refuse to accept anything which falls short of what they think justice to themselves, whether they be ordinary pharmacists or pharmaceutical ex-Presidents. I think we ought to accept any move which is a step in the right direction—a step away from the legally established reading of the present Acts relating to the practice of pharmacy by unqualified companies. If we fail to draft a clause which can be passed in the Companies Bill, we may fairly be told afterwards that we cannot make a Pharmacy Bill to interfere with any Companies Act which may be in operation. Accepting the clause as proposed, and rejected at the recent Council meeting as my basis I suggest its modification as follows:—

No company shall (carry on the business of a chemist and druggist or) assume or use the title of pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or chemist or druggist, or dispensing chemist or druggist, or any other title implying registration under the Pharmacy Acts, *unless such company be under the direction of legally qualified men only*, and if any company contravenes this enactment it shall be liable to the same penalties as those enacted in the case of individuals under the Pharmacy Acts. The words in italics are intended not to square Southall and Symes, but in justice to them and all other companies who may govern their working in manner equally satisfactory in the interest of the public good. The words in brackets are reasonable and desirable from our point of view, but might be struck out if need be to save the ship from being sunk by over-lading. They should only be thrown overboard as a last resource. Rather than that nothing should be accomplished towards the extinction of unqualified pharmacists, I should offer registration as chemists and druggists, to all directors of legitimately constituted companies—*i.e.*, not one-man companies formed to evade personal liabilities—at present carrying on the retail drug trade. This, subject to the above clause, would eventually eliminate unexamined men from the directorate of pharmaceutical companies, and would show all the respect for vested interests which any person could reasonably look for. It would only be carrying out the same policy as was adopted in Clause 3 of the Act of 1868, which enabled any old soldier with a few packets of salts and a blue bottle in his window to claim his place on the Register. But future candidates for the directorship of any companies carrying on trade in drugs should be required to pass the Minor Examination, before being eligible for election. This may be said to be equivalent to putting the clock twenty years back; yet twenty years hence the position of pharmacy would be better than it is likely to be if the contest goes on as it has been doing since the judgment of the House of Lords. If the gradual extinction of unexamined directors was not to be thus permitted, I should strike out the words in parenthesis, and go in for the preservation of our property or titles with all the energy we can employ. The weak point in our action lies in the fact that all our motive force is derived from self-interest, and however much we may attempt to put another face upon it, this motive is apparent to acute observers from the outside. Public safety may very well be left to the public care, and when Parliament finds that danger lurks under the precautions it has enacted, it may be trusted to adopt something more effective. It will be to our credit if we put on record now any disinterested suggestions which may at a future time be found requisite. But so long as our action aims at helping the profits of legitimate pharmacy, and is taken in response to the cry of the trade, the Pharmaceutical Council must be a compound of simple bodies if it thinks it can get much help from the custodians of the people's interests. If the titles are protected, anyone incorrectly saying that an accidental poisoning, or a sale of adulterated drugs, was the fault of a chemist, when the culprit was not on the Register, should be prosecuted for slander. This would educate the public to the true sources of danger.

Bradford-on-Avon, November 6, 1899. Barnard S. Proctor.

Sir,—The summing up by the President of the discussion at the meeting of the Council is so much to the point, and so well focusses the issue, as to demand examination. There can be no gainsaying the earnestness now of every member of the Council or their determination to lift pharmacy out of the bog she is in, for, as one member of the Council stated,

> There was not the thickness of a piece of paper between those who said that companies ought to be on the same footing as individuals and the position he wished to lay down.

Let us try to see what this piece of paper is made of, and, with your permission, I propose to examine the arguments of our esteemed and accomplished President. He says:—

> (1) That the Council (I presume he means the Privy Council) has had the refusal of those suggestions, and had in plain English refused them.

This is mere surmise—we think—unlikely to be true, and unsupported by a single argument. Those suggestions undoubtedly forced the Lord Chancellor to lay bare the situation. He put the matter in such a way as to compel us to declare what we were fighting for. We did so, and he rearranged the case, at the same time going out of his way to say in plain English: "That company pharmacy and personal qualification could not cohere." He prac-

tically also said that we must assert this principle or accept another proposition—viz., that our qualification is different from a medical or a legal one, inasmuch as it may be exercised vicariously; that is to say, unqualified people may practise pharmacy through qualified persons.

(2) If they had the title protected the practice would go with it.

Upon this the whole question of company pharmacy hinges. It needs to be true. If it is true, well and good; if not, our business is to make it true. The air gets clearer. In medicine and law it applies because they have penal powers, but suppose it possible to get this cumbersome and unnatural qualified directorate, how will it be impossible for the unqualified practitioner of pharmacy to get a qualified directorate having only delegated powers? It is acknowledged that this must have "sole and absolute control." Surely the onus of demonstrating the possibility of this falls upon the authors of this scheme. The arrangement must be one which would not be "infamous" in medicine or law. Mr. Carteighe well shows up the folly of such impracticable roundabout methods, allowing something and tying it up so as to be nothing. Surely a direct claim is more dignified than an indirect one, simplicity easier than complexity. We agree to protect the title—*i.e.*, to prevent unqualified persons practising under the law. The legalising of company pharmacy in any shape or form means repeal of the Pharmacy Acts. That some of our own members may be affected by its abolition is not pertinent to the discussion.

(3) We failed in 1881, we must, therefore, fail now.

Circumstances are so different now as to make this remark inappropriate. The Council's policy of consistently increasing the rigour of the examinations is a powerful factor now. That there is a body of chemists virtually the product of over thirty-one years' compulsory examination is another essential factor. Besides, what is the attitude of the public? It wishes an intelligent distribution of drugs—dispensing and handling in every way. It cries aloud for this by incoherent voice, at inquests, in the Press, in everyday life. Yet there exists a body—examined, regulated, and trained—for the very purpose acknowledged to be so desirable.

(4) To completely stop company trading was impossible.

Company trading is not under discussion. Company practice of pharmacy is under discussion as being incompatible with the Pharmacy Acts, which ask for personal qualification to do specified work. Why does it need so much repetition that trade monopoly is "off-side." We need the travesty of pharmacy existing to be put on the only footing which will make it possible for the "practice to go with the title."

(5) It had got such a hold upon the Government that, whoever one talked to outside their own members it was hardly possible to obtain a patient hearing they were so convinced that the public was dead against them in the matter that it was hardly worth their attention.

Dear me! The public against us! We have been testing this for the last two years, and I have yet to hear of an intelligent person who will give a patient hearing to anyone who suggests that we may chop or deal in any way with our responsibility acquired by examination. Surely it is not to red-tape we are going to ask what we can or cannot accomplish! Moreover, every fact which has occurred in Parliament during the last two years relative to pharmacy refutes the assertion.

If the President can establish his arguments, the recommendation of the Law and Parliamentary Committee falls to the ground. If he cannot substantiate them, the sub-Committee gets a powerfu supporter.

R. LORD GIFFORD.

Blackburn, November 7, 1899.

Pharmacists and the Pharmacopœia.

Sir,—It seems desirable that pharmacists should show in a practical manner their interest in the improvement of each successive Pharmacopœia, and thus prove their claim to a share in the production of that work. Their interest might be made evident in an effective manner through the British Pharmaceutical Conference if those who are daily engaged in the manufacture of pharmacopœial preparations would keep a record of the difficulties met with and of possible improvements in the preparations and in the tests for the purity of drugs. It is generally recognised that the results obtained in operating upon large and small quantities vary within certain limits, so that records from wholesale druggists, pharmacists who make their own preparations, and hospital dispensers, would each possess a value of their own. Such records if summarised and presented each year in the form of papers to be read at the Pharmaceutical Conference would not only form a valuable commentary on the Pharmacopœia, but would afford incontestable evidence that pharmacists are alive to their responsibilities, and equal to the position they claim as co-workers with the medical profession in the production of the national Pharmacopœia. I would, therefore, urge upon pharmacists generally, and upon the members of the Conference in particular, the importance of recording observations upon the practical working of the present Pharmacopœia. I should esteem it a favour if those who are willing to record such observations, and present them in the form of papers to be read at the meeting of the Conference in London next year, 1900, would kindly intimate their intention to me or the Honorary Secretaries at as early a date as possible.

E. M. HOLMES,
President of the British Pharmaceutical Conference

17, *Bloomsbury Square, London, W.C., November* 7, 1899.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Gold Paint Medium (E. G.—36/3).—It appears to consist of pale quick-drying copal varnish diluted with turpentine.

Purity of Water (S. W.—35/30).—The permanganate test affords a ready means of determining the freedom of water from more than traces of organic matter.

Alleged Infringements of the Pharmacy Act (D. L.—35/27).—The particular cases you refer to should be reported to the Registrar of the Pharmaceutical Society.

Analysis of Urine (S. W.—35/30).—The best small work on the subject in Legg's 'Guide to the Examination of the Urine' (Lewis, 3s. 6d.), but you should also have Allen's 'Chemistry of the Urine' (Churchill, 7s. 6d.) for reference.

Definition Wanted (J. L.—6/23).—Decidedly the phrase requires a definition, and fame awaits the individual who can supply one. In the course of years, after you have gained some experience, you may even be able to tackle the problem yourself.

Preliminary Examination (J. W. C.—36/5).—The Oxford Junior Local Examination certificate is accepted under the present regulations for the three subjects you mention, but after August next an examination must also have been passed in a modern foreign language, algebra, and English.

Physiological Effect of Saccharin (J. T.—35/32).—It is extremely improbable that saccharin acts as you describe; it is generally considered to be practically inert, passing through the system and being excreted unchanged. In the case of delicate stomachs, it has been supposed to give rise to dyspepsia, but that is doubtful. The persistent sweet taste is unpleasant to many palates, and a continued course of the drug gives rise to a feeling of nausea, in some instances, from that cause.

Tinctura Opii Aquosa (D. L.—35/27).—It is usually prepared from "stock recipes" for veterinary use, and varies somewhat in strength; that usually met with being about half the opium strength of the B. P. tincture. It is prepared by exhausting the opium with hot water, filtering, adding about 15 per cent. of rectified spirit, and adjusting to the required volume. The following old formula for "Tinct. Opii Muriatica" (Nichol) is sometimes employed:—Powdered opium, 1 oz. (troy); hydrochloric acid, 1 fl. oz.; distilled water 20 fl. oz. Macerate for fourteen days and filter.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

TINCTURE OF STROPHANTHUS. A. C. Loewe and W. L. Scoville have experimented with a view to removing the fat from tincture of strophanthus by cooling it below the normal temperature. The most satisfactory method resorted to was cooling with a mixture of ice and salt, the tincture being maintained at a temperature of —14° C. for two hours. At the end of that time there was an abundance of a semi-flocculent greyish sediment floating in the liquid and, after filtering at as low a temperature as possible, the tincture was bright, clear and of a light brown colour. Attempts were also made to combine the strophanthus fat with a wax or hard fat before separating, but the results were not so satisfactory. Spermaceti proved very wasteful and stearic acid tended to change the colour of the tincture, though it caused the fat to separate in a condition which allowed the liquid to filter rapidly. One Gm. of stearic acid per 100 C.c. produced a tincture of about the normal colour and in other respects satisfactory, except that it retained a slight odour of the acid. Extract of stramonium from which the fat had been removed by filtration, after cooling, was found to be much smoother than usual and it made an ointment which remained homogeneous for a longer time.—*Pharm. Rev.*, **17**, 496.

TESTING LEMON OIL. A new method for determining the aldehydic constituents of lemon oil is published by J. Walther based on the well-known reaction between those bodies and hydroxylamine, resulting in the formation of oximes. A 5 per cent. (by weight) solution of hydroxylamine hydrochloride in alcohol 80 per cent. is prepared. Ten or 15 Gm. of this are weighed off, made up to 250 C.c.; 25 to 50 C.c. of this dilute solution are measured off and the hydroxylamine determined therein by titration in the usual manner, with $\frac{1}{10}$ normal NaHO solution, using first methyl-orange, then phenol-phthalein, as indicators. A similar weight of the strong hydroxylamine hydrochloride solution is then mixed with a known weight of lemon oil, and diluted with aldehyde-free absolute alcohol, until a clear solution is obtained. From 0·5 to 1 Gm. of sodium bicarbonate is then added, the mixture transferred to a 150 C.c. flask, and heated on the water bath under a reflux condenser for forty-five minutes; after cooling the product is washed into a 250 C.c. flask with distilled water, the condenser as well as the flask being thoroughly washed out. After thorough shaking out the watery layer is made up to 250 C.c.; 25 C.c. are measured off, a drop of methyl orange solution added, dilute hydrochloric acid added cautiously from a burette until a faint rose colour is produced, which is titrated to neutrality with $\frac{1}{10}$ normal NaHO solution. Phenol-phthalein is then added, and titration continued with $\frac{1}{10}$ normal NaHO in the usual manner. The number of C.c. of solution required, after the addition of the phenol phthalein, multiplied by ten and subtracted from the amount used in the titration of the original hydroxylamine hydrochloride solution, is equivalent to the hydroxylamine used up by the aldehyde. This number × 0·0152 or 0·0154, gives the amount of citral or citronellal in the weight of lemon oil taken. The citral content of natural lemon oil is found, by this method, to be approximately 5 per cent.—*Pharm. Cent.*, **40**, 621.

STORAX. For the examination of crude storax which has only been freed from water by mechanical means, K. Dieterich proposes the following scheme of analysis:—(*a*) Loss at 100° C. (*b*) Determination of alcohol soluble portion in 90 per cent. alcohol. (*c*) Determination of the residue insoluble in alcohol. (*d*) The acid number. (*e*) Ester number, and (*f*) Total saponification number of the alcohol soluble portion. (*g*) Determination of ash. The acid number is thus determined. About 1 Gm. storax is dissolved in 100 C.c. alcohol (96 per cent.), and titrated with $\frac{1}{2}$N alcoholic potash, with phenol-phthalein as indicator; the number of C.c. required multiplied by 28 and corrected to 1 Gm. gives the acid number. The saponification number is obtained by treating about 1 Gm. of storax at ordinary temperature for twenty-four hours, with 20 C.c. $\frac{1}{2}$N alcoholic potash, and 50 C.c. of benzene, and then titrating back (without the addition of water); number of C.c. multiplied by 28 and corrected to 1 Gm. gives the saponification number. The author considers this method to be of more value than those previously published. Adulteration with fatty oils reduces the acid number and raises the ester number. Turpentine, on the other hand, raises the acid number and lowers the ester number. The following table gives the results obtained by the author with authentic specimens of storax and trade samples.

	Water.	Ash.	Soluble in Alcohol 90 %.	Insoluble in Alcohol 90 %.	Acid No.	Ester No.	Saponification No.
I. Authentic samples	% 26·21 to 40·37*	% 0·5 to 0·92	% 59·14 to 65·49	% 1·45 to 2·61	59·38 to 70·70	35·42 to 74·43	104·67 to 135·36
Calculated on the dry drug		0·74 to 1·25	88·75 to 100·20	1·97 to 3·85	87·62 to 95·81	49·84 to 109·83	145·62 to 199·74
II. Trade samples	19·58 to 31·95	0·24 to 3·64(!)	64·00 to 77·17	1·66 to 7·33(!)	38·22 to 72·29	47·81 to 110·03	111·89 to 165·58
Calculated on the dry drug		0·31 to 4·75	89·62 to 99·63	2·45 to 9·56	54·96 to 106·23	72·82 to 142·47	170·41 to 233·46

* This high figure is abnormal.

—*Pharm. Central.*, **40**, 427.

SOME NEW GLUCOSIDES. H. Ryan has obtained crystalline glucosides of the β series by the action of acetochloro-glucose on solutions of phenols in alcoholic potash. *ββ-Naphthol-glucoside*, $C_6H_{11}O_5{\cdot}OC_{10}H_7$, was prepared from aceto-chloroglucose and β-naphthol. It crystallises in long needles (m.p., 184°—186°), is easily soluble in alcohol and in hot water, soluble with difficulty in acetone and scarcely soluble in benzene, ligroin, cold water, or ether. It is readily hydrolysed either by dilute acids or emulsin, reduces Fehling's solution only after hydrolysis, is stable towards dilute alkali in which it is insoluble, and has a disagreeable taste. *β-p-Cresol-glucoside* (m.p. 175° to 177°), and *β-o-cresol-glucoside*, $C_6H_{11}O_5{\cdot}OC_6H_4CH_3$ (m.p. 163° to 165°), resemble one another as well as naphthol-glucoside. They crystallise from water in needles which are scarcely soluble in ether, benzene, or ligroin, but are fairly soluble in alcohol and in water. They do not reduce Fehling's solution, are readily hydrolysed, and possess a bitter taste. *β-Carvacrol-glucoside* (m.p. 135°), crystallises from water in needles which are not readily soluble in ether or cold water. It is easily soluble in alcohol and in acetone, but scarcely soluble in benzene, chloroform, or ligroin. It does not reduce Fehling's solution, dissolves slowly in dilute alkali, and is hydrolysable by means of dilute acids or emulsin. *d-Pentacetyl-glucose* (m.p. 110°) is obtained by the action of acetyl chloride on dry glucose in an open vessel. *Acetochloro-galactose* was obtained as a colourless, semi-solid mass by the action of acetyl chloride on galactose in a closed tube, and has been converted into a galacto-side of β-naphthol.—*Proc. Chem. Soc.*, **15**, 196.

SPURIOUS ALEXANDRIAN SENNA.*

BY HENRY G. GREENISH, F.I.C., F.L.S.

Professor of Materia Medica and Pharmacy to the Pharmaceutical Society.

From the perusal of some of the text-books of materia medica it would appear that Alexandrian senna is liable to adulteration with a considerable variety of foreign leaves. Amongst those usually cited are the leaves of *Solenostemma Argel*, Hayne; *Tephrosia Apollinea*, Link.; *Coriaria myrtifolia*, Linn.; and *Colutea arborescens*, Linn.; whilst occasionally *Globularia alypum*, Linn., is also mentioned.

As a matter of fact, however, the occurrence of any of these leaves in Alexandrian senna, or substitution of them for that drug, at the present time extremely rare. Argel leaves, which at one time formed a regular constituent of Alexandrian senna, were, in Hanbury's time, rapidly diminishing in frequency, and have now disappeared; and the others that I have mentioned possess little more than historic interest. The principal admixture that I have observed has been an occasional leaflet of *Cassia obovata*, Collad; but these have been so few as to be interesting rather than important. It sometimes also happens that the leaflets of *C. angustifolia*, Vahl; collected in Arabia, find their way to London under the name of Alexandrian senna.

For some weeks past a considerable quantity of a drug imported from Suez has been offered on the London market as Alexandrian senna. It resembles Alexandrian senna in colour and general appearance, but is easily distinguished by the shape of the leaflets of which it is composed. These are sharply characterised by their obovate outline, rounded mucronate apex, and distinct pinnate venation. The upper surface is glabrous, but the lower distinctly pubescent. They attain 2 cm. in length by 1 cm. in breadth, but are usually a little smaller. They have the odour of senna, and a similar but rather more mucilaginous taste. The samples I have seen contained a few stalks, but no flowers, fruits, or foreign leaves.

In shape and general characters the leaflets agree well with those of *C. obovata*, Collad; a plant that, with its varieties, enjoys a wide range of distribution, being very common in Upper Egypt, near Luxor, Edneh, Esfou, and Syene, but extending eastwards to Arabia, Syria and India, westwards to Senegambia, and southwards to Cape Colony. Thirty or more years ago these leaflets formed a regular constituent of Alexandrian senna, which at that time was a mixture of the leaflets of *C. obovata* and *C. acutifolia*, Delile, and leaves of *S. Argel*.

As one broker alone was offering nearly two tons of these leaves, there must be a considerable quantity either already sold or now awaiting sale. They will probably eventually find a purchaser, and in that case the question arises, What is likely to become of them? They might, of course, be substituted for the official senna in the manufacture of tincture or syrup of senna, in which case their detection would be difficult, if not impossible. They might also find their way into commerce as powdered senna, either under that name or as an ingredient in compound liquorice powder, large quantities of which are sold at very low prices. I therefore endeavoured to ascertain whether their presence in powdered senna could be detected.

The transverse section of either of the official sennas shows a midrib, supported above and below by a crescent-shaped bundle of sclerenchymatous fibres. These fibres are accompanied by longitudinal rows of parenchymatous cells, each containing a prism of calcium oxalate. Beneath the epidermis of either surface there is a single row of elongated palisade cells, the spongy parenchyma being much reduced. Both palisade and spongy parenchyma contain an occasional cluster crystal of calcium oxalate, whilst some of the epidermal cells contain mucilage, and others are developed into warty hairs.

The leaflets of the drug in question present similar features.

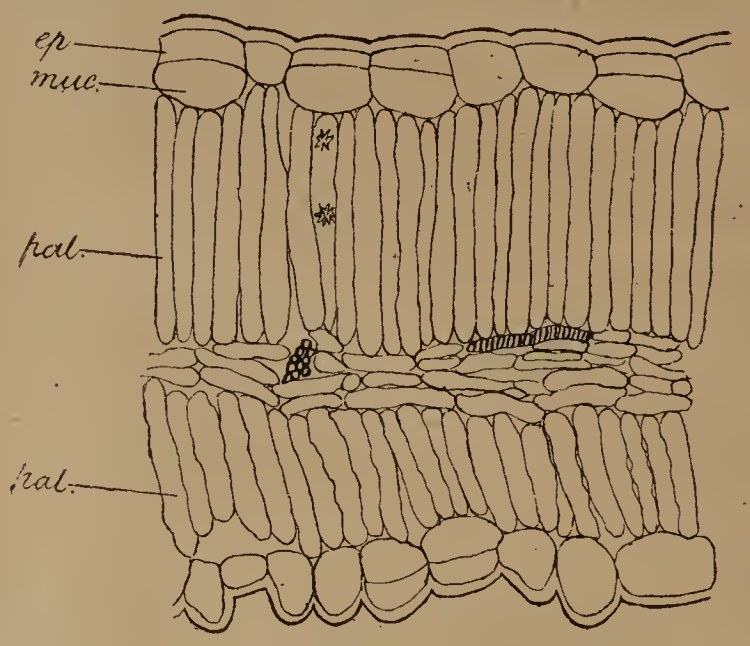


Fig. 1. CASSIA OBOVATA.—Transverse section × 200; *ep.*, Epidermis; *muc.* Mucilage; *pal.*, Palisade.

Palisade occurs on both surfaces; the spongy parenchyma is much reduced. Mucilage is deposited in some of the epidermal cells, whilst one-celled, thick-walled hairs, sometimes nearly straight, but often curved, are frequent on the under-surface. But the difference in most of the epidermal cells of the under-surface is very striking, for they form distinct projecting papillæ. When the surface of the

Fig. 2. CASSIA OBOVATA.—Portions from powdered leaf × 200; *a*, Epidermis of upper surface; *b*, Epidermis of under surface; *h*, Hairs.

lower epidermis is examined these papillæ appear as more or less distinct, but seldom sharply defined, rings. There is, therefore, little difficulty in distinguishing this drug from the official sennas, even when reduced to a fine powder, for fragments of the lower epidermis may always be found; and should the drug find its way into commerce, either in the form of powdered senna or compound liquorice powder, it could be easily identified.

I have examined several specimens of *C. obovata*, and find the leaflets regularly exhibit this character, although the prominence of the papillæ is not always equally well marked.

Such development of the cells of the epidermis into papillæ is by no means uncommon. Solereder* enumerates nearly seventy

* Read at an evening meeting of the Pharmaceutical Society, on Tuesday, November 14, 1899.

**Anatomie der Dicotyledonen*, p. 906.

orders in which it has been observed. Amongst the official leaves the coca leaf exhibits it. But in the genus Cassia it is not common, for Dellien* mentions only ten species in which he found it occur.

Obovate senna has the reputation of being much less active than either of the official sennas, but this opinion seems to be based upon some clinical experiments made by Henry in 1828 with a quantity of the drug imported for that purpose from Senegambia. This is the drug found in museums under the name of sené du Senegal. Henry states that he found this drug to be active, but a little less active than ordinary senna. But it remains to be proved whether that is true for the Egyptian drug, and as the latter seldom finds its way into commerce in such quantity, there is now a favourable opportunity for anyone who wishes to examine it.

Amongst the leaves that I have enumerated as so-called adulterants of senna are those of *Colutea arborescens*. These bear a certain resemblance to *C. obovata*, and I was therefore led to examine them. I found that they too could easily be distinguished from *C. obovata* as well as from both the official sennas. Although the cells of the lower epidermis show a slight papillose swelling, this is much less marked than it is in *C. obovata*.

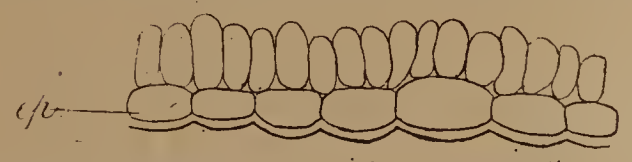


Fig 3. Colutea arborescens.—Portion of transverse section, × 200; *ep.* epidermis of under surface.

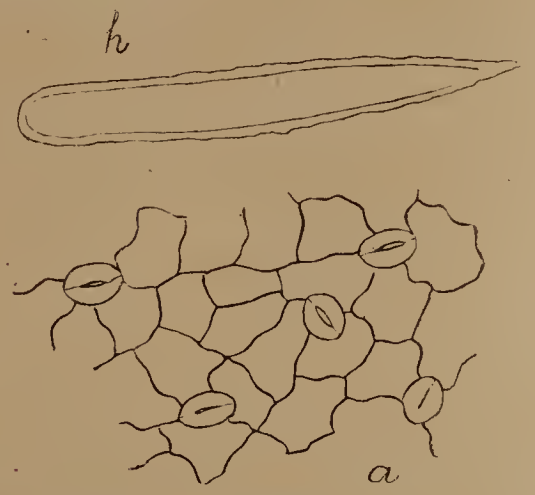


Fig 4. Colutea arborescens.—(*a*), epidermis of under surface, (*h*), hair; × 200.

The stomata on the under surface are usually surrounded by three, four or five cells, whereas in the sennas there are usually two only, and the hairs attain a much greater length; moreover the sclerenchymatous fibres of the midrib are wanting, and with them the rows of calcium oxalate crystals.

Now, *Colutea arborescens* is a native of Central and Southern Europe, and it is not easy to understand how the leaves could be used to adulterate senna, which, at the present time, is imported direct from Egypt to London. An explanation is offered by Colladon in his 'Histoire naturelle et médicale des casses,' written in 1816. Senna, says Colladon, is sent to Europe, and there sorted into the leaflets, *C. acutifolia*, *C. obovata*, and *S. Argel*, which are commonly sold separate. Sometimes the leaves of *Colutea arborescens* are mixed with those of *C. obovata*. This, he says, is attended with little inconvenience as they are nearly as active and easily distinguished; he says, further, that *C. obovata* is sold by the pharmacists under the name of sennæ italicæ, hispanicæ, alepenses, etc.

Cassia obovata was cultivated to a considerable extent in the neighbourhood of Pistoia, near Florence in the 16th century, and the drug obtained from it was known as Italian senna, to distinguish from the true or Levant senna. But all authorities agree in condemning it as inferior, and its cultivation was ultimately abandoned. Italian senna was so little known in 1694 that Pomet said "some authors have stated that a quantity of senna is found in Italy, but I think these sorts of senna are more likely the leaves of . . . . *Colutea* . . . ; it is a subject on which I shall say nothing, there being authors enough who treat of it." Lemery*, too, in 1727 alludes to it, but does not mention it as one of the three kinds of senna found in the shops, and Colladon's statement made in 1816 must therefore be received with caution.

Indeed, the difficulty of finding definite and reliable statements of the occurrence of these adulterants of senna is remarkable. Batka, who paid particular attention to the subject for years, says he found *Tephrosia Apollinea* in 1828, and again in 1840; *Coriaria myrtifolia* found its way into senna in France about 1825-28. I am not aware that *Colutea arborescens* has ever been found in the senna of English commerce, and argel leaves have practically disappeared. Of *Colutea*, *Tephrosia*, and *Coriaria* 'Pharmacographia' says they were formerly occasionally mixed with senna, but the authors have never met with any of them, and of *Tephrosia* Flückiger says later that it is not worth mentioning.

One should, therefore, be very careful in handing down these leaves from year to year and generation to generation as adulterants of senna, conveying the impression that they are at least so likely to occur as to render it desirable that the student should be acquainted with them. Does it not burden his memory with useless details and prevent concentration of the attention on the genuine drug? and when one considers that this process is repeated with many other drugs, the time that is thus occupied is very considerable. Should not the attempt be made to confine the attention of the student to the drug itself, and to compel him to study it in all its details? Should he not be educated to use his own powers of observation to detect substitution? He would then be in a position to detect not only such adulterations or substitutions as have already been observed, but such as may at any future time occur. These should certainly be recorded in the current literature and specimens preserved in museums for reference; the records collected in a dictionary would be easily accessible, and should be utilised to give the utmost precision to our descriptions. At least care should be taken to append to a statement of adulteration, the date at which it has taken place, and, if possible, the frequency with which it has recurred, and most valuable of all is the statement of an author that he has himself met with such adulteration.

* *Ueber die Systematische Bedeutung der Anatomischen Charaktere der Caesalpinieen*, p. 60.

* *Dictionnaire des Drogues.*

ETHYL NITRITE DETERMINATION.†

BY R. C. COWLEY AND J. P. CATFORD.

An easy method of checking the percentage of ethyl nitrite in the official spirit and solution, without a nitrometer, will perhaps be welcome to many busy retail pharmacists.

We propose to demonstrate that it may be done by an adaptation of one of the colorimetric processes for determining nitrites in water analysis, founded on the reaction between nitrous acid and meta-phenylene-diamine, producing the azo-compound commonly known as "Bismark-brown," a colour so intense that one part in five million is perceptible, so that differences of 1/100th of a milligramme in 50·0 C.c. of water are distinguishable; but as for our present purpose we have only to deal with percentages, such extreme delicacy is unnecessary, and the colour produced by a few tenths of a milligramme in 40·0 C.c. will be convenient for comparison.

Standard nitrite solution has usually been prepared from silver nitrite, which is itself prepared by mixing warm solutions

† Read before the Liverpool Chemists' Association, on November 9, 1899.

of $AgNO_3$ and $NaNO_2$. The silver nitrite precipitates, on cooling, in yellow silky capillary crystals. But as there are obvious objections to using, for a permanent solution, a salt so sensitive to light, etc., as this one is, it is reconverted into sodium nitrite by precipitating the silver with sodium chloride, and diluting to a convenient strength.

Equivalent weights of these *Nitrites* are as follow:—

Ethyl nitrite	75 or 0·100	milligramme.
Silver nitrite	154 or 0·2053	,,
Sodium nitrite	69 or 0·092	,,

Years ago the above roundabout proceeding was necessary, because the commercially obtainable sodium nitrite seldom contained much more than 50 per cent., but now it is usually about 98 per cent., and as 0·092 of a milligramme ($\frac{92}{1000}$ths) is equivalent to 0·1 milligramme of ethyl nitrite, even 5 per cent. of impurity in the sodium nitrite would only diminish the colour less than $\frac{1}{20}$th, *i.e.*, 0·95, instead of 1·0 of ethyl nitrite. This may either be disregarded or allowed for by making a solution containing 95 (instead of 92) milligrammes per litre, or 19 milligrammes in 200·0 C.c.

Each C.c. is equivalent to $\frac{1}{10}$ milligramme ethyl nitrite, and the comparison standards are prepared by adding 1, 2 and 3 C.c. to successive portions of water, each containing about 10 drops of diluted sulphuric acid (1 in 3) and similar quantity of solution of *m*-phenylene-diamine (1 in 200), and finally each made up to 40·0 C.c. The comparison might be made by adjusting the standard to match the sample, as is usual in Nesslerising, but for the present purpose it is preferable to dilute the sample to match these fixed standards, which will not require preparing fresh, but may be kept for constant reference. Prepared of the above strengths they do not deposit as the Nesslerised liquid would, neither has exposure to daylight for many weeks made any perceptible change.

The sample to be tested is first diluted to contain 1·0 gramme in 100·0 C.c. The mean density of spt. æth. nit. being 0·840, dilute 1·0 C.c. to 84·0 C.c., or in case of the liquor, dilute 1·0 C.c. to 82·5 C.c.

Each C.c. of this solution contains a centigramme of the sample, and therefore $\frac{1}{10}$ milligramme of ethyl nitrite for each one per cent. of that ether contained in the sample, so that it is only necessary to treat 1·0 C.c. of this dilution with the test solutions and water to make 40 C.c., for comparison with the standard colours. An hour should be allowed for the full development of the colour. If then the colour of the sample is between standards 3 and 2, it may be considered within the B.P. limits. If paler than No. 2 it should bear dilution to 70·0 C.c. to match No. 1. If *less* than 70·0 the sample is below 1·75 per cent., *i.e.*, the B.P. minimum.

The dilution matching No. 2 if further diluted to double the volume should match No. 1.

Standard.	Dilution of Sample in C.c. to match Standards.						
No. 3.....	40	B. P. Sp. Æth. Nit.				—	—
,, 2.....	60	56	50	40		—	—
,, 1.....	120	112	100	80	70	60	40
Per cent.....	3·0	2·8	2·5	2·0	1·75	1·5	1·0

The water used should be recently distilled or boiled (air-free) and the sulphuric acid free from nitrous compounds. The sample, when diluted, should be mixed with the test solutions without delay, to prevent hydrolysis of the compound ether. In fact this test furnishes an easy proof of the instability of sweet spirit of nitre when prescribed with aqueous menstrua. Spt. æther. nit. of full strength if diluted ʒj. to ʒj. of water, and tested from day to day, will be found after the third day not to contain a trace of nitrite.

If anyone is so conservative as not to keep metric weights and measures he can use equivalent proportions in grains and minims *e.g.*,—

Sample dilution—one volume in 84 = 0·5 fl. dr. in 5¼ oz. avoirdupois. Sodium nitrite 95 in a million (or 0·019 in 200·0) may be made as follows:—

First solution, 1 grain in 1,000·0 grains (or 7 grains in 16 oz.).

Second. 19 grains of this (=0·019 grain $NaNO_2$) dilute to 200·0 grains.

For Standards Nos. 1, 2 and 3, dilute ʒss., ʒi. and ʒiss. of the second (with *m*-phenylene-diamine, etc.) to ʒxx.

ʒss. of diluted sample (1 in 84) treat similarly for comparison.

If Nessler cylinders are not at hand, comparisons may be made in white glass vials, or test tubes, *not nested*, as it is essential that the columns of liquid be equal in diameter and height. The paler colours require comparing from above.

The sodium nitrite solution keeps fairly well when not exposed to the air, but would not be required after the standards are once made.

PERCENTAGE OF ETHYL NITRITE IN SWEET SPIRIT OF NITRE AND IN LIQUOR.

COLORIMETRIC DETERMINATION.

Standard sodium nitrite solution { 0·095 in 1000. / 0·019 in 200.

Test solutions.

a—Meta-phenylene-diamine 2 grains in ʒi. water.
b—Sulphuric acid 1 vol. to 2 vols. water.

Colour standards corresponding to 1, 2 and 3 per cent. ethyl nitrite.

Add sol. sodium nitrite 1 C.c., 2 C.c., and 3 C.c. to separate portions of water, each containing 10 drops of each of test solutions *a* and *b*, make up each to 40 C.c., and keep as comparison standards.

Dilution of sample (one centigramme in each C.c.)

1 C.c.	*Aq. ad.*
Spt. Æth. Nit.....	84·0 C.c.
Liq. Ethyl Nitrit.....	82·5 C,c.

Application of test.

Add 1 C.c. of diluted sample to water containing test solutions *ut supra*, make up to 40 C.c., and after an hour compare and match with standards by further diluting sample if necessary.

e.g.—If sample (40 C.c.) is between standard Nos. 3 and 2, sample within B.P. limits. If paler than No. 2, dilute to match No. 1. If it will not bear diluting to 70 C.c. it is below the B.P. minimum (1·75 per cent.).

Standard.	Dilution of Sample in C.c. to match Standards.						
No. 3.....	40	B.P. Sp. Æth. Nit.				—	—
,, 2.....	60	56	50	40	—	—	—
,, 1.....	120	112	100	80	70	60	40
Per cent.....	3·0	2·8	2·5	2·0	1·75	1·5	1·0

PETROLSULPHOLUM ALBUMINATUM.—Hummer prepares this substance thus:—Petrosulphol, 5; is dissolved in distilled water, 50; and the solution mixed with *q.s.* (about 195) of a clear albumin solution composed of dried albumin, 25; in distilled water, 170. Alcohol is then added to the solution until precipitation is complete; the coagulum is separated, washed, pressed, and dried, at about 100° C., and powdered. 6 Gm. contain the equivalent of 1 Gm. of petrosulfol. The brown, tasteless and odourless powder passes undecomposed through the stomach, and is only absorbed in the intestines.—*Oest. Zeit. für Pharm.*, **53**, 429.

COMPANY PHARMACY: ITS ABOLITION OR REGULATION

BY W. S. GLYN-JONES.

"He was anxious to impress on the members the fact that this Bill was put into the hands of the Privy Council to be brought forward as a Government measure; it was not a Bill which the Society proposed to bring into Parliament as a private measure, and, therefore, some of the provisions were drafted in such a manner as to meet the views of important Government officials, who had considered various matters connected with the working of the present law, and who thought some deviation from the law as it had hitherto been was desirable."

The above supplies me with a suitable text. It is not taken from the report of the last Council meeting, but will be found in No. 674 *Ph. J.*, page 970, May 26, 1883. It is part of a speech made at the annual meeting of the Society in 1883 by Mr. Carteighe, who was then our President. The Council had drafted a Pharmacy Amendment Bill, in which appeared several clauses which were most objectionable from the point of view of the qualified chemist, notably the formation of a Third Schedule of Poisonous Substances, which it was suggested could be sold by anyone, whether qualified or not, provided they were suitably labelled. The above sentence was, I take it, Mr. Carteighe's apology for this obnoxious clause. If the present Council drafts a clause dealing with company pharmacy which is not absolutely satisfactory to our members, the above apology could be used almost word for word. It seems to me that there are three courses open to the Council:—

(1) To draft a clause prohibiting a company using our titles, or keeping open shop for the sale of poisons;

(2) To draft a clause which would allow companies to exist, but to impose certain restrictions upon them;

(3) To do nothing, and allow the Government and those who are interested in existing companies to carry a clause which would meet their wishes.

Absolute Consistency Impossible.

If we are to be absolutely consistent with the views and principles adopted by the founders of the Society, we can be party to nothing which admits of any kind of company carrying on the business of a chemist and druggist. That is the idealistic position, but is it practicable? It must be borne in mind that we cannot expect the Government, when they deal with companies, to go beyond the principle of the 1868 Act. That Act was very far from meeting the wishes of our pharmaceutical ancestors, and was certainly anything but idealistic pharmaceutical legislation. As a matter of fact, pharmacy, as a whole, like human nature, "is a bundle of inconsistencies"; indeed, the number of registered chemists who are carrying on their business in an absolutely consistent manner in regard to the ideal conditions under which pharmacy should be conducted is infinitesimal. For my own part, I must plead guilty at once. I carry on my business under an assumed name, and in so doing am only following the example of leading pharmacists. I consider that every chemist who has a branch shop can be charged with acting contrary to a perfect code of Pharmaceutical ethics, and I therefore say that compromise comes very largely into the conditions under which pharmacy is to-day being carried on, apart altogether from the question of company pharmacy.

Company Regulation Inevitable.

I have reason to believe that the majority of our members have no desire to prevent what they call "legitimate companies," or companies of qualified persons, from carrying on our business, but the moment you allow a company of any sort to do so, and you desire to define the kind of company, you at once take up what I believe to be the inevitable position of regulating company pharmacy. I believe, therefore, that course No. 1 is disposed of, and the members have to make up their minds between some kind of regulation and the "do nothing" policy. Before agreeing to do nothing it would be well to remember that it does not rest with us entirely. The position briefly is that the Government have come to the conclusion that "chemist companies" are not properly regulated, and our Society was asked by the Lord Chancellor to offer suggestions. We did so, but our suggestions would have prohibited companies, and not regulated them. Since the receipt of those suggestions a clause has been introduced into a Government measure and certain restrictions—most unsatisfactory ones, I believe—laid down. The Lord Chancellor, in introducing those clauses, said that "it was impossible to resist the propriety of subjecting existing companies to *such restrictions as are proposed in the Bill.*" There we have the clearest indication that the Government have no intention of prohibiting companies, and it is for us now to consider whether we will attempt to get the Government to modify the restrictions they imposed in the Bill, or take up a position of absolute opposition. If the latter course is decided upon there may be one of two results. If it is argued that the Government care too little about the subject to carry their proposals in the face of opposition, the clause will be dropped, and company pharmacy will remain as at present. If, however, they are in earnest, it cannot be denied that they are sufficiently powerful to carry through Parliament any restrictions they may think fit, whether we like them or not. Looking at the matter from every point of view, can there be any doubt that our best policy will be to offer our assistance to the Government in drawing up a clause which shall, as far as possible, place companies in the same position as that occupied by individuals?

What is a Properly Constituted Company?

I have already said that I believe the majority of our members are prepared to allow properly constituted companies to carry on our business. How shall we ask the Government to define such a "properly-constituted" company? The answer which most readily suggests itself is, that every shareholder must be qualified. I do not think such a claim would be allowed, because it would be difficult to show what difference it makes to the public safety who owns the capital invested. This our Editor admitted in his article of October 28, page 408. He says: "So far as public safety is concerned, it is not of the least consequence who finds the capital with which a business is financed, or, indeed, who obtains the profit; both are equally beside the question"; and "Ordinary Pharmacist" in the same issue, page 399, puts the same view in the following words:—"Companies of duly qualified persons need not be interfered with, and even where, owing to family arrangements, part of the capital invested in such companies belongs to unqualified individuals, it ought not to be impossible to devise some generally satisfactory means of overcoming that difficulty. It may even be rendered possible for existing companies of unqualified persons to bring themselves into line by some such means; but, in such an event, no unqualified person must be permitted to enjoy any advantage from the use of our titles, nor to exercise any control over the conduct of the business."

Absolute Control by Qualified Directorate.

I think it will be necessary that our restrictions shall be in the direction of providing absolute qualified control of the business, rather than that it should be capitalised by qualified persons. I am strengthened in this view after a careful study of the judgments given in the various Courts in the case of the London and Provincial Supply Association. There are two main offences under the 1868 Act: that of transacting the actual sale, and that of keeping open shop. No company can commit the first offence in so far as Section 15 applies, and, of course, the judges made a strong point of this in showing that the public were protected by the necessity for a qualified salesman, but Lord Justice Bramwell, giving judgment in the Appeal Court, dealt with the other offence—that of keeping open shop. He said:—

It may be asked, how is the "keeping open shop" to be reached; the servants do not keep it open? No, but the directors or managers do; they are the offenders in that case. I cannot see how they could deny that they kept open

this shop. They do—they do it in fact. If they committed a public nuisance by smells, vapours or otherwise in the preparation, or (if supposable) in the sale of their drugs, they and not the corporation would be indictable.

Lord Justice Baggallay, on the same occasion, said:—

But I feel bound to add that I am by no means satisfied, that although a corporation as a separate entity be not liable to the penalty which is sought to be recovered, in this case the individual members of the corporation, whether directors of a company or otherwise, may not be liable, and thus the mischief be remedied.

Lord Blackburn, in giving decision in the House of Lords, said:—

A corporation may, in one sense, possess a competent knowledge of its business, if it employs competent directors, and so forth.

Mr. Justice Bramwell gave it as a reason for not including companies in the 1868 Act that the offence of keeping open shop by unqualified persons could be prevented by making the directors liable. I have not been a member of the Council long enough to know why the Society has not in England brought an action against an unqualified director of a drug company upon the strength of the judgments of the judges quoted above. I know that in Scotland an action was brought against seven shareholders, and that we were defeated in the Scotch Courts; but I agree with Mr. Rymer Young, who, in his address before the Manchester Association in December of last year, said:—

"The decision in the Leith Depot case—according to which the members of a corporate body cannot be sued in Scotland for trading as chemists and druggists—appears to have been too much taken for granted."

This point, however, does not affect the question at issue. I maintain that the judges I have quoted are of opinion that the qualified control in the case of companies can be supplied by qualified directors.

My "Wonderful Panacea."

Mr. Carteighe, at the last Council meeting, was good enough to express regret that what he called my "wonderful panacea" was not produced. As that clause is still under discussion by the Committee I am not in a position to publish it, but I think it can be clearly gathered, from what I said on the subject at that meeting, that the view favoured by me is that of insisting that the capital and business owned by a company selling poisons should be absolutely under the control of qualified directors. I would suggest going to the Government and thanking them for their attempt to deal with the anomaly, especially approving of their decision to provide for qualified control, but at the same time pointing out that the means proposed by them—that of insisting upon a qualified manager or assistant—would not provide the necessary control. I know that it will be argued that my suggestion would be useless, because it would be easy to provide for dummy directors; but a clause should be so framed as to necessitate directors being in absolute control. Mr. Carteighe stated that this provision would meet with as much opposition as the clause which the Committee suggested, which would prohibit company pharmacy. I do not admit this, because it would be possible for large corporations to form a subsidiary company for their drug department, and to place it under the complete control of qualified directors; but if we admit, for argument's sake, that both methods will meet with equal opposition, can there be any doubt that the clause which regulated, but did not abolish, would be the more likely to successfully contend with that opposition?

Every Critic Should Prepare His Clause.

There has, I think, been enough discussion upon the abstract principles involved in this question. The time has come for dealing with the matter practically, and I think that the Council is entitled to ask that every critic of its policy should be prepared with an alternative clause. It is comparatively easy to say what we would like or what we ought to have. It is not so easy to embody in a clause what we think we are likely to obtain. As an evidence of this difficulty I will point out that "An Ordinary Pharmacist" suggests that the clause brought in by the Law and Parliamentary Committee was a garbled version of his own. I do not know who originally drew up that clause, but I should like to point out that the clause suggested by "An Ordinary Pharmacist" could not have been accepted by any Committee. I am not sure, from reading the clause, what "An Ordinary Pharmacist" wants it to enact. This is the clause:—

"It shall be unlawful for any company to assume or use the title of pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or chemist, or druggist, or dispensing chemist or druggist, or any other title implying registration under the Pharmacy Acts; and in all other respects a company shall be amenable to the provisions of the Pharmacy Acts in the same manner as an individual or natural person; and if any company of persons not registered under the Pharmacy Acts shall assume or use any title implying registration under the said Acts, or in any way infringe the provisions of the said Acts, it shall be liable, on summary conviction, to a penalty not exceeding five pounds for each day upon which such offence happens."

He starts by saying "It shall be unlawful for *any company*, etc." He ends it by saying, "If any company *of persons not registered* under the Pharmacy Acts shall assume or use any title . . . it shall be liable, etc." Which does "An Ordinary Pharmacist" mean should stand? Then the clause says, "In all other respects a company shall be amenable to the provisions of the Pharmacy Act," but surely the framer of that clause knows that there are sections of the Pharmacy Act to which it would be impossible for any corporate entity to be amenable.

Plain English Wanted.

The drafting of this clause also shows the wisdom of those who at the last Council meeting particularly desired that the Committee's clause should be put into "plain English." I notice that Mr. John Smith rather scolds us for this. He says that we made it "as blunt and unacceptable as possible." It is essential that all these suggested clauses should be put into plain English, and if, as a result of that process, they are found to be, as Mr. Smith says, "blunt and unacceptable," the fault will lie with the purport of the clause rather than with the plain English. If the 1868 Act had been put into plain English we should have been saved most of the difficulties with which we have had to deal.

I have said that every critic should produce his clause, because I think it is a waste of time to discuss principles about which we all agree, and, if I may be allowed to do so, I would suggest that all clause framers should keep the following facts in view:—

(1) It is now 1899—not 1867.

(2) That it is a clause which the Government are to be asked to adopt, and here the perusal of Mr. Carteighe's remarks, which I took for my text, will be beneficial.

(3) We cannot expect conditions imposed upon companies which are not enforced against individuals.

(4) There are comparatively few men who start business who are not indebted for loan of capital to some unqualified relative or friend.

(5) Parliament will sanction nothing which savours of trades unionism.

(6) Although it need not be drawn up as by a legal draftsman, it should be put into plain English. It is useless to attempt hoodwinking ourselves, the Government, or opponents by ambiguous language. We have suffered enough from ambiguity already.

I ought, perhaps, to explain in conclusion, that by company pharmacy I mean the keeping of an open shop for the dispensing and sale of poison by a limited liability company.

Developer for Bromides.—A sepia tone for bromides may be obtained by using the following developer:—(*a*) Water, 1,000; potassium oxalate, 200. (*b*) Water, 500; ferrous sulphate, 25; citric acid, 2; potassium bromide, 2. (*c*) Water, 1,000; potassium chloride, 120. For use mix (*a*) 200 parts, with (*b*) 50 parts, and (*c*) 50 parts; the use of more of (*c*) intensifies the sepia tone.—*Amat. Photograph.*, **13**, 103.

PHARMACEUTICAL SOCIETY.

Evening Meeting.

The first evening meeting of the Pharmaceutical Society was held at 17, Bloomsbury Square, London, on Tuesday, the 1th inst., the chair being taken at eight o'clock by the President, Mr. Wm. Martindale.

Professor J. Reynolds Green, Sc.D., delivered a lecture upon

The Biology of Yeast.

He said the biology of yeast had been so intimately associated with the subject of alcoholic fermentation in general that it was difficult to realise that such a complex subject could be divided into two branches. That would appear more clearly in the course of the lecture. In early days attention was first drawn to fermentation proper, and for many years it was not known that yeast had any part to play in the process. The old researches of the alchemists and of their successors met with very little result until about 1680, when a Dutch naturalist named Leuwenhoek, who possessed no microscopical appliance except a simple magnifying glass, discovered that the scum which was associated with the process of fermentation had an organised structure and consisted of a certain number of small globules. Though that discovery did not advance the subject very materially, it was the starting-point from which they could trace the biology of yeast. It was not known for many years later that those little globules were vegetable in their nature. Indeed, there was a very active controversy about them, and the difficulty of arriving at a correct solution might be referred to the very imperfect appliances at the service of those who undertook researches.

A great many observers, particularly on the Continent, considered that those globules were animal in their nature, and that theory held its ground until the early part of the present century. A fairly long interval elapsed, between 1680 and 1820, when the discovery was simultaneously made by three people that the organism in question was a vegetable one. Those three discoverers—Cagnier de Latour, of France; Kütze, of Berlin; and Schwann, of Jena—discovered that these little globules were capable of reproducing themselves by the ordinary process known as budding. Each cell put out a small protrusion or bud from its surface, which in turn grew until it reached the size of the original cell, and then became a separate organism. That established practically the vegetable character of yeast. Subsequent discoverers had located it, until a great deal more was known about where it came from, its morphology, and so on. Perhaps the greater part of their knowledge on the subject was due to Dr. Emil Hansen, of Copenhagen. No one had thrown such a flood of light upon all the industries which depended upon the work of yeast or had done so much in that direction as Emil Hansen. Possibly from the fact that his publications were not in English, a good deal of his work had not been followed by a great many, and he was glad to be able to bear testimony to the light which Hansen had thrown on the subject. They had often been told how very largely the present century had conduced to the progress of science, and it was undoubtedly true that all they knew about fermentation had been discovered since 1820. Towards the end of the last century the

Chemical Aspect of Fermentation

was taken up by Lavoisier, and what Cagnier de Latour had done for it from a biological point of view Lavoisier started to do from the chemical side. Before his time the only discovery of any very great importance that had been made was that it was only saccharine liquids that could be made to produce alcohol. That discovery was made 100 years before, and after 100 barren years Lavoisier took the matter up, and one of his great discoveries, based upon accurate chemical analysis, was that the sugar split up into carbon di-oxide and alcohol, and that if it were possible to collect these two and put them together again, the sugar would be restored. From the old-fashioned point of view it was a great discovery and put an obscure phenomenon on a firm scientific basis. Before that time all had been nebulous and doubtful, and people made all sorts of wonderful statements as to where the spirit came from. Thus Lavoisier might be termed the founder of the accurate knowledge of yeast which was no possessed. There was a little discrepancy, however, between Lavoisier's hypothesis and his analyses. He assumed that the cane sugar was broken up into alcohol and carbon di-oxide, but the quantities which he measured of these two substances would not quite reproduce the cane sugar from which he started. It was found that it was necessary to add a certain amount of water. This remained unexplained for some time; but about 1847 Dubrunfant made the further discovery that cane sugar had to be converted into a sugar which was not crystallisable before it would ferment. This, of course, sent people again on inquiry, and it was found that the action of acids upon cane sugar split it up into two other sugars known as glucose and fructorse or till recently as dextrose and lævulose.

In 1860 what might be called the first discovery of a purely biological nature was made by the great French chemist, Berthelot. He found that in fermentation there was an enzyme presetn, now called invertase, and that the change which took place was associated with the incorporation of molecule of water into the molecules of cane sugar, with subsequent splitting with the two sugars mentioned. This explained scientifically the discrepency which existed between Lavoisier's theory and his experiments. It is known that in the ordinary processes of brewing peast was not made to work first casc upon canc sugar. The sugar which was most prominent in malt extracts, known as maltose or malt sugar, though very much like it, was not identical with it. As cane sugar had to be inverted in order to induce fermentation, it seemed probable that maltose in like manner must undergo this change. Both these sugars have the following formula: $C_{12}\ H_{22}\ O_{11}$. When split up the formula of each product is deflects the poliarised rays of light to the left and is called levulose, and the other to the right, and is called dextrose. When malt sugar was examined, the same splitting up was observed, but both sugars deflected the plane of light to the right, and they proved to be identical, so that the molecules of malt sugar split up into two molecules of dextrose or glucose. Now, as there was an enzyme which produced the first change, naturally it must be expected that there was an enzyme which produced the second, and in 1883 this was discovered by M. Bourquelot, Professor of Chemistry at the Ecole de Pharmacie. This gave a fairly large contribution to the biology of yeast.

The First Enzyme

was called invertase, that which split up cane sugar, and the second was called maltase. It was found that neither malt sugar nor cane sugar was capable of undergoing fermentation by yeast without splitting up, which was the work of these two enzymes. Then came the question, What did the yeast do to these sugars? The yeast was found, when placed in these saccharine media, to grow enormously and with extreme rapidity, and the progress of its growth was marked by the vehemence of the fermentation. The question then arose, What was the relation between the yeast itself and the sugary liquid? What was the life process in the yeast of which this curious fermentation was the expression. That was the subject of research by many chemists for many years, and gave rise to a good deal of theory, which it was not necessary now to go into. A strong controversy was indulged in, particularly on the Continent, Liebig holding very decided views in one direction, and other chemists of equal eminence holding views diametrically opposite. One of the first serious attempts to solve it was due to Pasteur, whose name was the next which must be mentioned in connection with the study of the biology of yeast. Pasteur discovered that yeast was very much more energetic in the absence of oxygen. When he took away all the oxygen from a fermenting fluid the fermentation that was going on became relatively very much intensified. Pasteur upon that formulated

A Theory of Fermentation,

which held its own for some time. Fermentation, he said, was an expression of life in the absence of oxygen; oxygen was a primary necessity for every living thing. In ordinary cases oxygen was supplied from the atmosphere, but when not so derived the organism in the progress of its life would get that oxygen from something else; it would break up some other decomposable body, with the view of getting from that body the oxygen normally supplied by the atmosphere. Pasteur's view was that the yeast split up the sugar in order to get from it the oxygen.

That was rather a bold hypothesis, and one naturally looked round carefully to see whether under any circumstances oxygen was liberated when sugar was decomposed. There was very little evidence to show that this was the case. It had been discovered that in fermentation other things besides alcohol and carbon di-oxide were formed. For instance, it had been discovered that succinic acid always occurred in the fermentation of sugar. Pasteur came to the conclusion that 96 per cent. of the sugar subjected to the action of yeast went to alcohol and carbon di-oxide, whilst 4 per cent. went into succinic acid and glycerin; still, there was no oxygen. Another chemist, named Monoyer, published a paper in which he claimed to have found that there was a small amount of oxygen given up. His paper was in the form of a thesis, which he presented to the Faculty of Medicine at Strasburg when he was a candidate for the Doctor's degree; but his views have never been subsequently confirmed, and did not seem to be accurate. The question of the action of oxygen in the metabolism of the living cell was merely an expression of the fact that the cell displayed energy. That energy was normally liberated by the oxygenation of something in the cell—it might be the living substance, or it might be some compound present; but the oxygen helped to break this down with the liberation of energy. If this could be broken down without oxygen you nevertheless got the energy liberated; and, therefore, the same purpose was served as in oxygen respiration. So that

Pasteur's Theory

came to this: the fermentation was an expression of the effort of the organism to obtain energy in the absence of oxygen. There were a great many facts which went to show that this was a characteristic feature of the vegetable protoplasm. It was found that by exposing dry fruits—not artificially dried fruits, but in their ordinary parenchymatous condition—to an atmosphere which contained no oxygen for some time, that they were capable of forming alcohol. This was discovered by two French chemists—Lechartier and Bellamy—and was confirmed by Pasteur himself, and, two or three years ago, by Gerber. All these researches showed that life, in the absence of oxygen, could be maintained by fermentative decomposition, probably principally of sugar, the effect of which was to liberate the energy which the cell wanted. This appeared to be the solution of the difficulty, but there were always people of a very sceptical turn of mind; and however prettily a theory was worded, and however nicely it was placed before them, they were never quite ready to accept it.

Such candid critics met Pasteur when he put forward his hypothesis, the most earnest of them being Schützenberger, who said that if Pasteur's theory was true, it was very evident that fermentation ought not to go on in the presence of oxygen, as the oxygen would obviate the necessity of it. Schützenberger wanted to know how Pasteur explained the fact that energetic fermentation was got in the presence of oxygen, and, moreover, that the fermentation was much more energetic in the presence of oxygen than in its absence. That, of course, was a difficulty to be got over. Schützenberger explained that instead of fermentation being for the purpose of producing energy it was for the purpose of supplying yeast with nutriment; that it was an alimentary process, and not a respiratory one. There were many things to be said in favour of that view, as, for instance, the decomposition in which the glycerin and succinic acid were produced at the expense of a certain amount of the sugar. Another curious fact was that if yeast is put in a liquid containing organic nitrogen in solution—such bodies as peptones or amides—the yeast will produce alcohol without any sugar being there at all. That led to the discovery of

A Third Enzyme,

which was now known to exist in yeast. A yeast cell, like all other resting cells, contains a certain amount of food wrapped up in its own protoplasm. This includes glycogen, a substance very much like starch, a corbohydrate, and under proper conditions it gives rise to sugar just as starch did. The alcohol which appears under these conditions is derived from the glycogen in the yeast cell under the action of another ferment, known as diastase, which has the power of saccharifying these forms of carbohydrates, the $C_6 H_{10} O_5$ group. There was thus a great deal to be said in favour of the alimentary theory, because the idea of the yeast in using up this carbohydrate would be nutrative, as in all other cells, when using their reserve, and no doubt the production of alcohol was an incident in the process. There were thus two very interesting views, each of which had a great deal to be said for it, but neither being exactly reconcilable with the other without careful thought. It was undoubted that when a vegetable cell was deprived of its ordinary supply of oxygen it would set up this alcoholic fermentation. That was found in the fruits he had alluded to, also in leaves, in buds, and recently it had been found in the interior of the wood of trees. Wherever oxygen was minimised, there alcoholic fermentation supervened. It did not seem that it need make any difference to that well-established fact if, in the ordinary course of feeding, a particular cell decomposed the sugar and the same products were evolved; the production of fermentation might in the first onset be alimentary; then, if it were deprived of oxygen, a second action would take place, and the same kind of thing would supervene, and the fermentation would be relatively intensified. In that way they might get a sort of explanation of the divergencies between the two views.

There was a certain fascination to many minds in discussing questions of this sort, but he must pass on because there were many

Other Problems

which had still to be dealt with. After the discovery of these enzymes in the yeast, the question began to excite the minds of physiologists why did not the yeast cell secrete an enzyme to do this great work of forming alcohol. A great many people set themselves to solve this question, and for years it was one of the problems in vegetable physiology whether or no the yeast cell secreted an enzyme which could carry on this fermentation, but it was not until 1896 that the question received its solution. Büchner found that there was in the yeast an enzyme which had the power of carrying this out. Many efforts had been made by filtering, pressing, and extracting with all kinds of solvents to get this enzyme out, but they had all failed. Büchner adopted a very drastic method. His argument went to this, that you must completely deorganise and crush the cell so as to destroy its entity entirely, and then perhaps the protoplasm would give up what it had held so fast. Büchner dried some yeast, powdered it and mixed it with dynamite earth or kieselguhr, and then ground it in a very fine agate mortar until he had got it into a perfectly fine powder, like flour. This disintegrated the yeast, and then Büchner extracted it, and as a final stage submitted it to the enormous hydraulic pressure of about five tons to the square inch. It was found that this extract was capable of being filtered clear, and then it was seen to be an almost translucent yellow liquid with a very yeasty smell, somewhat viscid, but still capable of passing through a filter paper. When it was boiled it deposited a marked coagulum of proteid character at a temperature of 45° or 50° C., a very low temperature indeed for coagulation. When some of this was placed in a solution of cane sugar—the best strength he found to be 10 per cent.—there was

almost at once a very vigorous fermentation set up. Bubbles began to arise, and after a short time, even at the ordinary laboratory temperature, there was a frothing on the top of the liquid.

A great many experiments were made to see if it might really be said to be the thing that everybody had been working for so long. Unfortunately for a very long time nobody could get it out except Büchner himself, and as there was no one there to see him get it out, there was a certain amount of reserve or mild scepticism for some time. However, after perhaps an interval of twelve months, the discovery was confirmed in several other places, and since that time this material had not been found very difficult to prepare. Büchner named the enzyme thus found zymase, and it might now be taken to be the active principle which split up sugar with the formation of alcohol and carbon di-oxide. Soon after Büchner found zymase it was looked for in dried fruits, and before long they found it there also, and it was apparently merely a question of knowing how to obtain and prepare it. As Büchner prepared it, it is extremely difficult to keep. In his first experiments he never succeeded in getting it to last more than two days; if it were kept in contact with sugar it might be kept for seven days if cold, but it was a very unstable thing and difficult to prepare. They could see what difficulty there was in preparing it when he told them that in an experiment which came under his own notice it took twelve hours to grind up the kieselguhr and yeast. Twelve hours sitting over over a mill with nothing else to think of, and nothing to do except see that it did not go wrong, was a sort of experiment which required a good deal of enthusiasm on the part of the operator who had to carry it out.

The Discovery of Zymase

was of immense theoretical importance, and it would be very interesting to discuss it from the point of view of whether there were such things as organised ferments at all. The old idea of a ferment after the discovery of the vegetable character of the yeast cell was that the ferment was one of those small micro-organisms which set up this peculiar decomposition, and it was only in very recent times that some people were bold enough to imagine that the ferment was not an organism at all, but the secretion that the organism prepared. The candid objector had been very much in evidence with regard to Büchner's discovery. It was said it could not be an enzyme, and the theory was advanced in all seriousness that it was the actual liquified protoplasm of the yeast cell, which had been extracted and liquified without destroying its life, and that fermentation was a function of the live cell. Without wishing to be too severe, he could not help wondering how it was possible for the human mind to entertain this view of life associated with the grinding up into a perfectly impalpable powder in the presence of dynamite earth and the subsequent pressure of five tons to the square inch. If that would not kill anything that had life in it, life was rather a different thing from what people had been in the habit of thinking, and it was certainly not easy to destroy. That hypothesis, wild as it seemed to be, had, however, to be tested, and Büchner's enzyme was subjected to a crucial test. It had been found that chloroform was fatal to the life of all these vegetable organisms or microbes; chloroform water was an antiseptic, and they would not live in it. Here was an easy way, then, of detecting whether it was an enzyme or whether it was living matter. If it were living, chloroform would put it *hors de combat*; if it were an enzyme chloroform had no effect, for the antiseptic in question had been shown to be without any deleterious influence on the enzymes with which they were more familiar. It was found then that you could saturate this liquid of Büchner's with chloroform and add sugar to it, or saturate a sugar solution and add the enzyme to it, or mix them together and saturate both with chloroform, and still fermentation would proceed perfectly well, just as well, indeed, in the presence of chloroform, as it did in its absence. Then another test was suggested, that of desiccation. It was found you could dry up this extract until you could powder it, until it was perfectly impalpable, having been filtered from all kieselguhr, and that it could then be kept for some time (and in some experiments it was kept for two or three months), and then after it was put in water again and dissolved it went to work just as before. This discovery, which as far as fermentation was concerned, was by far the most important discovery of the century, had led in turn to another, which was closely connected with the biology of yeast. He was trying to show that all this work was done from the yeast point of view, not for the production of alcohol, but for the nourishment of the yeast all, and all the processes so far had had a bearing upon that. All these four enzymes had been definitely set apart by the yeast to enable it to live at the expense of the sugar.

Now the solution which Büchner prepared contained a great deal of proteid matter. The activity of the enzyme was very difficult to maintain. It destroyed itself in a day or two, or perhaps a week, according to its condition. What was the cause of that? It was found on examining the liquid at the end of that time, when the enzymic power had disappeared, that it did not contain this proteid matter which coagulated at between 45° and 50° C., but it did contain something which it had not before, namely, a great quantity of crystals of tyrosin. Tyrosin was one of the bodies which came from the action of the pancreatic juice on the proteids, which brought about what was called the fermentation of trypsine. Tyrosin marked the final stage of digestion. Here would be seen disappearance of the proteid and the appearance of the tyrosin. At once the view suggested itself that they had in yeast another enzyme which would digest the proteid constituents of the food; in fact, the yeast appeared to show a concentration, so to speak, of all the digestive operations which were found so widely differentiated in our own bodies. This enzyme was looked for, and in due course it was found.

There was a little difference between the action of some of these enzymes. The question was whether the action, whether digestive or fermentative, took place inside the yeast cell or in the yeast cell outside it. That was discussed for some time, and it had been found that one of these ferments, at any rate, *invertase*, was excreted from the yeast cell into the liquid, and it could be prepared without any pressing by the mere filtration of the liquid which came from fermentation. A good many of the enzymes could not be got out of the cells in that way, and it was for a long time a puzzle to know how the enzyme could make its ways into the liquid. The yeast cell, the piece of protoplasm, was covered up by what looked like an impervious piece of cell wall, a transparent membrane having no holes in it as far as one could see. It appeared to be an impervious membrane except that water could diffuse through it just as you could get water osmotically through various membranes. But these enzymes which were suspected of having this power of passing through the membranes were colloidal, and it was well known that this power of diffusion was generally confined to crystalline bodies; colloids would not go through a membrane. Another discovery which had been made in recent years had enabled them to see how this could take place. This was due to the work of Mr. Gardiner at Cambridge, who showed that the cell wall was not a homogeneous membrane at all, but was permeated or perforated by delicate pores filled with protoplasm, which was so abundant in the interior. In this way they could understand how some of these colloidal bodies might pass through, but there was a great deal of difference between the colloidal bodies, of which zymase was probably another. Zymase absolutely refused to have anything to do with passing through the cell wall at all. Experiments had not yet been made on a sufficient scale to enable anything to be said about the other ones, but amongst the somewhat lengthy

group there were no doubt very distinct differences in that direction. This was a very bare outline of what was known of the biology of yeast, and dealt with it from the physiological side only. The morphological side was of equal interest, and was capable perhaps of even more discussion.

Discussion.

The PRESIDENT, in proposing a hearty vote of thanks to Professor Green, said the lecturer had been too modest to refer to his own experiments in corroboration of Büchner's discovery of the enzyme present in yeast, but he believed he had succeeded in producing a liquid which contained this enzyme.

Mr. PETER MCEWAN said this lecture might be regarded as the completion of the series given some years ago by Professor Armstrong. He should like to ask Professor Green if he could give any nformation with regard to certain foods which were now being produced from yeast, and were, from certain points of view, some of the most startling discoveries of modern science. He referred to the preparations resembling in taste, odour, and apparently in chemical constitution, extract of meat. If they could be prepared and kept in an efficient manner, the very large quantity of yeast which was now virtually wasted might be used to supply what we could not rear in our fields. He would like to know how they were prepared, and if other foods of a similar nature could be obtained from the same source?

Professor GREEN said this question could not be easily discussed without taking a great deal of time. The economic side of the matter he did not feel justified in going into. Some of these articles had been sent to him, and he had tried them, and found them really very nice. They seemed practically equal to Liebig's extract, and consisted pretty much of the same bodies. He did not like to say offhand what they contained, but they were mainly extractives of the same kind as in Liebig's and other meat extracts. There was no proteid matter in them so far as he knew. They were stimulating rather than nourishing, but they would hold their own with similar productions on the market. The man who was chiefly responsible for them was Professor Kossel, of Berlin, who had published many papers, showing how to prepare them, and giving analyses, and to those he must refer for further information. He (Professor Green) had once the ambition to try to prepare some himself, but on inquiring from Professor Kossel the right quantity to work with, and on being told it was some gallons, he decided to leave it alone. He believed, however, that the present waste of yeast was in process of being stopped, and that brewers were now considering, some of them at least, if they could not get their waste yeast turned into such commodities.

The PRESIDENT said that non-alcoholic stimulants of the kind referred to were often useful when solid food could not be taken, and if waste yeast could be converted into a marketable form it would be a great step forward.

The next paper was on

Spurious Alexandrian Senna,

by Prof. H. G. Greenish. It is printed at page 470, and gave rise to the following discussion:—

The PRESIDENT, in proposing a vote of thanks to the author, said it was very important that it should go forth to the world that this *Cassia obovata* was not genuine Alexandrian senna. He remembered when it came to London to a very considerable extent, and when in fact from one-sixth to one-eighth of the leaflets of senna were from *C. obovata*. It was interesting to remember that the Society was the means of correcting the adulteration that went on, to a very considerable extent, of Alexandrian senna with argel leaf, which was present to a very large extent fifty years ago. Jacob Bell drew the attention of Mehemet Ali to it, and pointed out that it was necessary that the adulteration should be stopped, and ultimately that was done. It was very common for medical writers on materia medica to speak of adulteration as if it were always intentional. He believed that merchants, as well as others, desired to have things as pure as possible, and he was glad to think that the day of intentional adulteration was passed. Accidental impurities, rather than adulteration, would be a better term, but they still found writers on medical materia medica adhere to the term adulteration. Those leaves should certainly not be used in medicine in place of Alexandrian senna, as they were not quite so active, and both were cheap enough now compared with what they used to be some thirty years ago. Their thanks were due to Professor Greenish for having pointed out so carefully how the two kinds differed, and how they could be distinguished by careful microscopic examination.

Mr. WALTER HILLS said he was more interested in the moral the author drew from his researches, and he was sure he would have the sympathy of all students present in saying he hoped the time was coming when examiners would not require them to know all the adulterations of the past fifty or hundred years. He recollected when he came up for examination being confronted with argel leaves, and he was rather surprised to hear that this was still a feature of the examinations. As in the moral world, so in the pharmaceutical, he thought it was better to study what was right than what was wrong. If they fixed upon a high ideal, it would be better than trying to find out what was evil. He, therefore, quite agreed with Professor Greenish in advising students to discover all they could—microscopically and otherwise—about the true senna, and leave other things to take care of themselves, only examining them as they arose from time to time.

Mr. HOLMES said he had put on the table a number of specimens of substitutions and adulterations of senna which had come to the Museum during the last forty or fifty years. In looking up the history of the matter he had come across some facts which might be interesting. *Cassia obovata* was the original senna which was brought to Europe by the Moors, and its cultivation extended from Italy to Spain. Amongst the specimens he found one which was sent about ten years ago from Barcelona; it was a very fine specimen, but did not get any sale at the time. As to the question whether it was more active than the other senna, as far as he could learn from the literature of the subject, that was dependent on the amount of extract which it yielded. *C. obovata* yielded less extract than the *C. lanceolata*, but whether it was more active depended, he thought, on the individual. The *C. obovata* was used at the Cape of Good Hope, Porto Rico, and in Jamaica. With respect to adulterations of senna, he well remembered as a student having had to deal with argel leaves, which were rather plentiful at that time. They then disappeared for some years, but in 1857 they came into the market again, and there were three specimens on the table. With regard to *Colutea arborescens* a curious fact occurred some time ago. He had some leaves sent to him, some of which he was informed had been eaten by a horse, and produced injurious, though not fatal, effects. He found on examination that they were the leaves of the *Colutea arborescens*, which was not at all an uncommon shrub. You could see it by the side of the North London Railway, in the neighbourhood of Mildmay Park. He had also placed on the table some boxes in which the shapes of the leaves were well shewn, and there were also slides showing the characteristics of the leaves. Though it might be quite true that it was better to study what was right than what was wrong, it was not always easy to know what was right and what was wrong unless the student knew exactly what to look for.

Mr. MCEWAN said that since the plague had begun to be prevalent in India senna had been rather scarce. Though an old-fashioned drug, its consumption was increasing yearly. It was in such times of scarcity that substitutions came on the market, and this paper was, therefore, especially appropriate at the present moment. The question raised was exceedingly important,

especially to British pharmacists, because the bulk of the Alexandrian senna imported into this country never went out again, whereas probably from 80 to 90 per cent. of the Tinnevelly senna was re-exported to the United States and to Germany. It followed, therefore, that if anything offered as Alexandrian senna were disposed of, the English were more likely to get it than anyone else. It should also be remembered that a large proportion of the Alexandrian senna sold was in a bruised condition, almost a coarse powder; if that were not sold in its crude state, it would be easy to turn it into the mill and re-bale it, and then Professor Greenish's investigation would come in very nicely, because he had shown them how to detect the substitution in the powdered condition. Students who took an interest in the commercial side of the question would find that adulteration had a great deal to do with the distributing market. A great deal of senna was imported into Marseilles, and at one time Trieste was a large drug distributing centre, and sent drugs to many places which were now supplied from London. Naturally, a great deal of the information which Professor Greenish had given them came from Continental observers, and was based on conditions which did not, and could not, now exist, seeing how the market had changed. There were no shrubberies in the neighbourhood of Mincing Lane, from which merchants could get a sufficient number of adulterants to mix with their bales of senna. It was not that our commercial morality was higher, but time was too valuable to allow of unbaling and repacking things of such a nature. As there was really a distinct scarcity of the cheaper kind of senna, it was very desirable that this question of the activity of *C. obovata* should be settled once for all. A good many years ago, when he was in Edinburgh, Professor Stockman made his *début* as an investigator by a paper on the active principles of senna cathartic acid. He did not now recollect what particular species Professor Stockman examined, but he thought it would be a good opportunity for Professor Stockman, now that he had plenty of students to work for him, to go into the subject from this point of view. It would also be well that its physiological effect should be investigated.

Professor Greenish, in reply, said with regard to *Colutea arborescens*, it was well known to be active, and it was stated by Colladon to be about as active as *C. obovata*, but Colladon derived his information from a pamphlet published in 1711, so that his information was 189 years old. He thanked Mr. McEwan for the excellent supplement he had supplied to his notes, and said he thought this was just the time when there was such an abundance of this senna on the market that somebody should take it up and settle the question of its physiological activity once for all. He did not care to try one or two experiments on himself, which would not be conclusive. It had been used in Porto Rico and Jamaica, but he was not aware that it was used there still.

Intensification of Plates.—P. von Janko, in Eder's 'Jahrbuch der Photographie,' compares the results obtained by the various developers. If the negative is bleached with copper bromide and then redeveloped, the intensification is very inappreciable; if after copper bromide bleaching, it is darkened with a bath of silver nitrate the result is also unsatisfactory, after intensification with mercuric iodide the negative in time becomes yellow and bleaches. A more satisfactory intensifier is mercuric chloride, the results vary as the bleached plates have been darkened with ammonia, sodium sulphite, hydroquinone iron developer, or ammonium sulphate. The best intensifier is a uranium salt; to guard against the yellow colour usually developed by this method, the intensified plate is immersed in a bath of water, 200, alum, 20, hydrochloric acid, 1, and the bath renewed three or four times. Through prolonged washing the negative is reduced. To prevent this, it is washed in half per cent. acetic acid, and for about ten minutes in pure water.—*Amat. Photograhp.*, **13**, 110.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

The 'Organic Chemistry Appendix,' by W. H. Perkin, Jun., Ph.D., F.R.S., and F. Stanley Kipping, Ph.D., D.Sc., F.R.S. (London and Edinburgh: W. and R. Chambers, Ltd. Pp. 74. Price 1s.), consists of chapters on the subject dealing with compounds of physiological importance, which are added to the authors' original text-book with the object of rendering it more useful to medical students and general readers. The properties of the principal constituents of plants—starch, inulin, glycogen, dextrin, gums, glucosides, essential oils, terpenes and allied compounds—are therefore described, and substances found principally in the Animal Kingdom are also dealt with. The latter include lecithine and the ptomaines, uric acid derivatives, amido-acids and their derivatives, compounds of unknown constitution found in bile, hæmoglobins, and proteids. The whole serves as an excellent summary of the chief constituents of plants and animals, and pharmaceutical students, in particular, will find the little book an admirable introduction to physiological chemistry.

British Sanatoria for the Open-Air Treatment of Tuberculosis, by Percy Dunn (London: John Bale, Sons and Danielson, Limited. Pp. 50. Price, 1s. 6d. net), is a reprint, with additions, from the *West London Medical Journal*. It supplies useful information upon the subject of which it treats, and shows the progress made in connection with the open-air treatment of tuberculosis in this country. A complete list of British sanatoria is given in this book, and there are numerous illustrations.

In 'Banks and their Customers' (London: Effingham Wilson. Pp. 77. Price 1s.) we have a practical guide for all who keep banking accounts, the subject being considered exclusively from the customer's point of view. The present edition is the third and, in it, the subject is brought well up to date.

"Shall Pharmacists Become Tradesmen?" is the question asked by Mr. George J. Seabury in a closely printed volume of nearly two hundred and forty pages. The chief subjects discussed therein is the ever-fresh one of cutting prices, and that seems to be considered from every possible point of view. The author's object appears to be the securing of a final settlement of the status of pharmacy, professionally and commercially, and he strongly insists that a properly-organised attempt in that direction would not be a forlorn hope. The latter part of the book is devoted to the methods of organisation, and the answer to the question in the title is suggested on the last page, where pharmacists are urged to help in the local and general organisation of pharmacy if their answer is in the negative. The author does not desire to make any profit by the sale of the book, and copies are supplied by George J. Seabury, Maiden Lane, New York, U.S.A. at thirty cents each post free.

The 'Materia Medica Labels,' adapted for public and private collections, published and sold by Mr. H. K. Lewis, 136, Gower Street, London, are in every way admirably adapted for the intended purpose. The labels number nearly 500, and are printed in clear bold type, on gummed paper. The list of substances included has been compiled from the British Pharmacopœia, 1898, and other sources, and it is divided into two parts. The first comprises chemical materia medica, including alcohols, alkaloids, sugars, and neutral bodies; part two includes substances of organised structure obtained from the vegetable and animal kingdoms. Regarded as a whole, the book of labels is an excellent production; nothing better of the kind has yet been published.

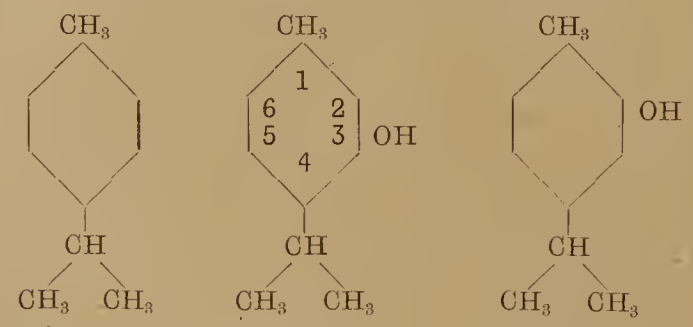
THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.

Suppositoria.—As prodicted in the Students' Page when dealing with these preparations in the 1885 Pharmacopœia, the soap basis for suppositories has been omitted in the 1898 B.P. Comparing the formulæ now given with those formerly official, the student should note that the necessary quantity of oil of theobroma for preparing the given number of suppositories is not stated, but in the process for tannic acid suppositories one is told to take "a sufficient quantity to form with the tannic acid a mixture which will fill twelve suitable moulds, each capable of holding fifteen to sixteen grains (or about one gramme) of oil of theobroma." Since moulds of the requisite degree of accuracy cannot be obtained, the pharmacist must therefore determine for himself the capacity of the moulds he employs if accurate results are desired. The student should consult papers on this subject which will be found in *P. J.* In the formula for phenol suppositories, a little white beeswax is introduced to compensate for the depression of melting point caused by the addition of phenol to oil of theobroma. In making tannic acid suppositories the mixture should only be heated sufficiently to just liquefy it: a higher temperature will cause the tannic acid to separate in an unmanageable clot. The melted mixtures for iodoform and compound lead suppositories on account of the density of the medicaments should be assiduously stirred in order to effect a uniform distribution of the materials, and not poured into the moulds until they begin to thicken.

Thymol.—Thymol is a phenol, *i.c.*, contains a hydroxyl group substituting one of the hydrogen atoms of the benzene nucleus. The formula given in the Pharmacopœia shows that it contains three substituting groups (OH), (CH_3) and (C_3H_7), but does not indicate the relative position of these groups in the benzene nucleus. As a matter of fact the formula applies equally well to carvacrol, an isomer of thymol, another constituent of thyme and other essential oils. Both carvacrol and thymol are phenols derived from cymene. Cymene is methyl-isopropyl-benzene, the prefix iso indicating that the C_3H_7 group is not the normal propyl group—CH_2—CH_2—CH_3, but the isomeric group—$CH\begin{matrix}CH_3\\CH_3\end{matrix}$

The graphic forumlæ for the three substances mentioned are—



Cymene. Thymol. Carvacrol.

The constitution of thymol and similar bodies may also be expressed without the aid of graphic formulæ by numbering the substituting groups, thymol being methyl-1, isopropyl-4, oxy-3, benzene, while carvacrol would be methyl-1, isopropyl-4, oxy-2, benzene. The chief rules for the arrangement of these numbers or indices is to give the index:—(1) to that substituting group in which the element directly connected with the nucleus has the lowest atomic weight. If two or more of these groups contain the same element directly bound to the nucleus (as in the case above, CH_3 and C_3H_7) then one gives the index (1) to that group in which the sum of the atomic weights of the remaining elements is least. Since thymol is a phenol it dissolves in aqueous solutions of potassium and sodium hydroxides to form soluble phenate. This property is utilised to separate thymol from the other non-phenol constituents of the essential oils which contain it. The oil is shaken with caustic lye which, after separation from the oil, is washed and acidulated with hydrochloric acid. This liberates the thymol which is precipitated. Thymol is a powerful antiseptic, and as it is much less caustic and irritating than many other antiseptic substances finds extensive use as a preservative.

Thyroideum Siccum.—The thyroid gland of the sheep is selected as the one most easily obtainable. The sheep's gland is also the one with which most of the clinical as well as experimental work was done when the thyroid gland was first introduced as a medicinal agent. We know, therefore, more about the physiological action and dosage of sheep's thyroid, although the glands of other animals have also been occasionally employed. Thyroids can easily be obtained from the local butcher, to whom they are of little value. The whole gland consists of two dark red lobes lying one on each side and closely applied to the wind-pipe (trachea). Their upper extremities are connected by a bridge of tissue running across the trachea. This bridge is often very thin and pale in colour, so as to be not readily observable. In removing the gland it is most convenient to cut out the two lobes separately, and leave the connecting bridge behind. The organ is easily found in the surrounding tissues owing to its dark red colour. By careful dissection each lobe will be found to be a broadly almond-shape, firm; yet succulent, mass of tissue, which should be thinly sliced and pounded. The pounded mass should then be spread in a thin layer and dried *as rapidly as possible* in a current of warm air, or *in vacuo*, if the means are at hand. It is important to remove the bulk of the moisture as quickly as possible. When sufficiently dry to coarsely powder, it will be found advantageous to spread the powder out in a thin layer in a desiccator for a day or two in order to dry it as completely as possible. The removal of the fat is not necessary from a therapeutic point of view: it is only done with a view to prevent the development of rancidity. This, however, does not occur in a powder which is thoroughly dried and preserved in the same condition.

FLORAL CALENDAR FOR NOVEMBER.

Owing to the mildness of the season there are still a few flowers procurable for purposes of dissection, although November usually presents the smallest number of any month in the year.

Amaryllidaceæ.—*Sternbergia lutea.* Fl. *Eucharis amazonica.* Fl.

Begoniaceæ.—*Begonia* species. Fl.

Boraginaceæ.—*Anchusa italica.* Fl.

Caryophyllaceæ.—*Stellaria media.*

Compositæ or **Asteraceæ.**—*Coreopsis lanccolata.* Fl. *Aster* species. Fl. *Chrysanthemum parthenium.*

Convolvulaceæ.—*Convolvulus cneorum.* B.G.

Cruciferæ or **Brassicaceæ.**—*Alyssum maritimum.* Fl.

Ericaceæ.—*Erica* species. Fl. *Arbutus unedo.* Fl.

Euphorbiaceæ.—*Euphorbia peplus.*

Iridaceæ.—*Crocus sativus.* Fl. *Schizostylis coccinea.* Fl.

Labiatæ or **Lamiaceæ.**—*Lamium album.*

Liliaceæ.—*Tritoma uvaria.*

Linaceæ.—*Linum flavum.*

Malvaceæ.—*Malva rotundifolia.*

Primulaceæ.—*Cyclamen* species. Fl.

Ranunculaceæ.—*Anemone japonica.* Fl. *Helleborus niger* var. *altifolus.*

Solanaceæ.—*Solanum jasminoides.* Fl.

Thymelaceæ.—*Daphne mezereum* (autumn flowering variety).

Verbenaceæ.—*Caryopteris mastacanthus.*

Violaceæ.—*Viola odorata.*

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

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THE "HOSPITAL" AND CHEMISTS.

Though Sir Henry Burdett has acknowledged, and apologised for, the impropriety of his manager in disregarding a clear understanding he entered into as to the publication of particulars relating to the analyses of certain samples of belladonna plasters, that personal matter is of comparatively minor importance. Objection must, however, be taken to the article in the *Hospital* of the 11th inst., inasmuch as it makes the damaging imputation cast upon chemists and druggists, in the article that appeared in the *Hospital* of October 21, p. 44, more serious, by extending it to "pharmaceutical chemists of the highest class." Evidently the writer of that article was very imperfectly acquainted with the subject on which he wrote. The title of it quite misrepresented the matter to which the analyses related, viz., the advertising of a particular firm who claim that the belladonna plasters they make are stronger than those of other manufacturers. To apply the results of the analyses "as illustrating the freedom and impunity with which the substances dealt in by chemists are apt to be adulterated," *Hospital*, October 11, p. 44, was, to say the least, inappropriate, and capable of being regarded as the kind of commercial philanthropy sometimes indulged in by sensational writers on the subject of adulteration. Reference to the British Pharmacopœia was equally out of place, since the plasters in question are trade articles—mostly made in America—which are sold like ready-made clothes; they do not profess to be manufactured according to the Pharmacopœia; they are in some instances distinctly described as being different from the official plaster, and they are not what would be supplied by a pharmaceutical chemist when belladonna plaster is prescribed.

But the most serious ground of objection to the article in the *Hospital* is the absence of any indication of the fact that the plasters reported upon were not obtained from the shops of dispensing chemists; that they were collected by the agents of the *Hospital* from "drug stores" and from the establishments of companies improperly professing to carry on business as chemists and druggists, or in some instances as pharmaceutical chemists. Unless, therefore, the writer of the article was ignorant of the difference between a legally qualified chemist and druggist, and the "drug store" of a company, improperly assuming that title or even the title of pharmaceutical chemist, the omission of those particulars was capable of a sinister interpretation. Those, however, are the data which were suppressed. The importance of them will be evident from what is stated above, and when compared with the remarks made in the *Hospital* article as to the public having to depend upon the "honesty of the druggist" as the very pivot on which hangs the life of the patient in many cases. Under the conditions to which the analyses of belladonna plasters related, there was no justification for such comments, because the comparison made was between manufacturers, and had no bearing upon the question "how far druggists were in the habit of complying with the directions of the Pharmacopœia in regard to some of the more ordinary preparations commonly sold over the counter." Neither did the results of the inquiry warrant the insinuation "that much the same sort of sophistication goes on in many branches of the drug trade, and that trusting to the absolute helplessness of the purchaser, druggists only too often supply drugs which are anything but of the nature, quality, and substance asked for." If that statement is applicable, it applies to the class of establishments from which the *Hospital* collected samples of belladonna plasters, and not to the persons lawfully entitled to describe themselves as pharmaceutical chemists or chemists and druggists.

ARGUMENT FOR REGULATION OF "COMPANY PHARMACY."

Amid the unfortunate differences of opinion prevailing as to the course to be taken in regard to "company pharmacy," the suggestion that each member of the Council is honestly striving to find a satisfactory solution of the problem finds confirmation in the paper which appears in this week's issue by Mr. Glyn-Jones. Whether Mr. Glyn-Jones' views as to "placing companies in the same position as that occupied by individuals" will meet with general acceptance or not, few will be disposed to question the opinion he expresses that the Government has no intention of prohibiting companies from carrying on the trade in drugs, proprietary articles, and other goods commonly met with in a "drug store." In addition it may be stated, with confidence, that no chemists desire such prohibition, or expect the Government "to go beyond the principle of the 1868 Act." The further opinion that the wisest and most politic course would be for chemists to offer their assistance to the Government in drawing up a suitable amending clause, will also commend itself to most minds as reasonable. But beyond that point difference of opinion might be expected, and the argument put forward by Mr. Glyn-Jones appears to be vitiated by the mistaken assumption that "practice of pharmacy" and "sale of poison" are synonymous terms representing the same thing.

The same mistake was the ground of opposition to the objectionable clause providing for regulation of the sale of "poisonous articles" in the 1883 Bill, and it overlooked

the fact that the desire of the Government was to regulate the sale of "poisonous articles," simply as a matter of trade, not in any way coming within the scope of pharmaceutical practice. Unfortunately, that trade view of the matter has been extended by the Government also to the limitations established by the Pharmacy Act. That view has prevailed until the time when the House of Lords Committee came to the conclusion that the formation of companies intended to enable an individual—by taking advantage of company machinery—to do that which the Pharmacy Act, 1868, made unlawful "should be stopped," and when the LORD CHANCELLOR admitted "the propriety of subjecting existing companies" to restriction. But "such restrictions as are proposed in the Companies Bill" take a trade view of the matter different from that indicated by the provision of Clause 3 of the Bill relating to professional practice, and are objectionable for that reason, because the matter they relate to is not a matter of trade. The whole difficulty of the registered chemists seems to arise from such confusion of trade transactions with professional functions—from oversight of the fact that the restrictions of the Pharmacy Acts do not relate to trade; but to nothing more than the professional supply and manipulation of the most potent poisons, as medicine, and to such regulation of the sale of those poisons as was deemed to be expedient for public safety. For those reasons it would appear that the principle of the Pharmacy Acts must be sustained in any legislation to remove the legal anomaly that has been created by the House of Lords' decision, with the aid of company law; unless indeed it can be shown that what was expedient in 1868 is now unnecessary.

That view is so obviously reasonable, that were it "properly represented" to the Government and to members of Parliament they might be expected to admit its cogency, and to give their support to the claim that none but legally qualified persons should be allowed to sell, dispense, or compound poisons, or keep open shop for those purposes and use the title of pharmaceutical chemists or chemists and druggists in connection with that business. At present "company pharmacy" serves as a legal back door admitting unqualified persons to enjoyment of the privileges of qualified persons—a device by which the whole object of the Pharmacy Act, 1868, may be defeated, and a burlesque of limited liability. The restrictions of the Companies Bill would not interfere in the least with the formation of "bogus" or "one-man" companies, and the dispensing or sale of scheduled poison would be open to any unqualified person with impunity.

The facts referred to by Mr. GLYN-JONES at the end of his paper should certainly be kept in view; they also suggest the following remarks:—

1. In 1867 Parliament perceived that it was expedient for the safety of the public that persons keeping open shop for the retailing, dispensing, or compounding of poisons should be legally qualified for those duties, and the Act of 1868 provided for that public necessity.

In 1899 it has been perceived that a decision of the House of Lords has had the effect of neutralising that provision, so that a legal anomaly exists enabling unqualified persons, by the aid of limited liability machinery, to do what the Act of 1868 made unlawful. The Lord Chancellor has pointed out the need for a remedy of that anomaly, by subjecting existing companies to restrictions. The conditions in 1867 and in 1899 are therefore closely analogous and might be expected to point to analogous legislative action.

2. In view of the analogy above pointed out, the clause that the Government should be asked to adopt for amendment of Clause 2 of the Companies Bill should provide for the re-establishment of the principle underlying the action of Parliament in 1868, in regard to what was held to be expedient for the safety of the public.

3. Legally qualified persons being made responsible by the Pharmacy Act they are not required to employ qualified assistants—why, therefore, should that condition be imposed upon companies?—and since "a qualified servant cannot confer qualification on the employer," what purpose would that condition serve in any case?

4. Though the financial relations of a legally qualified chemist are unimportant to the public, the individual competence indicated by legal qualification is all important.

5. The limitation of retailing, dispensing, or compounding of poisons and of keeping open shop for those purposes, to legally qualified persons, does not in any way savour of trade unionism. Tendency to trade unionism is perhaps the least reproach that could be cast upon registered chemists and druggists.

6. The claim that seven legally qualified persons have a right to carry on their business as a limited liability company is in no way unreasonable, nor is that claim inconsistent with the claim that seven unqualified persons should not be allowed to carry on that part of a chemists' business which requires qualification under the Pharmacy Act.

JANUARY EXAMINATIONS.

THE January examination arrangements have now been fixed. The Major written work will be taken on Thursday and Friday, December 28 and 29, both in London and in Edinburgh. The practical portion of the same examination will be held on Wednesday, December 27, in London, and on Saturday, December 30, in Edinburgh. With regard to the Minor examination, the practical work in chemistry and pharmacy is expected to commence on Tuesday, December 26, in Scotland, and on Thursday, December 28, in London, though a good deal depends upon the number of candidates entering for the qualifying examination at the latter place. In view of the near approach of the date when the new regulations take effect, a considerable increase in the number of candidates may be shown at the next three examinations. There may exist among students a very natural desire to escape the imperfectly known effects of the new regulations, which loom before them like gathering storm clouds; and it is possible that the encouragement of this train of thought may precipitate the student into an untimely presentation before the examiners. There can be no satisfaction in such a course, and very little economy, After all, the terrors of the new *régime* are very largely imaginary; no increase in the stringency of the examination is imminent, and the ten-guinea fee should scare no pharmaceutical aspirant worth his salt into courting rejection by coming to the examination room before his training is completed.

ANNOTATIONS.

Mr. Glyn-Jones's Suggestion, in the article contributed by him to this week's Journal (see p. 473), that every critic of the action taken by the Council of the Pharmaceutical Society should produce a clause for a Companies Bill, is exactly to the point. A number of feverishly active agitators in Lancashire and elsewhere are never so happy as when they are exercising their powers of destructive criticism in connection with what everyone else says or does. Unfortunately, however, those self-same critics are decidedly lacking in constructive ability, just as they only too frequently display their want of "sweet reasonableness." Instead of attempting to find a common ground of action and to pull together, they start out with the most vague notions concerning what is requisite or desirable, in the shape of amended legislation, and the persons actually responsible for shaping and carrying out a policy are expected to submit everything they produce to be wrangled over by persons who are ignorant both of possibilities and probabilities. The present is essentially a time for action, not for talk, and it is now as absurd for any body of British pharmacists to assemble to discuss matters of principle in connection with the company-pharmacy problem, as it would be for the British Army in South Africa to remain passive while the Houses of Parliament met and considered the desirability of meeting the attacks of the Boers.

Those who Think they Have a Mission to remedy the existing state of affairs in pharmacy should set to work in a reasonable manner and, after fully mastering all the facts, crystallise their ideas into a briefly-worded expression of opinion regarding what, according to their view, the remedy should be. That expression of opinion should then be verbally communicated at a meeting of some local association, or embodied in a letter addressed to the Council of the Pharmaceutical Society or to the Editor of this Journal. But to talk wildly at meetings or to write at random about generalities, when no definite conclusion has been arrived at in the individual's mind, is worse than useless. The first question which British pharmacists need to answer at the present moment is whether they are prepared to fight for their titles and their practice. That answered in the affirmative, the next question which presents itself is: What form shall the attack take? Every registered chemist should make up his mind on that point without further loss of time, and take care that his opinion is recorded. Is anything to be done from within or not, and, if anything, what? Are we to fight only for the restriction of titles to those who assume them by virtue of their legal qualification, or are we also to demand that the intention of the Pharmacy Act, 1868—the prohibition of the retailing, dispensing, or compounding of poisons by any persons not registered under that Act—shall be realised?

The Council of the Society has unanimously decided that titles should be restricted to duly qualified individuals, but it is as yet divided on the second point. It seems only fair, however, that those who are inclined to chafe at what they regard as unreasonable delay should abstain from reproaches until they have definitely settled the matter in their own minds. If it be desired to secure the total prohibition of the sale and dispensing of poisons by companies of unqualified persons, that should be fairly and squarely stated, without waiting for the Council to decide upon the adoption of a different course, and then proceeding to express disapproval of what has been done. Reason for non-acquiescence may exist in any case, but it is vain to grumble after the event when no protest has been entered in advance. We repeat, therefore, with Mr. Glyn-Jones, that "every critic should produce his clause," or — if he is prepared to leave that duty to his elected representatives — to wait patiently on the course of events, and be prepared to support the Council loyally when the proper time for action arrives. Further, whatever clauses are proposed should undoubtedly be expressed in clear language. If it be desired to prevent companies selling and dispensing poisons, let that be stated in plain English, without attempting to mask the issue by a mass of unnecessary verbiage.

The Position Taken Up in the *Pharmaceutical Journal* has always been that the only effectual remedy is (1) to prevent any company assuming or using titles indicating individual qualification, and (2) to prevent persons not registered in accordance with the Pharmacy Acts from taking advantage of the Companies Acts to keep open shop for the sale and dispensing of scheduled poisons. In so far as we fall short of that ideal, to that extent must any remedy fail to prove effective. Neither qualified directors nor qualified managers can properly supply the place of qualified proprietors, and every shop where scheduled poisons are retailed, dispensed, or compounded should be under the direct and unlimited control of such a proprietor. Companies need not have any directors, and, even if they had legally qualified ones, their existence would, more likely than not, prove totally ineffective as public safeguards. Managers, again, are an uncertain quantity; they may be here to-day and gone to-morrow, and the protection afforded to the public by a manager's qualification must of necessity be of the very slightest. If, therefore, the pharmacists of Great Britain are to fight, let them fight for some worthy object. The easy course, the selfish plan, is to agree that what has come about accidentally should be allowed to persist. But it is a duty pharmacists owe to the public to strive to prevent the unqualified from masquerading as qualified; and, that being so, the obvious course is to fight for both titles and practice.

The Caledonian Oracle who, over the pen-name "Pharmaceutical Chemist," disposes, with apparent ease (see p. 491), of the company pharmacy problem, appears to possess a peculiarly constituted set of logical faculties. The object of his letter is, he states, to clear the ground of much debatable matter, yet he proceeds to accomplish that desirable end by dishing up proposals discarded by the medical, dental and pharmaceutical authorities long ago. In fact, the clause quoted by our correspondent as not being an original suggestion, emanated from the joint committee of professional corporations which the Council convened some years back to devise a remedy for the evils created by the House of Lords' decision in 1881. It is incorrect to suggest that the associated bodies were at any time enamoured of the clause, but it received, perhaps, a longer period of consideration than its contemporaries. Why should "Pharmaceutical Chemist" imagine that exhuming the clause from the "mass of details" in which it was comfortably buried would conduce to a clearer perception of our position? With regard to tactics—seemingly a strong point with our correspondent—if it be manifest, as he says it is, that the Lord Chancellor is determined to put a stop to the abuse of company machinery in relation to medicine and pharmacy, what subtle wisdom lies in the proposal to limit his lordship's action to the question of titles? What special degree of statesmanship lurks in the suggestion that chemists should ask for less than the highest officer of the Crown has expressed his willingness to give? Such tactics are, we understand, not generally practised in the commercial and political life of Scotland, and it is somewhat startling to find them advocated by a chemist who writes from Edinburgh. Another argument put forth as favouring the restricted policy, is that it could not reasonably be objected to even by those interested in companies. Why the interests of the public and of fifteen thousand registered persons should be subordinated to the susceptibilities of unqualified traders is a species of distorted logic which we must leave others to untwist; but one thing is tolerably clear, no thoughtful pharmacist will believe that much advantage is likely to accrue by considering the "company" question in a timid or "kid-glove" sort of spirit.

THE COMPANY PHARMACY PROBLEM is referred to in the *British Medical Journal* of last week, and entire agreement is expressed with the pharmaceutical demand that anything which extends the use of titles implying qualification beyond those persons who have actually received the qualification should be strenuously resisted. It is said to be obvious "that anything of the kind would be a most dangerous precedent, not for the pharmaceutical chemists alone, but for the medical profession. It is clear on all sides that the protection afforded to the public by preserving a proper significance to titles, inadequate though this protection may be, must not be weakened." But with regard to the contention that pharmacists should not be parties to the regulation of company practice, and so indirectly to its recognition, the *B. M. J.* thinks it loses much of its force, since there are already "so many perfectly legitimate businesses" conducted in this form that the thing must be acknowledged as existent and must therefore be grappled with. Apparently, our medical contemporary is of opinion that the Council of the Pharmaceutical Society should produce a clause which would prevent the use of pharmaceutical titles by companies and insist upon a board of directors consisting of individuals registered under the Pharmacy Acts. If that were done, it is thought that the medical profession would be prepared to give every assistance in its power to enable the Society to get the clause adopted when the Companies Acts Amendment Bill again comes before the House of Commons, an event which is understood to be likely to happen at an early period in the ensuing session.

THE TITLE "CHEMIST" is degraded sufficiently by joint-stock companies of unqualified persons which usurp it, but the ordinary newspaper reporter does not spare further degradation, and, as frequently as not, any case of an objectionable nature against an individual who sells drugs is promptly assumed to involve a chemist and druggist. Such a case was brought last week against a Wolverhampton herbalist, who had sold spirit of nitrous ether deficient in strength, and "paregoric" prepared without opium. He was fined 40s. and, in default of payment, committed to prison for four months. Needless to say, he is not a registered chemist, but he is described as such in several newspaper reports, and others refer to him as that impossible creature—"an unqualified chemist." Obviously, a protest against the misapplication of their title should have been addressed by the chemists of Wolverhampton to every newspaper which was in error, but so far we are unaware of anything of the kind having been done.

THE EXPLOSION AT ST. HELENS is reported upon in a Blue Book which has just been issued. Colonel A. Ford, C.B., her Majesty's Chief Inspector of Explosives, had the assistance of Dr. Dupré, F.R.S., in his inquiry, and inquiries on the spot appeared to establish the fact that a quantity of potassium chlorate exploded, but so far as could be ascertained such an explosion has hitherto been unknown either here or abroad. It became necessary, therefore, to conduct a number of experiments in order to discover if potassium chlorate really would explode under favourable conditions. The experiments seem to prove that the chlorate will not explode as the result of detonation, but that, whilst it gradually decomposes when subjected to heat, it ultimately gives off oxygen suddenly, exploding with violence when a certain temperature is reached. In view of the result of the experiments, Colonel Ford states that it cannot be doubted that an explosion of a small portion of chlorate actually did take place at St. Helens, and he considers that the buildings in which potassium chlorate is stored, as well as the kegs which contain it, should in future be made of non-inflammable materials.

THE USE OF BORIC ACID AS A PRESERVATIVE was the subject of a prosecution by the St. George's (Hanover Square) Vestry at Westminster Police Court last week, when several important firms were summoned for selling clotted cream preserved with the acid. In the case which was argued, that against Messrs. Hudson Brothers, counsel for the Vestry said that the real point was whether the vendors of clotted cream were entitled to put any preservative into it, and that there had been decisions given by magistrates against the use of boric acid in milk. Mr. Gill, who appeared for the defence, said the magisterial decisions had nothing to do with the present issue; the acid was used in clotted cream as it was in the preparation of hams. The magistrate (Mr. Sheil) said he had previously given a decision about preservatives in milk; he thought there was a clear distinction between milk from the cow and clotted cream, as the latter was the result of a process. The experts called for the prosecution included Dr. Corfield, who stated that the use of boric acid had been largely discontinued in medicine, because of its irritating effect on the stomach and intestines; it also occasioned skin eruption. The half-pound jar of Devonshire cream sold by Messrs. Hudson contained about sixteen grains of boric acid—the maximum single dose of the drug for an adult, and, as clotted cream was now largely prescribed for children instead of cod liver oil, the effect was likely to be mischievous. For the defence Mr. Thomas Bond, consulting surgeon of Westminster Hospital, said he used boric acid largely in his practice; it was only injurious to the digestion in very large doses. For the purpose of giving evidence before a Board of Trade commission, he had experimentally taken three ten-grain doses of boric acid daily for the last six weeks, and the drug had produced no ill effect whatever. He thought it was absolutely necessary to use boric acid, or other preservative, in cream sent a long distance by railway. At this point, after the statement had been made that other well-known experts were to be called for the defence, the case was adjourned.

"PILLS AND POTIONS, LIMITED," is the heading given by the *Financial News* to a critical article dealing with the prospectus of the Midland Apothecaries, Limited—a company formed, with a capital of £25,000, to take over the business of two well-known Birmingham chemists, and to add a wholesale department. The sub-heading of the same article—"A 'Brummagem' Company whose shares may be a drug in the market"—accurately indicates the tone of the criticism which follows. The prospectus states that the directors "feel justified in assuming that under their guidance the wholesale department will earn fair profits," but the *Financial News* objects to the very qualified nature of that opening statement, and infers that the position is such that only the special abilities of the directors—which the public must take on trust—can do justice to it. Again, it is asked, what are "fair profits"? Why do not the directors give some figures? But more extraordinary still, it is observed, is the latter part of the paragraph. "The vendors guarantee to medical practitioners who become shareholders 7½ per cent., 'provided their accounts amount annually to 10 per cent. of their holding.' This is the introduction of a species of 'tied house' system, which has been said to be objectionable in the licensed trade, but will be a thousand times worse when applied to doctors' prescriptions. What a pleasant prospect for the shareholders, if they receive no dividends in the first three years, to know that the medical members among them are receiving 7½ per cent.! However, if any doctors are inclined to take this chance they might ascertain who guarantees the vendors." In conclusion, it is suggested that, if the enterprise is good enough for Birmingham, subscriptions should be taken up locally, as they are not likely to come from anywhere else. The *Manchester Courier* also states that several very serious flaws in the prospectus might be pointed out, but it does not indicate them.

AN EVENING MEETING of the Pharmaceutical Society will be held at 36, York Place, Edinburgh, on Wednesday, November 29, at 8.30 p.m. Mr. Peter Boa, the Chairman of the Executive of the Society's North British Branch, will occupy the chair, and will deliver the Inaugural Sessional Address. The Assistant Secretary will afterwards describe the recent additions to the Library and Museum.

LINNEAN SOCIETY.

At a meeting held on November 2, Dr. A. Günther, F.R.S., President, in the chair, Professor Stewart, F.R.S., exhibited and made remarks on a preparation of

The Leaves of Mimosa Pudica

showing the diurnal and nocturnal positions. He also exhibited the embryo and egg-cases of *Cestracion philippi*.

The Rev. G. Henslow next read a paper on the proliferous state of

The Awn of Nepal Barley.

After describing the two varieties *Hordeum cœleste*, vars. *ægiceras* and *trifurcatum*, he showed that the inverted flower-buds (which constitute the peculiarity of the monstrosity) were different in the two varieties. In *H. ægiceras* it commenced at a bend in the flattened awn, with an axial protuberance arising from the middle point; in *H. trifurcatum* the hastate form began with two protuberances, one on each side. In Prof. J. S. Henslow's figures (Hooker's *Kew Journ. Bot.*, i., 1849, pp. 33—40, pls. 2—3) the arrested awn widens, the edges folding over until it forms a "cucullus," while the lateral processes of various shapes grow out at the base (really inverted summits) into what he termed "wings." His material, however, was not sufficient to enable him to interpret either the cucullus or the wings. The Rev. G. Henslow's specimens showed that the former often assume the form of two glumes more or less coherent by their edges, while the wings became their awns.

Dr. W. G. Ridewood then read a paper on the Hyobranchial Skeleton of

The New Aglossal Toad,

Hymenochirus boettgeri. The hyoidean cornua of this animal was shown to be ossified, a fact unique among tailless Amphibians. The hyobranchial skeleton is severed into an anterior and posterior portion; and, as in *Pipa* and *Xenopus*, the throhyal bones are intimately related with the laryngeal cartilages. The author considered that the anatomical features presented by *Hymenochirus* tended to confirm the view that *Pipa* and *Xenopus* are genetically related and not convergent types.

Mr. Harold Wager also read a paper on the Eye-spot and Flagellum in *Euglena viridis*. He showed that the principal vacuole at the anterior end of

A Euglena-Cell

is in communication with the "gullet." The eye-spot, which consists of a mass of pigment-granules, is curved around the gullet in the region of the vacuole. The flagellum expands just beneath the eye-spot into an oval or nearly spherical enlargement, and below it is attached to one side of the principal vacuole by means of two basal filaments. The enlargement beneath the eye-spot is probably functional in controlling the movements of the flagellum, and may be stimulated by the light absorbed by the eye-spot.

CHEMICAL SOCIETY.

The first meeting of the winter session was held on November 2, Dr. W. H. Perkin, F.R.S., the Vice-President, in the chair. After the routine business had been gone through, the Chairman spoke of the loss which the Society had recently experienced in the death of Sir Edward Frankland (a former President) and Professor Bunsen (a foreign member).

The first paper, by A. Vernon Harcourt, dealt with

Mixtures of Gaseous Chloroform and Air.

The methods of determining the relative proportions of gaseous chloroform and air in a mixture of the two were considered, and a method was given for producing a mixture of air and chloroform in any desired proportion.

The amount of chloroform that should be mixed with air to produce an anæsthetic has not yet been accurately determined, owing to the fact that so far a good chemical method of making this determination is wanting. Of the known methods the reaction between chloroform and hot alcoholic potash appears to be the best. It is found, however, to give results that are invariably 4 per cent. too low. The equation expressing the reaction is as follows:—

$$CHCl_3 + 4KOH = 3KCl + HCOOK + 2H_2O.$$

This reaction is open to the objection that differences of opinion exist as to whether all the chlorine of chloroform can be converted in this way into chloride.

The author has worked out a method depending on what he thinks is a new reaction. The mixture of chloroform vapour and air is made to undergo combustion in the presence of air and steam, a heated platinum wire in a state of incandescence being placed in contact with the mixture. The chloroform reacts according to the equation:—

$$2CHCl_3 + 2H_2O = 6HCl + 2CO_2.$$

The reaction is effected in about an hour, and the amount of hydrochloric acid is determined by means of a standard ammonia solution. Precautions are necessary to avoid the production of free chlorine; thus, a sufficient quantity of steam must be present, plenty of time must be given, and the platinum wire must be maintained at a dull redness.

It was found that chlorine, on being similarly treated, was converted into hydrogen chloride. The reverse action may possibly take place, but as soon as hydrogen chloride is formed there is a tendency for it to be abstracted by the water. The reactions are:—

$$2H_2O + 2Cl_2 \rightleftharpoons 4HCl + O_2$$

The mixture of air and chloroform vapour for anæsthetic purposes is obtained by blowing air through a mixture of chloroform and alcohol. The vapour is then passed through sulphuric acid, then through water, contained in wash-bottles. In this way the alcoholic vapour is removed. The strength of chloroform in the vapour is regulated by observing the density of the chloroform and alcohol during the passage of air through it. To effect this two specific gravity beads are immersed in the liquid, so adjusted that at the right density one floats and the other sinks. The liquid may be maintained at the density required by occasional additions of chloroform. The amount of chloroform taken up by the air is constant when the density and temperature remain constant.

Mr. Hehner and Dr. Perkin joined in the discussion. In reply, Mr. Harcourt said that the density of the liquid afforded a good means of ascertaining the proportion of chloroform vapour present on account of the marked difference in specific gravity between chloroform and alcohol. A liquid might be used that was less volatile than alcohol, but for the present alcohol was satisfactory, from the harmlessness of its vapour and its purity.

The next paper was read by Mr. J. Lewkowitsch, on

The Theory of Saponification.

The author's experiments lead him to the conclusion that the hydrolysis of triglycerides must be considered a bimolecular, and not a tetramolecular, reaction. This theory being correct, it follows that partially hydrolysed fats should contain diglycerides and monoglycerides. They have been so found by acetylating the intermediate products, freed from glycerol, and proving that the acetylated products exhibit considerable acetyl values, which rise and fall with the progress of saponification.

Mr. Bertram Blount and Mr. Hehner criticised the methods employed. The former was anxious to know whether the samples worked on truly represented the bulk from which they were taken. The author assured him that the samples were truly representative, and remarked that much of what had been said was not relevant to the point at issue.

Mr. F. G. Edmed, B.Sc., then came forward with a note on

The Action of Dilute Nitric Acid upon Oleic and Elaidic Acids.

The conversion of oleic acid to elaidic acid by the oxidising action of nitric acid—a reaction so familiar to pharmacists—appears to have come as a revelation to the author. He finds that if the density of the acid does not exceed 1·25, and the action takes place in the cold, the yield of elaidic acid is quantitative. The yield is diminished by increasing the strength of the nitric acid and by a rise in temperature. The purity of the oleic acid affects the rapidity of the change. The dilute nitric acid used was freed from nitrous acid, which brings about a similar change. Nitric acid of strength ranging between 1·2 and 1·3 has no action in the cold on elaidic acid; hot nitric acid decomposes it only upon prolonged boiling.

A paper on

The Formation of Tetrazoline,

by H. E. Stapleton and S. Ruhemann, was then read. This was followed by the most important contribution of the evening, in the shape of a paper by W. J. Pope and S. T. Peachey, on

Asymmetric Optically Active Nitrogen Compounds.

These compounds, the dextro- and lævo-benzyl-phenylallyl-methyl ammonium iodides and bromides, have been prepared, and their

isolation proves that dissolved substances may owe their optical activity to the asymmetry of nitrogen.

The paper drew a warm appreciation from Dr. ARMSTRONG, who considered it the most valuable contribution made to stereochemistry since the introduction of the geometrical considerations of Le Bel and van't Hoff. The discovery of a method of preparing asymmetric nitrogen compounds, besides being of intrinsic importance, afforded a means of investigating the disputed problem as to the valency of nitrogen in ammonium compounds.

Dr. LEWKOWITSCH also spoke, and referred to his attempt some time ago to prepare silicon compounds possessing optical activity.

The following papers were then taken as read:—"Ethylic Dibromobutane-tetracarboxylate and the Synthesis of Tetrahydrofufuran-α-α'-Dicarboxylic Acid," by Bevan Lean, D.Sc., B.A.; "Camphoroxime, Part III.; Behaviour of Camphoroxime towards Potassium-Hypobromite," and "Optical Influence of an Unsaturated Linkage on Certain Derivatives of Bornylamine," by M. O. Forster, Ph.D., D.Sc.; "The Interaction of Sodium Hydroxide and Benzaldehyde," by C. A. Kohn, B.Sc., Ph.D., and W. Trantom, B.Sc., Ph.D.; "Electrolytic Preparation of Induline Dyes," by E. C. Szarvasy, Ph.D.; "The Heat of Combination of Copper with Zinc," by T. J. Baker, B.Sc.; "The Action of Sulphuric Acid on Fenchone," by J. E. Marsh; "On Glucosides," by Hugh Ryan, M.A.; "Notes on Poly-azo Compounds," by Raphael Meldola and W. A. Williams; "The Application of Powerful Optically Active Acids to the Resolution of Externally Compensated Basic Substances; Resolution of Tetrahydroquinaldine," by W. J. Pope and S. T. Peachey; "The Application of Powerful Optically Active Acids to the Resolution of Feebly Basic Substances; Resolution of Camphoroxime," by W. J. Pope; "The Application of Powerful Optically Active Acids to the Resolution of Externally Compensated Basic Substances; Resolution of Tetrahydroparatoluquinaldine," by W. J. Pope and E. M. Rich; "Homogeneity of Dextro-lævo-α-phencthylamine-dextrocamphor-sulphonate." by W. J. Pope and A. W. Harvey; "The Characteristics of Racemic Liquids," by F. S. Kipping and W. J. Pope; "A Method of Discriminating Between 'Non-racemic' and 'Racemic' Liquids," by W. J. Pope and S. J. Peachey; "On Two Hydrated Cobalt Oxides, Green and Buff-coloured," by W. N. Hartley, F.R.S.; "A Method of Separating Isomeric Xylidenes from the Commercial Product," by W. R. Hodgkinson and L. Limpach; "Action of Hydrolytic Agents on α-dibromocamphor, and the Constitution of Bromocamphoronic Acid," by Arthur Lapworth, D.Sc.

The meeting then adjourned.

LIVERPOOL CHEMISTS' ASSOCIATION.

The usual meeting was held on Thursday evening, the 9th instant, at the Royal Institution, Colquitt Street, Mr. H. WYATT, jun., one of the Vice-Presidents, in the chair.

Mr. James Mercer was proposed as a member by Mr. DUTTON and accepted.

Among the "miscellaneous communications" was one from Mr. ANTHONY S. BUCK, who, showing a sample of

PURIFIED AND SCALED GUM ARABIC,

asked if any member had had experience of its applicability in pharmacy. He should not, of course, think of using it himself for dispensing purposes, but was of the opinion it might come in useful for making mucilage for cough mixtures and other preparations.

In reply, Mr. A. C. ABRAHAM said that he could not claim to have used the article, but from its appearance he should say it was probably a poor gum acacia, purified by solution, filtration, and probably decolorisation. As the solution would most probably be heated so as to scale it, the resulting scales would make a solution or mucilage not liable to the same amount of change as the ordinary gum was.

The CHAIRMAN said it was rather a pity that Mr. Buck did not satisfy himself that the gum shown answered the Pharmacopœial tests. Providing it was of good flavour, without odour, and answered the requirements of the B.P., he (the Chairman) should not have the least hesitation in using it, both for dispensing and for other uses, in place of gum acacia. Centrifugal separators were now largely used for clarifying thick solutions, like that of gum, for jujube-making, so that these solutions could be made, purified, and evaporated in about a third the time formerly required—a consideration where the solutions were liable to change in the way mucilage does.

Mr. HOCKEN wished to know if there was a good ready test by which one could ascertain

THE PURITY OF BEESWAX.

He had had a sample lately which was quite brittle, so much so that he had refused it.

The CHAIRMAN said that on the authority of the late Mr. Conroy there were only two tests readily applicable to beeswax—namely, the taste, and the feeling when rubbed in the palm of the hand. These were a matter of experience, so that the only way to be absolutely certain was to make a complete analysis.

Mr. COWLEY also confessed his ignorance of a good ready test—such a thing was indeed a desideratum. The easiest test for fats was that of saponification, but as regards the sulphuric acid test, it was easy but by no means certain.

Mr. A. C. ABRAHAM was surprised to hear from Mr. Cowley complaints of the sulphuric acid test—a test which had been introduced, he believed, by their friend Mr. Edward Davies, and one which had given such good results. In his opinion the melting point of beeswax was an important item, and was curiously constant in English wax, and in other waxes from various sources it was equally constant, with all genuine samples from the same source.

Mr. A. S. BUCK said he had experienced trouble with some

CACHETS CONTAINING CALCIUM, SODIUM, AND POTASSIUM GLYCEROPHOSPHATES,

owing to the deliquescence of the salts. He would like to know if this could be prevented. The prescription was altered by the medical man to a mixture instead of cachets when his attention was called to it.

The CHAIRMAN thought a mass might have been made with cacao butter or other substance, cut into lozenges, and then enclosed in cachets.

Messrs. Catford and Cowley were then called upon to read their paper on

THE DETERMINATION OF ETHYL NITRITE IN SWEET SPIRITS OF NITRE AND IN MIXTURES,

which is printed in full at page 471.

At the conclusion an animated discussion took place, in the course of which the CHAIRMAN remarked upon the practical value of the paper and the ease with which these estimations were carried out when Messrs. Cowley and Catford's method was used. The hydrolysis of ethyl nitrite of sweet spirit of nitre in aqueous mixtures was an important fact to be borne in mind by prescribers; still, at the same time, he should say that provided an alkali were present, as was generally the case in mixtures containing sp. æther. nit., the nitrite would not entirely disappear, but would be permanent from its becoming, instead of ethy nitrite, a nitrite of the alkali present and ethyl alcohol.

A vote of thanks was proposed to the authors by Mr. A. C. ABRAHAM, who complimented them on their work. He was inclined to the opinion of the Chairman, that in alkaline mixtures it would be found that the nitrite was permanent. Of course, the therapeutic action of sp. æth. nit. would become rapidly *nil*, as Messrs. Cowley and Catford had pointed out, if the menstruum were purely aqueous. The decomposition of ethyl nitrite in contact with water was known, and had been alluded to before.

In seconding the vote of thanks, Mr. BUCK said he could only see one objection to the test, and that was that it could not be used by persons who were in the slightest degree colour blind.

Mr. WOKES supported the vote of thanks, and gave his opinion that it was by no means certain that the activity of sp. æther. nit. was due to the ethyl nitrite it contained. The other bodies present had a good deal more to do with it than was generally credited.

Mr. COWLEY, in acknowledging the vote on behalf of Mr. Catford and himself, agreed that this hydrolysis of ethyl nitrite was common knowledge, but it needed emphasis. Alkalis might serve to retain the nitrous acid as nitrites, but scarcely ammonium carbonate and hydrate. As far as sugars went, his knowledge did not extend to what their effect might be in retarding or preventing the change. He was down with his friend Mr. Catford for a note on liq. bismuthi, but in consequence of further experiments their work had led them into, he would ask leave from the meeting to postpone the reading of their results until the next meeting, when he could promise them something more worthy of their attention.

Greatly to the convenience of their hearers, Messrs. Cowley and Catford had tabulated their method of working the nitrite determinations, and had had printed copies distributed among the audience, who were thus enabled to follow the process closely. Any pharmacist wishing for one of the printed tables may have one on forwarding a stamped directed envelope to Mr. Cowley, at the Liverpool School of Pharmacy.

CHEMISTS' ASSISTANTS' ASSOCIATION.

The President, Mr. F. W. Gamble, occupied the chair at a meeting of this Association, held at 73, Newman Street, London, W., on Thursday, November 9. The Secretary, Mr. J. Evans, having read the minutes of two previous meetings, several new members were proposed, and an impromptu discussion then took place. Each person present had the privilege of writing on a slip of paper a question on any subject; the slips were folded, placed in a hat, shaken together, and handed round again, everyone being expected to draw a slip from the hat and to answer the question written thereon. After allowing a brief interval, the President called upon Mr. T. Morley Taylor to answer the question put to him.

Mr. Taylor said the writer wished him to express his opinion on a proposal recently made in one of the trade papers with regard to the advisability of establishing

Suburban Branches of the C. A. A.

He had not given much thought to the subject, but answering "straight off the reel" he should say that the idea was not only unworkable but would not be to the interest of the Association, because notwithstanding excellent facilities for travelling, they had even now great difficulty in getting a large regular attendance at the meetings. What was needed was to get members to attend at 73, Newman Street, and not anywhere else.

Mr. T. Edward Lescher echoed the previous speaker's remarks. Decentralisation would not be to the advantage of the Association. The present rooms were within easy reach of seven-eighths of the assistants in London, and he did not see why their arrangements should be upset to cater for the remaining eighth.

The President was of opinion that the idea was totally impracticable. This was also the opinion of Mr. C. Morley, who pointed out that although the trade paper referred to had put forward the suggestion as a new idea, it really had been made several years ago by a gentleman connected with the editorial staff of another paper.

How to Abolish Company Pharmacy.

Mr. George Pearson said the question put to him was quite a simple one in its way, consisting of but a few words—viz., "How are we to abolish Company Pharmacy?" He could only suggest that the questioner should read the report of the Council meeting published the previous week. That might throw a little light on the subject. It appeared to him, however, that by abolishing the Widow's Clause the chief difficulty might be overcome.

The President was not sanguine enough to hope that company pharmacy would ever be abolished. He thought the question would finally resolve itself into one of regulation instead of abolition. The company pharmacy problem appealed to the ordinary pharmacist simply on the ground of competition, and if companies were prevented from carrying on the business, competition would still exist, and matters would be little better than at present. He was pleased to note that since the last Council election there had been a healthier and stronger tone prevailing at the Council meetings.

Town *versus* Country Apprenticeship.

Mr. J. Fothergill was asked to state whether an apprenticeship in the country was more preferable from a pharmacist's point of view than in town. He thought that inasmuch as apprenticeship was usually the commencement of the would-be pharmacist's studies for the Minor, the country was to be preferred, because there the apprentice would have more time for study than he would in town. On finishing his apprenticeship, however, he certainly ought to obtain a situation in town as an improver, and so gain a wider practical experience.

Mr. Langford Moore thought the period of time usually occupied by apprenticeship might with advantage be considerably reduced.

Mr. A. Latreille was inclined to favour a situation approximate to a fair-sized provincial town possessing a good technical school. A country apprenticeship, in his opinion, had its advantages which better fitted the apprentice for his after life.

Mr. Pearson agreed with the last speaker. A country apprentice, he believed, as a rule made a better all-round assistant and a better pharmacist. He had more opportunities of learning the practical part of his calling.

The President, as a town apprentice, held the view that although a country pharmacist becomes acquainted with a different class of business than in town, there are plenty of places in and around London which possess as good opportunities for acquiring a thorough knowledge of the pharmacist's business as can be got anywhere. If he had to choose again, he should certainly become a town apprentice.

Mr. T. Morley Taylor was strongly of opinion that no man ought to take an apprentice who does not manufacture most of the B.P. preparations, because it was of no use sending a youth up for examination who had not opportunities of gaining his pharmaceutical knowledge by practical experience. He believed that was the chief reason why most of the ladies who present themselves for the Minor examination fail.

Botany and the Pharmaceutical Curriculum.

Mr. Latreille was requested to state his opinion as to the value of botany in the pharmaceutical curriculum. He did not pose as a botanist, but at the same time he believed that a good fundamental knowledge of botany was most necessary for a true understanding of materia medica. He thought it would be a great advantage to students of botany if the botanical gardens were opened on Sundays.

Mr. Lescher, while recognising the necessity for a knowledge of botany, thought there was a tendency on the part of the examining authorities to put the cart before the horse. Too much stress was laid on botany—more so than materia medica—and too little on other matters of more importance to the every-day work of the pharmacist.

Mr. Morley did not agree with Mr. Lescher. He thought it was most essential that pharmacists should have a complete and thorough knowledge of botany in order to properly understand the nature and properties of the drugs they have to handle, and to be able to speak with some certainty as to the probable value of newly-discovered medicinal plants.

Mr. Morley Taylor, although partly in accord with the anti-botanists on the ground that in actual practice the pharmacist does not require so much botany, was of opinion that as it is only by the study of botany from the biological side that the pharmacist gains a knowledge of physiological processes, botany was a very good subject in the pharmaceutical curriculum, and he should be sorry to see it deleted.

The President said botany was one of the most interesting subjects they had to deal with, and he thought thanks were due to the Pharmaceutical Society for having kept the standard as high as it has.

Is Substitution Justifiable?

Mr. Langford Moore was asked whether in retail practice substitution is justifiable to a certain extent. From a retail point of view he could not answer, but from a moral standpoint he should say that a pharmacist was justified in substituting an article which he knew to be better than the one asked for, and one which would do more good.

Mr. Pearson was impelled by the last speaker's remarks to rise immediately to denounce most emphatically the practice of substitution. The substitutor simply sucked another man's brains and reaped the reward of his labour. He classed him as a man who as a boy would substitute a penny for a shilling in his master's till.

Mr. Morley sympathised with the view taken by Mr. Pearson. Still, he thought that if a pharmacist substitutes an article that he considers to be quite as good as the one asked for, and answers the purpose just as well and the customer is satisfied, no harm was done.

The President said there were two classes of substitution, one in retail work and one in regard to prescriptions. While the former might be permitted if the customer was consulted, the other was strongly to be deprecated. But he did not think it existed in regard to prescriptions.

Mr. Lumley did not agree with the President that substitution in respect to prescriptions does not exist. He could give an instance where, in a very large firm of dispensing chemists, substitution was largely practised.

Is the B. P. a Legal Standard?

Mr. J. Evans (Secretary) was asked to state whether the B. P. is a legal standard under the Food and Drugs Act. He was not quite certain on the point, but it was usually recognised by magistrates as a legal standard, and he thought it ought to be. A pharmacist should not sell anything that was not in conformity with the B. P.

Mr. Lescher said the B. P. was not legally recognised as a legal authority. Dr. Attfield had himself stated so definitely. Whether it should be or not was a question that ought to be settled. Some of the proceedings taken under the Food and Drugs Act were most trivial. He knew of cases where people in old-established businesses had sold a certain article under a certain name for forty years, and

it had given general satisfaction. When customers asked for that article they expected to get a certain thing, and got it. But a representative of the law stepped in, and because the article in question was not what the B. P. said it should be, although it was what customers wanted, penalties were imposed for what the magistrates in their wisdom—or ignorance—regarded as serious offences.

Mr. MORLEY TAYLOR pointed out that although the B. P. is not a legal standard under the Food and Drugs Act, there is a neglected section of the Pharmacy Act, 1868, which makes it a penal offence for anyone to compound medicine not in conformity with the B. P. If that section was put into force it would be a good argument why a pharmacist should charge a higher price for his medicines, because they would be of a higher standard.

The PRESIDENT said there was undoubtedly a discrepancy between the law as to retailing and dispensing. The subject was beset with difficulties, but was a very suitable one for discussion.

OTHER QUESTIONS.

Several further questions were put, chiefly relating to the method of dealing with doctors' prescriptions and various preparations of the B. P., and were answered by Mr. Meynell, Mr. Lumley, the President, and Mr. Dewhirst. Mr. Morley was asked to say whether prescriptions should bear the name and address of the doctor. He said emphatically Yes, and stated his reasons.

"Is Company Pharmacy declining?" was the question put to Mr. Lescher, who said it was one easy to put but hard to answer. Without a lot of statistics he could not venture to express opinions on the matter.

The PRESIDENT, in declaring the meeting adjourned, said he thought the discussions had been fruitful in many points that had been beneficial to those present.

FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

A meeting of the Executive Committee was held in London on Thursday, November 9, Mr. J. SMITH (Liverpool) in the chair.

It was decided that the opinions of pharmacists throughout the country should be ascertained upon the different suggestions, for a course of action to be taken. With reference to the clause relating to pharmacy in the Companies Bill, to obtain as wide an expression of opinion as possible, it was resolved that a communication be sent to all local secretaries of the Pharmaceutical Society, as well as to the secretaries of all associations, with the request that answers for or against the suggested clauses be sent to the Secretary of the Federation on or before the 30th instant.

Since many of the local associations are entitled to larger representation on the Federation, in accordance with the amended Rules, it was further resolved that the Federated Associations be requested to appoint their additional representatives for the year ending 1900.

It was also decided that the Honorary Secretary should endeavour to procure a list of the names and addresses of the members of the local associations. Since one of the objects is, as stated in the rules, "to advise and assist in the formation of local associations and other organisations of chemists," it was resolved that existing associations be asked to furnish a copy of their rules, to provide the Executive Committee with the experience of the local bodies in different districts, so as to enable them to offer suggestions applicable to the necessities of each district.

A discussion on the policy of having a whole day for the annual meeting, and as to reportersbeing present, was adjourned.

The HONORARY SECRETARY (Mr. J. Cocks) reported that five more associations had become affiliated since the last annual meeting.

The following is the text of a communication sent to all local secretaries of the Pharmaceutical Society and to secretaries of al local associations:—

THE FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

Mr.....

.....

DEAR SIR,—You have no doubt observed that at the last meeting of the Pharmaceutical Council there was a wide divergence of opinion between members of the Council on the question of Company Pharmacy in connection with the clause to be submitted for embodiment in the Companies Bill. It is of the greatest and most urgent importance that the Council should be informed, before next month, of the opinion of the Pharmaceutical community upon this subject, which vitally affects the general interests of chemists, and we ask you, as the centre of organisation in your district, to furnish us with the views of those residing therein. If there is a local association in your district, will you please communicate with the president or secretary, at once, in order that the question may be discussed during the month of November? In the absence of any association of chemists will you invite a meeting of the chemists in your locality, in order to get an expression of their opinion?

Signed by the Executive Council,
JOHN SMITH.
W. L. CURRIE.
CHAS. THOMPSON.
E. S. PECK.
JAS. COCKS, *Hon. Secretary.*

It is earnestly requested that meetings be called and resolutions adopted and forwarded to the Honorary Secretary not later than November 30th inst.

Communications to be addressed to
JAMES COCKS,
8, Edgcumbe Street,
Stonehouse, Plymouth.

November 13th, 1899.

Each of the following suggestions have received more or less support:—

1. To protect chemists' titles and make it illegal for companies of unregistered persons to keep open shop for selling poisons, as in the case of individuals.
2. To apply for protection of titles only.
3. That all the directors of a company shall be qualified.
4. That the managing director only need be qualified.
5. That a company shall be allowed to carry on the business with a qualified manager or assistant, who shall be registered for the purpose, and whose name shall appear in connection with the business.

The Honorary Secretary has also sent the following letter to each of the local secretaries of the Pharmaceutical Society who gave information respecting localities unrepresented:—

THE FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

Mr.....

DEAR SIR,—I have to thank you for your courteous reply to the recent circular sent out by me on behalf of the Executive Committee of this Federation. So many replies have been received that I am sure you will pardon me for not writing you a personal letter.

This organisation is entirely dependent on voluntary workers, and beside the fact that, generally speaking, we are widely separated by distance from the localities you name, we are very fully occupied just now with the business of the Federation. I therefore feel that we may venture further to trespass on your good offices. In the districts you mention where there are no local representatives of the Pharmaceutical Society, viz., ...

.....

if you will get some members of the Society residing in the respective localities to nominate suitable men for the position you will materially assist in the better organisation of the pharmaceutical body. It may be done by letter or post-card, addressed to the Secretary of the Pharmaceutical Society at Bloomsbury Square.

A supplementary list of nominations will be submitted to the Council at the December meeting, but nominations should be in not later than November 20th.

Yours truly,
JAMES COCKS,
Hon. Secretary.

Edgcumbe Street,
Stonehouse,
Plymouth.
November 6th, 1899.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

The second meeting of the session of the above Association was held on Friday, November 10, at 17, Bloomsbury-square, Mr. E. Chapman in the chair. The minutes of the first meeting having been read and confirmed, Mr. Finnemore brought in the amendment concerning Rule V. of the Association, notice of which was given at the last meeting. The amendment was defeated. Mr. Upsher-Smith's amendment—"That the time of meetings be altered from 5 p.m. to 5.30 p.m."—was then brought forward by the CHAIRMAN, seconded by Mr. WILSON, and carried unanimously. Mr. GARSED gave notice of an amendment as follows:—"That the officers of the Association and six other members shall be elected annually, at the first meeting in each session, to form an Executive Committee. Of the six other members, two shall be major students and four minor students." The CHAIRMAN then called upon Mr. P. E. F. Perrédès (a former student in the School of Pharmacy, and member of the Association) to read his paper upon

METHODS OF DRAWING MICROSCOPIC OBJECTS.

Mr. Perrédès confined himself to showing the construction of the principal plant tissues, and illustrated his remarks

by sketches upon the blackboard. The Chairman thanked Mr. Perrédès for his interesting paper, and invited members to put questions. Messrs. Upsher-Smith and Garsed responded, and were answered by Mr. Perrèdés. The proceedings then terminated. The next meeting of the Association will be held at 17, Bloomsbury-square on Friday, November 24, at 5.30 p.m. Particulars will be issued to members in due course.

CAMBRIDGE PHARMACEUTICAL ASSOCIATION.

At a meeting held at the Bull Hotel, Cambridge, on Friday, November 10, Mr. Alderman Deck, F.C.S., presided over a large attendance of members, when Mr. E. Saville Peck, B.A., delivered his reports as delegate to the British Pharmaceutical Conference and Federation of Local Pharmaceutical Associations at Plymouth last July.

Mr. Alderman Deck thanked the members for his re-election to the presidential chair, and expressed a hope that the support of the members might continue to increase. He then called upon

Mr. Peck, who said, referring to the Conference, that as there seemed some doubt or misapprehension as to what it really was, he should give a brief outline as to its constitution and aims. It was, he said, "an organisation established in 1863 for

The Encouragement of Pharmaceutical Research

and the promotion of brotherly feeling and mutual goodwill among those interested in Pharmacy." Its objects were (1) To hold an annual conference of those engaged in the practice or interested in the advancement of pharmacy. (2) To determine what questions in pharmaceutical science required investigation, and when practicable to allot them to individuals or committees to report thereon. (3) To maintain uncompromisingly the principle of purity in medicine. (4) To form a bond of union among the various associations established for the advancement of pharmacy. He detailed the programme of the meeting of the Conference at Plymouth, the kind reception accorded by the Mayors of the Three Towns; the number of interesting papers read, and the right royal welcome and entertainment extended to the Conference by the Local Association at Plymouth. To him the Conferences were year by year increasingly interesting and enjoyable. He urged those present, especially the younger ones, to join the Conference as it was both an object and incentive to keep up their work after qualifying for the practice of pharmacy, besides affording them an opportunity of meeting old associates. Referring to the statement sometimes made that the Conference seemed almost entirely given up to pleasure, and that very little real work was accomplished, he reminded the meeting that the Conference was not the annual meeting of the Pharmaceutical Society, where the year's work in pharmaceutical politics could be criticised, but it was a purely voluntary body, having no official connection with nor forming any integral part of the society in question; the latter gave it its hearty moral support. He hoped that, as the next meeting was to be held in London, many of the Cambridge pharmacists would join, and he assured them they would not be disappointed. Mr. Peck then went on to refer to

The Work of the Federation,

and stated that it had been viewed in the past erroneously, he submitted, rather in the light of a political caucus somewhat hostile to the Pharmaceutical Society, but, on referring to the rules, it will be seen that its objects are to assist the Council, and promote the interests of the Pharmaceutical Society and local associations, in every possible way to bind together the various associations throughout the kingdom, numbering between 40 and 50, having no official or other connection with each other, or with the central organisation, and by this means form a connecting link, which at the present time is clearly wanting between Associations and the Pharmaceutical Society through the local secretaries. It had been advanced by some that the work of the Federation was clearly the work of the Society itself, and would be much better done by the members of Council. He was not adverse to that view, but for reasons—no doubt wise ones, and best known to that body—they had not at present seen their way clear to do this, and thus followed the *raison d'être* of the Federation. He briefly alluded to the annual meeting of the Federation at Plymouth. The alteration of rules, the appointment of an executive, the forthcoming request by the Federation to various local associations to discuss the questions of the protection of chemists' titles, and company pharmacy generally.

Mr. A. Sidney Campkin, J.P., had much pleasure in proposing a hearty vote of thanks to Mr. Peck for his interesting report of the proceedings of the last conference at Plymouth, but before proceeding to speak in detail on the general subjects he asked one and all to join with him in congratulating Mr. Peck upon his recent appointment as an examiner of the Pharmaceutical Society. He had set up a high ideal, and with patience and perseverance had succeeded in reaching it. Such was not the lot of all, but they were all better for having attempted, if they did not succeed in reaching their ideal. He felt sure he should carry all with him when he said the Council had made an excellent appointment.

He thought the Conference would be of service if it acted in concert with the Society, and not as an independent organisation. He approved of the principles of the Federation. Its machinery was excellent. Its proposals for organisation were perfect, and all that was needed to secure the success of the Society, and the desires of the body of chemists, as a whole, was unity of action and complete co-operation. He trusted the points mentioned by Mr. Peck would be discussed in detail at a subsequent meeting, as their time was limited that night; but, as his opinion had been asked, he would briefly state that he considered it a primary duty to secure the insertion of a clause in the Companies Bill, having for its object

The Protection of the Qualified Chemist

against the unqualified trader and company promoter, and in this connection he had no faith whatever in those proposals which had for their object the legalising of trading companies under the cover of either the qualified manager or a qualified directorate, either of which would make their position as qualified and registered chemists worse than now, for at present no store could be carried on as regards sale of poisons (legally) without a qualified man, and if no one would lend themselves to it they could not exist. But what was essential to them was to secure the protection of title, and the same protection as existed with regard to the legal, medical, and other professions. The chemist should be rewarded in return for his long and expensive preparation, and the public interest demanded this, too, for its own protection and safety at the hands of the Legislature, and he thought the proposed clause of the Law and Parliamentary Committee went a long way in the right direction. He, for one, did not object to asking for too much; it was infinitely preferable to asking too little, for their experience was that when once an Act was obtained it was for good or ill for a long time, and it was most difficult to again reopen the question, at all events, for a generation or more. He would only point to the Pharmacy Act of 1868, which they had never been able to amend even in view of the injustice of the decision with regard to limited companies years since. Such decision was never contemplated by the framers of the Act. It had been fraught with mischief to the registered and qualified men under that Act and subsequently, and they should not rest until the Act has been so amended or a clause in the companies inserted, which should place every member of a company upon the same footing (as to responsibility) as is expected from a qualified chemist, and the acts of a company treated as the acts of an individual, which is not now the case, as both themselves and the public knew to their cost.

Mr. E. H. Church seconded the vote of thanks to Mr. Peck, which was put and carried with acclamation, after remarks had been made by Messrs. H. J. Parson, W. L. White, C. J. Addison, and B. Sidney Campkin. Mr. Peck replied to a remark that there were too many organisations at work—the Pharmaceutical Society, the Conference, the Federation—and stated he would heartily welcome a movement towards the combining of forces and the holding of the annual meeting of the Pharmaceutical Society, the sessions of the Conference, and the meetings of the Federation at one and the same place, not necessarily headquarters, on the lines of the Apotheker Verein in Germany.

On the proposition of Mr. Addison, seconded by Mr. W. Turner, it was decided to hold a meeting on December 1 to discuss fully the items suggested by the Federation in reference to the Companies' Bill.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

The ninth annual dinner of this Association was held on Wednesday evening, November 15, in the Café Royal, Regent Street, W. The President (Mr. J. F. Harrington) occupied the chair, and was supported by Mr. W. Martindale, President of the Pharmaceutical Society; Mr. E. M. Holmes, President of the British Pharmaceutical Conference; Mr. F. W. Gamble, President of the Chemists' Assistants' Association; Dr. A. P. Luff, Dr. B. H. Paul, Mr. Walter Hills, past-President of the Pharmaceutical Society; Mr. R. A. Robinson, Mr. E. N. Butt, and others.

After an excellent dinner and the usual loyal toast, Mr. R. A. ROBINSON proposed the toast of the

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

MR. ROBINSON said the Western Chemists' Association was well worthy of the approval and enthusiastic support of every chemist in London. It was established some ten years ago by Mr. Henry Long with the object of bringing together the chemists of the district to meet and discuss matters bearing upon their craft, and so establish a bond of friendship amongst them, and also to try to shorten the hours of labour. These were admirable objects for the Association, and he congratulated its members that it had lived so long and attained to its present flourishing condition. They could not all become members of the Pharmaceutical Council; some, although they might think themselves well qualified for the position, would have difficulty in persuading a sufficient number of others to think likewise; others, again, could not spare the necessary time. But they could all join the Western Chemists' Association, where they would have opportunities of expressing their opinions. Mr. Robinson then went on to speak of the burning question now before the pharmaceutical community, suggesting that although this was not exactly germane to the toast it might be advisable for the Association to discuss the question that night. The Pharmaceutical Society, he thought, might be compared to the Church, having a great many in its fold holding different views, some high, some low, and there was a crisis impending. But he ventured to say that if the Society strives only for what is just and right and best in the interests of all concerned, the crisis would have a satisfactory termination. It was a most difficult question, but he should like to express his opinions upon it. In the first place, he should hesitate very much indeed before disturbing the *status quo* the chemists of this country were placed by the Pharmacy Act of 1868. Under that Act it was made indispensable that the proprietor of a business should be a qualified person. Before that was allowed to be altered they must know what they were going to have in its place. He had heard the question asked, What does it matter who is the owner of a business so long as a qualified man is behind the counter? That really was the point to be settled. For the safety of the public, either the person who sells dangerous drugs must be qualified or the person who owns the business. In his opinion the greater safety was in having a qualified person as the owner of a business. If that principle was not upheld, what would it lead to? Suppose a company of seven unqualified persons was allowed to carry on the business of a chemist and druggist, how could they logically refuse to allow an individual to do the same? If pharmacists agreed to that they deliberately threw away the position given to them by the Act of 1868. There were difficulties in the way of a satisfactory termination to the question, but he thought they would be doing wisely and well in putting before the responsible Government what they believe to be the right course. He ventured to say that the Western Chemists' Association might very well consider the question that night, and boldly assert that inasmuch as a large number of persons have spent a considerable amount of time and money in order to comply with the provision of the Pharmacy Act, 1868, they are not lightly or easily to be deprived of the rights granted by that Act. But in anything that was done they must be unanimous. It was because a great many were of opinion that they cannot obtain their just rights that there was so great a rift in the Council of the Pharmaceutical Society. He had great pleasure in proposing the toast, and coupled with it the name of the President, Mr. Harrington.

THE PRESIDENT, in responding to the toast, said with reference to the suggestion made by Mr. Robinson, that as they had met there that evening to enjoy themselves, he did not think it would be advisable to have a discussion. Immediately after the last Council meeting he consulted with the Committee of the Association, and it was decided to have a discussion on the company problem at the December meeting. He should like to add to Mr. Robinson's remarks about their old friend, Mr. Long, who founded the Western Chemists' Association in the year 1890. It was due to his hard work that a small number of chemists were brought together to form the Association, which has gradually swelled to its present number of 130 members. He had heard from a friend that night that Mr. Long was suffering from a very severe illness, and he was sure all present would join in wishing him a speedy recovery. The President then went on to review the work done during the past session, and announced that the annual subscription to the Association was 2s. 6d., and that it was open to every chemist in London and the surrounding districts. The Association was of very great use, in that it gave the ordinary pharmacist an opportunity of speaking openly and publicly on matters of interest. He hoped there would be a good discussion at the meeting in December.

The PRESIDENT then gave the toast of

THE PHARMACEUTICAL SOCIETY AND ITS PRESIDENT.

He did not propose to say much about the Society, and as to the President, Mr. Martindale's name was known all over the world wherever an English pharmacy was to be found. As a member of the Council, he (the speaker) had a better opportunity than most of the members of the Society of knowing their President, and he could assure them that anything that Mr. Martindale puts his hand to he will carry through in an enthusiastic, thorough, and truly British fashion.

The toast was then honoured, followed by the enthusiastic singing of "For He's a Jolly Good Fellow."

MR. MARTINDALE, having thanked the President and those present for the kind and cordial manner in which the toast had been proposed and received, proceeded to give a brief sketch of the work carried on by the Society. In respect to the onerous duty of the Pharmaceutical Society with regard to the prosecution of offenders under the Pharmacy Act, he said there were many offenders against the Act who had to be prosecuted in the interest of the public and the craft; not only grocers and unqualified persons in stores and branch shops, but also qualified persons who do not follow their calling as they ought to do. With regard to pharmacy, it had three sections which are outside the Pharmacy Act, 1868—*viz.*, the wholesale trade in poisonous drugs, and dispensing in hospitals and surgeries. None of those sections were under the restrictions of the Act, but he thought that in order to be in strict ethical accord with the Act all should be under its control. Then, too, company pharmacy was referred to some years ago as being outside the Act. The result of that decision affected pharmacists deeply, for it entrenched on their domain in respect to retailing and dispensing, and was a great barrier to true individual pharmacy, that personal supervision in the pharmacy which the Act was called into existence to regulate. That decision had stood for twenty years, but the Law Lords now see and acknowledge the difficulties of the position, and the Pharmaceutical Council is considering a way out of the difficulty. It was a delicate subject to discuss at the present time, but he might say that the members of the Council are agreed upon two great points—*viz.*, to protect the titles and uphold the principles of the Pharmacy Act, 1868. He again thanked those present for the kind manner in which they had received the toast, and expressed the hope that all would work unanimously for one object—the general good of the craft.

The PRESIDENT, in giving the toast of

THE VISITORS,

coupled with it the names of Dr. A. P. Luff, Mr. E. M. Holmes, and Mr. F. W. Gamble, and stated that they had expected to have present a distinguished visitor, Mr. Mee, the past-President of the Pharmaceutical Society of New Zealand, but he regretted to say he was indisposed, and consequently was not able to be with them that night. He was sure that all would have been pleased to welcome Mr. Mee amongst them.

Dr. LUFF responded, and in a very interesting speech referred to his connection with pharmacy as a member of the Pharmaceutical Society and an honorary member of the Western Chemists' Association. He also spoke of the deplorable decline in the art of prescribing amongst the younger portion of the medical profession, and announced his intention to start a crusade to revive the art, in the interest of the public and of the profession.

Mr. HOLMES also responded, and, taking the risk of being termed a "Boer," took the opportunity to urge the claims of the British Pharmaceutical Conference for more general support by pharmacists. At the present time he believed it comprised only about one half the members of the Pharmaceutical Society, and one-eleventh of the pharmacists on the Register. He contended that the Conference should represent the scientific side of pharmacy in the same way that the British Association represents the country. He hoped that at the forthcoming Conference in London there would be a very large accession of members.

The last toast was that of "The Dinner Committee," proposed by Mr. WALTER HILLS, who coupled with it the names of Messrs. Cracknell, Mathews, and G. S. Taylor, each of whom replied. Mr. Hills went on to criticise Mr. Robinson's remarks at length, and expressed as his opinion that Mr. Robinson was aiming at impossible ideals. He also congratulated the President of the Pharmaceutical Society upon the skilful manner in which he had concealed his views upon the company pharmacy problem.

The arrangements for the dinner were admirably carried out under the supervision of the hon. secretaries, Mr. H. Cracknell and Mr. W. J. Philp, the musical programme being greatly appreciated.

LETTERS TO THE EDITOR.

The Company Pharmacy Problem.

Sir,—I am convinced that a very large number of pharmacists rejoice to see the reasonable and sensible course adopted by a majority of the Council at last meeting. Those who have carefully watched the course of events and tried to appreciate the existing situation, must have been convinced that not only pharmacists, but the Lord Chancellor and the House of Lords Committee, clearly see that some practical steps must be taken to fill up the legislative gap in company law in relation to the practice of medicine, as well as pharmacy. This, manifestly, is going to be done, whether we take a hand in it or not. Surely it is not only good tactics, but an imperative and inevitable duty on the part of pharmacists to secure that they should have the utmost possible influence in determining the shape of any legislation on a subject which so vitally affects them. I cannot understand the policy of those who take up the hopelessly impracticable position of saying they will have nothing to do with any proposals for the regulation of company pharmacy. I am equally at a loss to understand the position of those who accuse those who suggest regulation of company pharmacy of a desire to advocate that particular form of pharmaceutical practice.

I have attempted to read carefully all that has been published on this difficult and complicated subject. I feel we are in danger of losing ourselves in a mass of details. We badly need to look around, narrow down the situation, and concentrate our efforts on one thing at a time. We have to remember that for the present we are dealing with an amendment of the Companies Acts, and not with an amendment of the Pharmacy Acts. What may we reasonably attempt to accomplish in this connection? I have grave doubts about importing into a Companies Bill any provision of the nature of regulation of the practice of pharmacy. It appears to me to establish a dangerous precedent. Regulation of the practice of pharmacy should only be dealt with in a Pharmacy Bill, and I feel convinced that we would act wisely in adhering to a policy on that line. It is not reasonable to expect to accomplish all we may justly ask for in any mere Companies Bill. We should seek and never lose sight of a very substantial amendment of the Pharmacy Acts. But for the moment that must be allowed to stand aside.

How do we stand from this point of view? We are absolutely agreed that no company should be permitted to apply to itself any professional statutory title implying personal qualification. The ground for this view is very clear and simple, and readily commends itself to the judgment of any thoughtful person. That ground is that the general use of such personal titles by parties not possessing and incapable of acquiring the qualification implied therein destroys the statutory significance of the said titles, and proves misleading to the public, for whose safety the Legislature confers and protects them. I have had the honour of explaining this contention to several members of Parliament, and without exception they agreed that it was just and reasonable. A general provision against the use of certain titles by companies would be a relevant clause in a Companies Bill. Would it not be well to limit ourselves to this in the meantime on grounds of both principle and tactics? I entirely agree with those who believe that Clause 3 of the Companies Bill relating to medical practice has not the remotest chance of passing the House of Commons. I do not stay to argue the point, but I think it can easily be shown to be contrary to the public interest in its present form. Would it not be well for us to seek the withdrawal of Clause 2 of the Companies Bill and co-operate with medical and dental practitioners in securing such an amendment of Clause 3 as might be expected to reecive legislative sanction? Some such clause as this might do:—

> No company shall be registered under a name which shall include or consist of a name, title, sign, description, or addition which cannot by law be taken, used. or exhibited by a natural person, unless such person has a personal qualification; if any company shall take, use, or exhibit any name, title, sign, desoription, or addition which cannot by law be taken, used, or exhibited, unless the person taking, using, or exhibiting the same has a personal qualification, such company shall—(1) be deemed to be carrying on business for an illegal purpose within the meaning of this Act, and shall (2) be subject to the same consequences in all respects as though the company were a natural person taking, using, or exhibiting such a name, title, sign, description, or addition without having such qualification.

The above is not an original suggestion, but is well known as one which, a few years ago, commended itself to the medical, dental, and pharmaceutical authorities, and you will observe it founds itself entirely on the question of titles. It is also perfectly general in its terms, and not limited to the titles represented by these authorities.

But our object would be equally well, perhaps better, attained, and with less risk of effective opposition, by withdrawing Clause 2 and making Clause 3 read:—

> It shall be unlawful for a company to apply to itself or to any person not registered under the Medical or Pharmacy Acts the titles physician, surgeon, dentist, medical practitioner, chemist, pharmacist, midwife, or any word implying a medical or pharmaceutical qualification; and if any company contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

This suggestion could not reasonably be objected to, even by those interested in companies. It may not safeguard the practice of medicine and of pharmacy so completely as public safety requires, but it does accomplish one important object on which there is absolute unanimity among practitioners of medicine and pharmacy both, and other objects would be more appropriately dealt with in Medical and Pharmacy Acts respectively. I venture to submit this proposal as a means of clearing the field of much debatable matter, and securing that general agreement and concentration of effort which are the indispensable perquisites of effective action.

PHARMACEUTICAL CHEMIST (8/15).

Edinburgh, November 13, 1899.

Sir,—I am sorry that a large number of chemists believe that a qualified directorate should suffice in the case of limited companies. I don't think companies would object to that in the least; dummies could easily be nominated, and there are plenty of traitors in the camp. I wish to point out that it would be the "Wdiow's Clause" over again, and that we have hardly forgotten the "Grosvenor Hotel" scandal yet. Regarding your comment, Mr. Editor, on my letter published November 4, I thought it was plain enough for anyone to understand what I meant when saying "the companies' problem had been with us about twenty years." I was referring to the decision of the House of Lords. I still maintain that the members of the Council have not done their duty, and even now, when a little stir is made, the majority of them rush out through the back door.

November 11, 1899. PHARMACIST No. III. (8/16).

Sir,—I regret I was unable to attend the last meeting of the Council. I feel I must most firmly protest against the members of the Pharmaceutical Society giving up one iota of their right to titles which have been conferred on them after long and onerous examinations. I cannot but think that, when the question comes before members of Parliament (as I suppose it will during the next Session), all right-thinking men in that body will at least allow that—even in these days of free trade, with all its brazen effrontery—there is such a thing as fair trade, and that a company of men with one qualified assistant should not be able to commit an act which a single individual is not permitted to do. Under no circumstances should we be willing to allow that any set of men be allowed to *pirate* the word chemist or pharmaceutical chemist unless every individual member is qualified.

Norwich, November 11, 1899. OCTAVIUS CORDER.

Ethics as Applied to the Practice of Pharmacy.

Sir,—I hope the well-chosen remarks of Mr. J. C. Hyslop, addressed to the Chemists' Assistants' Association on the 26th of last month, and reported in the Journal of the 4th inst., anent the sale by pharmacists of specialities for immoral uses will find a deep echo in the consciences and minds of many amongst us. It seems altogether incongruous for those who deal in such things to be seeking increased state protection when the sale of the goods in question tends and can only tend to national demoralisation. To supply the best remedies for diseases brought on by personal vice or otherwise is the honourable work of the pharmacist, but to make himself the channel through which the abominable goods referred to reach the public is unworthy of one who asks for recognition at the hand of his fellows as a qualified and professional man, and one to whom state protection is befitting. The smallest amount conceivable of the "Fear of the Lord, which is the beginning of wisdom," would surely correct this growing evil. That young men, especially apprentices and improvers, should be trained to regard such training as a necessity is a disgrace to our calling.

Exeter, November 8, 1899. CHARLES FLINT.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Students' Books (T. E. B.—35/31).—Order the books as you require them through a local bookseller.

Latin Grammar (H. S.—36/12).—Ince's 'Latin Grammar of Pharmacy' (Baillière, 5s.) is the best for the purpose.

Malt Extract and Hypophosphites (G. T.—36/10).—The preparation is not a very stable one; however made it will not keep indefinitely, possibly from the action of the malt sugar on the hypophosphites. On keeping, a marked odour of phosphoretted hydrogen is developed. To obviate that, partially mix the ingredients in the cold, and keep in well closed bottles in a cool, dark place. It is important that the hypophosphites used should be free from sulphates. Bird finds that the presence of sulphates as impurities gives rise to an unpleasant odour. See *P.J* [3] **25**, 159.

Polarimeter for Essential Oils (H. C. T. G.—36/2).—An excellent small, portable and cheap instrument which would probably be sufficient for your purpose is Zeiss' Saccharimeter, which you can obtain from Messrs. Chas. Baker and Son, opticians, 244, High Holborn, W.C. Order it with a 100 Mm. tube, as the ordinary saccharimeter tube, which is 200 Mm. long, takes too much oil, and with some dark oils renders the reading less distinct. For more delicate work, you should obtain a "half shade" instrument of the Laurent type. Messrs. Watson and Co., 313, High Holborn, W.C., make an excellent polarimeter of this description.

Registering a Trade Mark (J. E.—35/25).—Having filled in a form of application, which may be obtained at the nearest money order office on payment of five shillings, you should send it to the Comptroller, Patent Office, Trade Marks' Branch, 25, Southampton Buildings, Chancery Lane, London, E.C. If he accepts the mark for registration, you will be required to pay a further fee of twenty shillings for the registration form and, if there is no opposition the mark will be placed on the Register without further fee for fourteen years. Refer to the Pharmaceutical Society's 'Calendar' for further particulars.

Meat Extract Lozenges (R. C. C.—35/35).—This is a subject which can only be solved by experiment. Probably something on the following lines will suit you:—Treat lean beef, as in making "beef tea," avoiding too high a temperature; strain and press the meat fibre left; dry it in an oven, and grind it in a coffee mill. Meanwhile evaporate the watery portion to an extract, incorporate sufficient of the ground meat to form a paste, add sufficient salt to keep it, and cut into lozenges. When set, dip them in a little melted beef dripping so as to coat them and protect them from the atmosphere. This is only a suggestion of lines on which you may experiment for yourself.

Vacuum Still without Pump (A. W.—35/34).—Probably you might succeed by one of the two following methods:—(*a*) Connect a receiver, fitted with a vent cock, air-tight on to the condenser, and let the condenser jacket be empty, *i.e.*, not surrounded by water. Connect with the still, open the vent cock, and heat. When vapour issues freely from the vent, shut it off, and immediately let water into the condenser. You should have a mercury safety tube attached to the receiver, as a precaution against undue pressure. (*b*) Fit up the apparatus as before, but with a receiver as large as possible, and fitted with a bottom tap. Fill the receiver with water. Introduce the liquid, preferably warm, into the still. Make all tight, then run out nearly all the water in the receiver.

Effervescing Saline (W. W.—36/7).—The ingredients you mention appear to suit the label very well; we fail to see that the addition of citric acid would make the description of the article more "truthful"—as you put it. That is a matter between yourself and your conscience, on which we do not feel competent to advise. The connection which you seem to make between truth and citric acid is not very obvious. It would almost seem that the real truth of the matter is that you want to make as cheap an article as possible to accompany the "truthful" label. If that be so use no citric acid, as it is not necessary; but, on the other hand, the substitution of a portion of the tartaric acid with an equivalent quantity of citric acid, will give you a slightly more palatable article. The tartarated soda should not be omitted, unless neutral sodium tartrate—which is preferable—is substituted. The following is the recipe you should use:—Tartaric acid, 14; sodium bicarbonate, 23; neutral sodium tartrate, 63. Potassium chlorate should be avoided in compounding salines. In the presence of the faintest trace of damp it causes the bottles to burst, and also, when this does not occur, often imparts a peculiar unpleasant odour to the powder.

Cider and Perry (J. T.—35/33).—Unfortunately, cider varies so much that no general analysis will convey much information; the amount of alcohol alone varies enormously; some of the old "Foxwhelp," or other strong bottled Herefordshire cider is strongly alcoholic, so much so that a relatively small quantity will produce intoxication. Those, however, are special brands. As a rule, the amount of alcohol is not very high, but is greater in the Hereford than in the Devonshire variety, hence Herefordshire cider keeps better in bottle than Devonshire. An analysis of Brittany cider by Rousseau, quoted in Allen's 'Commercial Organic Analysis,' vol. 1, p. 99, gives the following figures:—Alcohol by volume, 2·05 per cent.; residue on evaporation, 1·93 per cent.; sugar, 0·25 per cent.; ash, 0·152 per cent. Rabot, however, gives widely different figures: According to him, good cider one year old contains from 5 to 6 per cent. of alcohol and 3 per cent. of extractive; 0·28 per cent. of ash; of which 0·215 is soluble in water. So far from cider being objectionable for gouty patients, it is now much prescribed in those cases. Probably, however, very "hard" cider would not be suitable, since it would be apt to derange the digestion. We are not able to find any analysis of perry. It is generally supposed to have a decided diuretic action on those who are not inured to its use. Possibly that may be the reason why your professional friend considers it specially useful to gouty patients. Perry is usually less acid, but more alcoholic than ordinary cider. An analytical comparison of several good brands of the two beverages would prove interesting, and is a subject that West of England pharmacists might investigate.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Austen, Barker, Bell, Bennison, Boisselier, Branch, Brown, Brunt, Campkin, Cocks, Cowley, Davis, Duncan, Elborne, Flockhart, Gaumont, Harrington, Haslegrave, Henderson, Hyslop, Kirkpatrick, Kraemar, Leete, Lennox, Linton, Luman, Maben, McWalter, Martindale, Mills, Mitchell, Morris, Naylor, O'Counell, Phillips, Philip, Scott, Sargeant, Simpson, Smith, Southall, Stoul, Thorpe, Treloar, Turner, Wallace Welcome, Wyatt.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

CONSTITUENTS OF POWDERED DRUGS.

M. W. Bamford has examined powdered senna of different degrees of fineness. The senna was exceptionally clean, and the percentage of ash was not found to vary appreciably in powders passed through sieves of varying mesh. A No. 8 powder yielded from 9·89 to 10·19 per cent. of ash, and a No. 80 powder from 9·93 to 10 50 per cent. A coarsely ground powder was separated into three distinct fractions by sifting—the No. 8 yielded 10·17 to 10·20 per cent., the No. 30 from 10·64 to 10·85 per cent., and the No. 80 from 10·70 to 10·96 per cent. Some ipecacuanha was also examined, after separating the bark (80 per cent.) from the wood; the bark yielded 2·44 to 2·45 per cent. of ash, and the wood 1·47 to 1·69 per cent. The larger proportion from the bark was due to the presence of calcium oxalate and adhering particles of sand. Coarsely powdered ipecacuanha was then divided into fractions of different degrees of fineness; that which did not pass through a No. 20 sieve yielded 1·90 to 2·14 per cent. of ash, and that which passed through a No. 80 sieve from 12·35 to 12·54 per cent. A microscopical examination showed that the coarse powder consisted principally of woody tissue and a small proportion of bark; the No. 80 powder consisted chiefly of bark with a larger percentage of sand and other foreign matter.—*Am. Journ. Pharm.*, **71**, 511.

ARTIFICIAL SUGAR-FREE MILK.

In a treatise on the treatment of diabetes, R. T. Williams has recommended the following method of preparing a milk which is practically free from lactose. A pint of water is placed in a tall vessel, and two or three tablespoonfuls of fresh cream is well stirred up with it. The mixture is allowed to stand for twelve to fourteen hours, when most of the fatty matter of the cream rises to the top and may be collected. This is practically free from milk sugar. It is then mixed with water, and the white of an egg added, then more water to bring the mixture to the colour and consistence of milk. A little salt, or a trace of saccharin may be added, which will produce a palatable and nutritious beverage. Lauritzen has slightly modified this, omitting the egg albumin and the saccharin. He mixes 100 C.c. of cream with three times its volume of water, allows it to stand for twelve hours, then, every 50 C.c. of the separated and washed cream is diluted with 200 C.c. of cold water. He has obtained good results with this beverage in eight cases of diabetes.—*Med. Chron.*, **2**, 97.

CHLOROGLOBIN.

According to Tsvett, chlorophyll and xanthophyll exist in the living plant in a state of loose combination with an albuminoid, the compound formed being analogous to the hæmoglobins of animals; he has, therefore, named it chloroglobin. To obtain it, a saturated solution of resorcin is employed in which it is readily soluble. After removal of the resorcin by washing in water, the chloroglobin obtained is soluble in alcohol, ether, benzol, chloroform, and carbon disulphide, and in strong aqueous solutions of chloral hydrate, but after treatment with certain coagulating reagents, such as mercuric chloride, tannin, formaldehyde, it ceases to dissolve in these solvents; like the albuminoids, it has a great affinity for certain colouring matters, such as fuchsine, chrysoidine, and methylene blue. The solution in neutral aqueous resorcin decomposes in a few hours, throwing down a deep green granular deposit, and crystals of xanthophyll.—*Comptes rend.*, **129**, 607.

COLOUR OF ESERINE SOLUTIONS.

O. Hallauer finds that, although solutions of eserine salts which have become coloured are quite as active myotics as those which are colourless, yet secondary results are produced by them, which render their use undesirable. He finds that there are no perfectly stable preparations of eserine on the market, the decomposition being caused by the blue rays of the spectrum. The stability of the specimens may be tested by adding ammonia and heating the solution to a temperature of over 80° C. Development of the colour may be prevented, either by the use of sulphurous acid or of a 4 per cent. solution of boric acid; these additions do not affect the physiological action of the alkaloid. The salicylate is a more stable salt than the sulphate. —*Therap. Monats.*, **13**, 561, after *Zeits. fur Augenkeilk.*

ANHYDROUS MAGNESIUM CARBONATE.

On heating the double carbonate of ammonium and magnesium $(NH_4)_2CO_3MgCO_34H_2O$ in a current of dry air, gradually raising the temperature to between 130°-140° C., the residue consists, according to R. Engel, of practically pure anhydrous magnesium carbonate, which retains the crystalline form of the double carbonate. It has a great affinity for water; when exposed to the air it becomes hydrated as quickly as lime under the same conditions; the amount of water thus combined is a little more than 1·5 molecules for each molecule of the neutral carbonate. It is soluble in water to the extent of 0·2:100, whereas the hydrated carbonate is only dissolved in the ratio of 0·1:100, and the natural anhydrous carbonate is insoluble in water. Mixed with a little water, it sets like plaster, and when suspended in a large quantity, it rapidly forms crystals of the composition $MgCO_33H_2O$. Exposed to gaseous ammonia, it absorbs a little more than one molecule for each two molecules of magnesium carbonate. In all these properties it differs so markedly from the native magnesium carbonate that the difference can hardly be attributed to its physical condition. If, during the course of preparation, the temperature is allowed to rise to between 160°-180° C., the salt undergoes decomposition, with the loss of CO_2, whereas the native carbonate may be heated to dull redness without decomposing. The double carbonate of magnesium and ammonium is obtained by mixing solutions of magnesium bicarbonate and of ammonium bicarbonate both saturated with CO_2 and exposing the mixture to the air. The double sesquicarbonate, $MgCO_3NH_4HCO_34H_2O$ does not exist.—*Comptes rend.*, **129**, 598.

SODIUM METAVANADATE.

Pécourt points out that to obtain sodium metavanadate in the most active form, the following details must be strictly observed:—Pure vanadic acid, obtained by calcining ammonium vanadate, is dissolved in excess of caustic soda; then, while boiling, the excess of alkali is neutralised with acetic acid, and the boiling continued until the liquid is concentrated as far as possible, without the separation of crystals. It is then precipitated with strong alcohol, which removes the greater part of the sodium acetate. The yellow precipitate is redissolved in boiling water, and reprecipitated with alcohol, until free from acetate. This should be effected rapidly, since prolonged boiling with alcohol materially reduces the vanadate. With regard to vanadate of lithium, which has been recommended, the author remarks that the salt must necessarily be administered in such infinitesimal quantities, that the amount of the metal absorbed could have no notable effect. He also expresses doubt as to the existence of true vanadates of the alkaloids, in view of the extreme instability of vanadic acid in the presence of organic matter. For this reason too, the acid or its salts should not be prescribed with sugar, syrups, or wines. Organic matter of any kind should be avoided.—*Repertoire* [3], **11**, 487.

THE PREPARATION OF BETULIN BY SUBLIMATION.

BY J. WHEELER.

Although the eupyreumatic oil of birch has long been used both in medicine and the Arts, the employment of betulin and pyrobetulin as such do not appear to have received attention in medicine. The antiseptic and insect-repelling properties of the oil as utilised in Russia leather have, however, long been known.

My attention was directed a few years ago to the remarkable resistant power that the epidermis or outer bark of the white birch presents to decay. This is illustrated by the fact that the Lapps and Samoyedes (according to Mr. H. Cooke, H.M. Consul at Archangel) cover their tents with it, and that in Archangel it is largely employed in the form of large deep boxes for carrying milk.

The properties of betulin are as follows: — Formula $C_{36}H_{66}O_3$. When heated to 266°F. it gives an anhydride. It is tasteless, inodorous, melting slowly at 496° F. to a yellow oil, subliming readily in a current of air. It is entirely insoluble in water and does not combine with either alkalies or acids. It is sparingly soluble in alcohol, but readily in ether, oil of turpentine and almond oil. It dissolves rapidly but quietly in oil of vitriol, forming a solution which solidifies and turns white with water. Hufeland estimated the yield at 10-12 per cent. of the bark. He obtained it by boiling the bark in the strongest alcohol and purification of the tincture, so obtained.

The method I adopt for obtaining betulin is as follows:—

(1) The tough outer bark or epidermis of *Betula alba*, after reduction to a powder of not less than 60 fineness, is mixed with from 1-8 per cent. of potassium nitrate, according to the result to be obtained, and is then compressed into tablets or blocks. These are burnt, without flame, in a closed chamber, the proportion of oxygen-carrier and air currents passing through the lamp containing them being regulated, according to the degree of conversion into anhydride that may be desired. The vapour of betulin thus obtained is employed for producing on articles or materials, porous opaque films, or reticulated transparent films of, or containing pyrobetulin or pyrobetulin anhydride in different degrees of conversion. The character of the film obtained depends upon the proportion of nitrate of potassium employed and the amount of air allowed to circulate between the tablets when undergoing ignition, as follows:—

(1) Tablets containing 8 per cent. of this salt with free supply of air give a film of a porous opaque character.

(2) If arranged in close contact they give a transparent non-porous film which, deposited on glass or metal, prevents the action of hydrofluoric or nitric acids.

(3) Tablets with only 1 to 1½ per cent. of nitrate, burnt in close contact, give a glistening transparent film of a reticulated appearance, which, treated with hydrofluoric acid, gives a similarly reticulated surface to glass. This can be employed for imparting grain to process blocks, etc.

Experiments made with the pyrobetulin-anhydride film showed that it was successful in preserving eggs in a fresh condition, and that an alcoholic solution of it acted as an antiseptic for readily putrescible fluids, such as urine, etc. Fifty minims of an alcoholic solution containing rather less than 1 grain of the anhydride indefinitely protecting 4 ounces of urine exposed to the air. For rendering plasters more resistant of moisture, with greater holding power and antiseptic property, No. 1 process should be followed. The process No. 3 is most effective for depositing a film on lint or on boric acid powder, or on other dressing material. Lint furnished with such a film is found to be perfectly sterile of pathogenic organisms, no matter how long the incubation be prolonged. When the lint was exposed film side downwards on a gelatin (agar-agar) plate and various organisms as occurring in suppurative discharges were poured over the lint, no growth resulted. Both the lint and filmed boric acid have been proved by surgeons having large hospital practice to act as reliable antiseptics and bactericides, and to possess quite characteristic healing powers. The anhydride also forms a most dependable insecticide.

The average yield from the bark by my No. 1 process is 20 per cent. of pyrobetulin; by No. 3 process, 25 per cent. of pyrobetulin anhydride; but the bark percolated by ether for several days gave 30 per cent., the percolate still exhibiting in a slight degree the characteristic irrdescence which is so striking a feature of weak betulin solutions when rapidly evaporated. The small proportion of pyrobetulin obtained, in proportion to pyrobetulin anhydride, I attribute to the more rapid combustion by the No. 1 process.

The above processes and their application have been patented in most European countries, and in the United States.

The following embody the forms of utilisation, based upon adequate trials by medical men in hospitals:—(I.) "Listulin Filmed Lint.—A dry, non-irritating, bactericidal dressing of lint filmed with pyrobetulin anhydride, by which perfect asepsis may be secured. (II.) Boro-"Listulin."—A sterile, non-irritating, powder of finely-levigated boric acid filmed with pyrobetulin anhydride, for dusting purposes; also with insufflator into cavities; mixes readily with an oily, vaseline, or lanoline basis. (III.) "Listulin" Strapping Plaster.—Filmed with pyrobetulin. The filmed antiseptic surface having a high melting point, and being unaffected by moisture, the surface is thereby rendered less likely to shift or become dislodged. "Listulin" Collodion and "Listulin" Oil are also prepared.

THE ASSAY OF EXTRACTUM IPECACUANHÆ LIQUIDUM.

BY F. H. ALCOCK.

EXPERIMENT I.—If five cubic centimetres of liquid Extract of Ipecacuanha be mixed with ten cubic centimetres of ether and vigorously shaken, a slimy precipitate of a dark reddish brown colour is formed which adheres to the sides of the vessel, and the liquid portion becomes nearly clear and has a slight yellow colour.

EXPERIMENT II.—If five cubic centimetres of Liquid Extract of Ipecacuanha be mixed with five cubic centimetres of B.P. dilute sulphuric acid and ten cubic centimetres of ether, and well shaken and then allowed to rest, the liquid separates into two clear layers—an upper ethereal layer of a yellow colour, a lower layer of a deep reddish brown colour.

Based upon these two experiments, the following method of assay is suggested which possesses several advantages over the official process, in that it is quickly performed, is more accurate, and is not so "messy," and even in unskilled hands yields concordant results when quantities of from one to five cubic centimetres are operated upon.

Proceed as in the second experiment, which may be conducted in a well-corked bottle, remove the ethereal layer by a teat and pipette, and wash the lower layer with five cubic centimetres of ether, mix these solutions and wash them twice with small quantities of water and add these washings to the alkaloidal solutions if thought desirable.

The ethereal solution on evaporation shows the amount of fatty matters, and does not contain any alkaloid.

To the alkaloidal solution contained in a separator add seven and a half cubic centimetres of ether-chloroform (one volume of former and two or more volumes of the latter), render alkaline with ammonium hydroxide, shake well, warm to 120° F., separate the lower layer, wash a second time with the alkaloidal solvent in suitable quantity, remove and repeat the washing if necessary, and evaporate the alkaloidal solution in a tared dish in the usual way. A flocculent precipitate of a brown colour appears after the addition of the alkali and alkaloidal solvent, which sometimes interferes with the separation, but this can be overcome by aspirating the whole liquid through cotton "wool," washing the "wool" with a few cubic centimetres of ether-chloroform afterwards.

BITTER ORANGES.*

BY H. H. ROBINS.

In the London market this fruit is known under the name of "Sour Oranges."

They are chiefly imported from Malaga, Seville, and Messina. In this order they arrive. The Malagas have just now commenced, but they are very pale in colour, the Sevilles reach us about January, and the Sicilians February and March. Malaga supplies the largest quantity, and Seville the smallest, but no statistics are obtainable. There is in certain quarters an impression that only this latter fruit is the official variety. This error probably arises from the Seville district being the first to put on the market bitter fruit.

I was shown this week by a firm of City brokers a catalogue of a fruit sale in the year 1776; it contained a lot of six cases of Sevilles, but no mention of any other kind.

It was customary twenty years ago to speak of all bitter oranges orange or Seville orange."

In Bentley and Trimen it is stated that "the fruit is imported from the South of Europe, and is known in London as the bitter orange or Seville orange.

The London Pharmacopœia, 1857, orders peel dried in February, March, and April to be used."

The B.P., 1864 and 1867, describes ripe fruit imported from the South of Europe.

In the additions to the B.P., 1874, ripe fruit, under the name of bitter orange, was introduced, of which tinct. fresh peel was then ordered for the first time. The present B.P. simply mentions the peel of bitter oranges, and from the description given of the fruit only the fully matured is intended.

The bulk of the fruit imported is used by confectioners for making orange marmalade and preserved peel. Distillers are large users of both the dried and fresh peels in the manufacture of cordials, liqueurs, orange wine, etc. The drug and mineral water trades consume comparatively a small quantity. The outer part of the pericarp is the only official portion of the fruit used, so producers of this are left with the remaining pulp and pith.

These are known by them as "dummies," though they nevertheless help to produce a special transparent kind of marmalade, much in favour with the Scotch. It is important to use peel from ripe fruit in the official preparations, for then only is the full flavour of the essential oil obtained.

The present tincture is a good preparation, but it would be improved if it contained more of the peel.

Last season I secured representative samples of ripe fruit from each of the before-mentioned sources, and the tinctures shown were made respectively from them.

The specific gravities and extracts obtained by evaporating the tinctures in a water-bath until they ceased to lose weight are as follow:—

Source of Fruit.	Sp. G. Temp: 60° F.	Grains Extract per Fl. oz.	% Extract.
Malaga	0·8808	9·05	2·35
Seville	0·8808	8·47	2·20
Messina.....	0·8811	9·04	2·35

It will be found that the tincture made from Messina fruit has the finest aroma, and this when diluted with 500 times its bulk of water still possesses an orange odour. This under similar conditions is not perceptible in either of the other samples.

There is apparently no difference in their relative bitterness. This property of the peel is fully developed in its unripe stage, and preparations made from such fruit are doubtless as useful for tonics as those made from the ripe, but they are certainly not so pleasant.

The percentage of extract in these tinctures is no guide to their strength.

The pith from lemons will yield more extract to 56 o/p spirit than the rind (the outer part of the pericarp), and the same is no doubt true of the orange.

Oil of orange is almost entirely volatilised at the temp. of a water-bath, and any results obtained by such a method are absolutely misleading.

I probably ought to mention a variety of bitter orange that comes in small quantities from Jaffa. This fruit is better grown and finer in every respect than that from any other district.

* Read at a meeting of the Chemists' Assistants' Association on Thursday, November 16.

THE MATERIA MEDICA OF THE SOCIETY'S MUSEUM.

BY E. M. HOLMES, F.L.S.,

Curator of the Pharmaceutical Society's Museums

Tea Leaves.

Camellia Thea, Link.—The specimens in the Museum consist at present of (1) The leaves of the plant dried; (2) Black tea of commerce; (3) Green tea of commerce; (4) "Flower" of tea; (5) Chinese "old man's eyebrow" tea; (6) Brick tea used by the Tartars. None of these, except perhaps the "flower" of tea, represents the form of tea used for the extraction of caffeine, which is obtained from much cheaper sources. The tea damaged in sea voyages, and the tea-dust consisting of the sweepings of the sifting rooms, etc., in the manufactories and warehouses, are used for the purpose, after being "denatured" by the Customs authorities in this country by the addition of asafœtida and lime. Black tea differs from green tea in being fermented before drying, whereas green tea is dried before being fermented, and thus retains its colour (Greenish, 'Mat. Med.,' pt. 3; Fortune, 'Wanderings in China,' vol. ii., pp. 232—246). Indian tea yields more caffeine than Chinese tea and also more tannins, Chinese affording 3½ to 3¾ per cent. of caffeine, and Indian, including Assam and Ceylon, on the average 4¾ per cent. The average amount of tannins is 9 per cent. in Chinese, and 13 per cent. in Indian teas. Indian tea is apt to produce in those unaccustomed to its use symptoms resembling those of gastric catarrh, but whether this is due to the excess of tannin or of theine has not been determined. In the manufacture of Indian tea, the juice which exudes on rolling the tea-leaves is reabsorbed by the balls into which the rolled leaves are made—but this is not done in China. The commercial value of tea does not depend on the amount of caffeine present, but on the odour and "body" of the infusion. The odour may be formed in the process of fermentation, or may be the result, in high-priced Chinese tea, of contact with fragrant flowers. Those chiefly used for the purpose are the flowers of rose, jessamine and *Chloranthus inconspicuus*, *Aglaia odorata*. and *Murraya exotica* (Fortune, 'Wanderings in China,' vol. i., p. 293, 1853). Specimens of these exist in the Chinese collection of drugs. The "body" of tea is indicated by the opacity of the infusion as it cools, due to the formation of a cloudy precipitate, which is less soluble in cold than in hot water, and is supposed to be a tannate of caffeine, but its exact composition does not appear to have been determined. There is probably more than one form of tannin present in tea (Winter Blyth, 'Food').

Besides caffeine (trimethyl-xanthine), tea yields traces of theophyllin, an isomer of theobromine (dimethyl-xanthin), but differs from it in the amount of water of crystallisation and solubility in water, and in melting at 264° C., theobromine subliming without melting at 290° C. See *Pharm. Journ.* [3], **19**, p. 41.

Flower of tea consists of the hairs of the unopened leaf-buds in making flowery Pekoe tea, for which only the two youngest leaves of the twigs, besides the unopened leaves, are employed. A description of this article was given in *Year-Book Pharm.*, 1876, p. 609. The hairs are whitish on the fresh leaves, but become brown in the process of firing the tea. (See Money, 'Tea Cultivation,' 3rd edition. London, 1878; pp. 132—143.)

Chinese "old man's eyebrow" tea is a fancy tea; it is in the form of small bundles or faggots of a brownish tint, composed of twelve or

more twists of tightly screwed leaves. The bundles are about five centimetres long, and two in diameter, and are sold at a high price. These may be seen in the Hanbury collection, and were made in Yunnan, and presented by Mr. A. Fortune to Mr. D. Hanbury in 1852.

The Brick tea is a specimen brought home from Russia by Professor Greenish. It is a portion of a hard, flat, solid cake, about 1½ centimetres in thickness, and possesses considerable fragrance. It differs entirely from the large bricks composed of loosely compressed leafy tips exhibited in the No. 1 Museum at Kew, where an excellent collection of various forms of tea may be seen. These are described in Cooper's 'Travels of a Pioneer of Commerce,' London, 1871, pp. 171—173, 201. See also 'Encyclopædia Britannica,' Art. "Tea."

Besides these forms of tea there are in the Museum specimens of tea fruits imported under the name of "Tanne" seed, and a fixed oil, derived from the seeds of *Camellia japonica* and *C. oleifera* (*P.J.* [3], **15**, pp. 634—637), as well as the cake left after the expression of the oil. The seeds contain about 10 per cent. of saponin, (*P.J.* [3], **14**, p. 21). The oil is a non-drying oil and, examined by Mr. R. W. Davies, was found to contain 83 per cent. of oleic acid. It is used by the Chinese for hair oil. The seed cake (presented by Mr. H. Humphreys, of Hongkong) is used by the Chinese as an insecticide for garden insects and worms (in the form of infusion or decoction), and as a fish poison, also as a soap for cleansing the person and clothes.

There are specimens of the China and Assam tea plants in the Herbarium of the Society.

The microscopical structure of tea leaves and the distinctive histological characters of other leaves used as substitutes of tea are well illustrated in Tschirch and Oesterle 'Anatomischer Atlas,' taf. 3. The idioblasts found in true tea leaves do not occur in any of the substitutes at present known.

Other so-called teas in the Museum collections are classed under the respective countries in which they are employed, viz.: —

Abyssinian or Arabian Tea (*Catha edulis*, Forsk., Celastraceæ), described in *Pharm. Journ.* [1], **12**, p. 269, and its active constituents in [3], **18**, p. 1009.

Batoum Tea (*Vaccinium arctostaphylos*, Linn., Ericaceæ), an account of which is given in *P. J.* [3], **15**, pp. 573—771.

Bourbon or Faham Tea (*Angræcum fragrans*, Thon., Orchidaceæ), 'Gard. Chron.,' 1850, p. 599; 'Kew. Bull.,' 1868, p. 181; Bouton, 'Flore Méd. de Maurice,' p. 129.

Brazilian Tea (*Stachytarpheta jamaicensis*, Vahl. Verbenaceæ), Lunan, 'Hort. Journ.,' **2**, pp. 257, 258; 'Treas. Bot.,' **2**, p. 1090.

Cape or Bush Tea (*Cyclopia genistoides*, Vent., Leguminosæ), *P.J.* [3], **11**, p. 549; Pappe, 'Fl. Med. Cap.,' p. 9.

Labrador Tea (*Ledum latifolium*, Jacq., Ericaceæ), 'Amer. Disp.,' 1895, p. 478.

Mountain Tea (*Gaultheria procumbens*, Linn., Ericaceæ), 'Nat. Disp.,' 1886, p. 724.

New Jersey Tea (*Ceanothus Americanus*, Linn., Celastraceæ), 'Nat. Disp.,' 1886, p. 407.

Oswego Tea (*Monarda didyma*, Linn., Labiatæ), 'Nat. Disp.,' 1886, p. 987.

Paraguay Tea (*Ilex paraguensis*, A. St. Hil., Aquifoliaceæ), 'Nat. Dis.,' 1886, p. 810. This tea is employed in two different forms (1) Broken leaves, (2) powdered leaves and stalks. The first is employed in Brazil, the second in the Argentine Republic. Specimens of the gourd and the pipe-like strainer or "Bombilla" used in making and drinking the tea are also shown in the Museum.

West India Tea (*Capraria biflora*, Linn., Scrophulariaceæ).

None of these except *Ilex paraguensis* contain caffeine, which, however, is found in cola (*Cola acuminata*, Schott and Endl., Sterculiaceæ), and Guarana (*Paullinia cupana*, H. B. and K., Sapindaceæ). An interesting specimen of the latter drug moulded in the form of the fish Piraruccu, and of the dried tongue of that fish, which is used for grating the drug, may be seen in the Museum, presented by Sir Samuel Wilks, Pres. R.C.P.

Coca Leaves.

ERYTHROXYLON COCA, LAM.—The specimens of coca leaves in the Museum include (1) Peruvian or Truxillo coca, derived from *Erythroxylon coca*, var. *novo-granatense*, Morris, and an original package of the leaves, (2) Bolivian or Huanuco coca obtained from *E. bolivianum*, (3) Coca leaves from a plant cultivated in Java under the name of *E. coca*, var. *Spruceanum*, Burck., (4) Specimen of Bolivian coca cultivated in Ceylon. Botanists are not agreed as to the specific rank of the three plants, some considering them as varieties of one species (*P.J.* [3], **22**, p. 874). The leaves are, however, distinctly different in appearance, those of the Bolivian plant having a brownish-green tint, a thicker texture, a reddish midrib, and a slender ridge in the centre of the upper surface of the midrib, and are about twice as long as broad. The Peruvian leaves are of a pale green colour and thin texture, are very brittle, the midrib is greenish, and has no ridge on its upper surface, and the two lateral lines, marking where the leaf is folded in vernation, are less marked; they taper considerably to the base, and are about three and a-half times as long as broad. The Java leaves are about two and a-half times as long as broad, but otherwise resemble the Peruvian leaves, except that the apex is not rounded but acute. It, however, differs in habit of growth (*P.J.* [3], **22**, p. 818) and in the proportion of its alkaloidal constituents, containing more cinnamyl-cocaine and truxilline (or isatropyl-cocaine or cocamine) than the other varieties. It also yields benzoyl-pseudotropeine (*P.J.* [3], **23**, p. 241). Truxilline is the alkaloid to which the occasional poisonous effects of cocaine have been attributed (*P.J.* [3], **22**, p. 874), and is also found in Peruvian coca. Benzoyl pseudotropeine is less toxic than cocaine, and is better adapted for use in operations on the eye. Coca leaves rapidly lose in cocaine percentage if exposed to damp air. Hence crude cocaine is now largely imported from Peru, and purified in this country (*P.J.* [4], **5**, p. 78), and will in future probably be imported also from India and other countries where the plant is cultivated. The natives of Peru chew the leaf with an alkaline ash sprinkled over it, and as alkalies readily split up the alkaloid into ecgonine, methyl alcohol, and benzoic acid, it appears probable that the supporting property of the leaves under strenuous exertion must be due to ecgonine rather than to cocaine, the latter alkaloid acting as an anæsthetic rather than as a cardiac stimulant. The fact that benzoyl-ecgonine acts as a stimulant like caffeine without producing anæsthesia seems to support this view.

For the microscopical characters of the leaf see *P.J.* [4], **8**, p. 484-5. The alkaloid is represented in the Museum by the hydrochloride of cocaine. The test for its purity is given in *P.J.* [3], **18**, p. 781; [4], **6**, p. 586. The presence of another alkaloid in small quantity, viz., hygrine, has been disputed, but it was found by Dr. R. Stockman in tincture made from fresh leaves.

In the Herbarium there are specimens of the wild or nearly wild *E. bolivianum;* of the finest sort in cultivation (much resembling *E. spruceanum*, having a rather thinner and narrower leaf than *E. bolivianum*) collected by Dr. H. H. Rusby in Bolivia; specimens of *E. novo-granatense* cultivated at Kew, and by Mr. T. Christy, at Sydenham; specimens of Bolivian coca cultivated in Ceylon; and of both, cultivated in India, from Dr. Prain. These specimens show that the flowers of *E. bolivianum* occur in thicker clusters and with shorter stalks, and have a darker brown fruit than those of *E. coca*, var. *novo-granatense*. The plant appears to be a trimorphic, since Benth. and Trim., 'Med. Plants,' p. 40, represent the flowers of *E. coca* (var. *novo-granatense ?*) with short styles and long stamens, and Koehler, 'Med. Pflanz.,' i., p. 82, *E. coca*, var. *spruceanum ?*), with long styles and short stamens. See also *P.J.* [3], **22**, p. 875.

Dr. Prain remarks, concerning the plants, "The one that grows well in the gardens at Calcutta is one with thin pale green leaves (the colour of beech leaves as they are coming out); this colour they retain all the year round. It is a sparse flowerer, and its berries become *red almost at once*. It is found that it gives far more leaf per plant than the other kind, although at the elevation where it is planted here it does not thrive so well as in the plains below. Its branches are very slender and twiggy, but it retains in spite of this a fairly compact bushy habit. (This description apparently refers to *E. coca*, var. *Novo-granatense*, Morris.) The second kind of coca grown here (Sureil Kurseong) thrives much better. Its leaves are decidedly larger and are dark olive green, it flowers and fruits profusely, the berries remaining yellow till they are just ripe. As they ripen off they turn red, not so brightly cherry red as the last kind, but more orange red. This kind of coca we cannot get to thrive at Calcutta." (The writer here describes the *E. bolivianum*.)

Excellent illustrations of the leaves and of their microscopical structure are given in *Ph. Journ.* [4], **8**, p. 484, and [3], **22**, pp. 818-9.

THE CHEMISTRY OF ESSENTIAL OILS.*

Anethol.—Like other phenol ethers containing the side chain $CH:CH\cdot CH_3$, Klages finds that anethol when treated with sodium alcohol takes up two atoms of hydrogen, forming the methyl ether of *p*-propyl phenol—

Or Dihydro anethol, which boils at 210°—211° C., has an anise odour, and when saponified with hydriodic acid yields *p*-normal propyl-phenol, and with sulphuric acid a crystalline sulphonic acid, from which the phenol ether may again be obtained by separating the sulphon group. The isomer of anethol—ertragol—containing the side chain $CH_2\cdot CH:CH_2$ does not take up hydrogen under the influence of reducing agents, and the product of reaction is readily converted into anethol by boiling with alcoholic potash.

Calamus Oil.—The higher boiling portion of this oil that had been kept for a long time was found to have deposited laminar crystals, melting at 167° C., and probably consisting of a sesquiterpene hydrate or some allied compound.

Carraway Oil.—In the distillation of this oil methyl alcohol and furfurol are produced as in the distillation of cloves and clove stalks, though not to the same extent. The persistent yellow colour of the first distillate and the abnormal boiling point of the methyl alcohol in this case, as well as in the distillate from cloves, is attributed to the presence of diacetyl ($CH_3\cdot CO\cdot CO\cdot CH_3$), since on addition of phenyl-hydrazine to the yellow methyl alcohol distillate, diacetylosazone, melting at 243° C., was formed, and the boiling point of the methyl alcohol became normal.

The success of the method of determining carvone by conversion into its oxime is shown to be dependent on the conditions under which the operation is conducted. A very capacious flask should be used and the volatility of the oxime when dried in a glass dish on the water bath may occasion loss of material. In the case of old resinified oil, the results may be too high, in consequence of admixture of resin with the oxime.

Citronella Oil.—The great differences presented by this oil in the specific gravity, optical rotation, solubility in alcohol (80 per cent.), and amount of acetylisable constituents, are attributed to its being the produce of distinct varieties of *Andropogon nardus*, L. One of these, known as *Lana Batu*, yields the ordinary oil of commerce with specific gravity over 0·905, rotation up to — 20°, small amount of acetylisable constituents (65 per cent.), and imperfect solubility in 80 per cent. alcohol. The other variety, known as *Maha Pangira*, yields oil of finer quality, specific gravity to 0·890 rotation as low as — 3°, up to 91 per cent. acetylisable contents and is much more soluble in 80 per cent. alcohol. This variety is said to have been introduced into Ceylon from the Malacca peninsula, is cultivated near Baddagama, and is also grown in Java and the Straits Settlements.

Examination of the oil made from *Lana Batu* gave its specific gravity 0·908 at 15° C., rotation 9° 36′ at 20° C., soluble in equal volume 80 per cent. alcohol, and becoming turbid on adding four or more volumes of alcohol, saponification number after acetylisation = 190·8, calculated as geraniol 61·1 per cent.[1] The oil was carefully tested as to the possible presence of petroleum with a negative result, nor could any fat oil be detected. But the portion of highest boiling point (over 250° C.) amounting to 10 per cent., was found to be insoluble in 80 per cent. alcohol, and not to form a clear solution with ten volumes of 95 per cent. alcohol. It was subsequently ascertained to be a normal constituent of the oil.

For the qualitative examination of this oil 100 kilo. was heated to boiling with two parts caustic potash and ten parts of alcohol for twelve hours in a vessel fitted with reflux condenser. After separating the alcohol the oil was distilled with steam, and separated into eighteen fractions of 5 kilo. each, having the following characters:—

	Sp. Gr. 15° C.	Rotation 20° C.		Sp. Gr. 15° C.	Rotation 20° C.		Sp. Gr. 15° C.	Rotation 20° C.
1	0·873	—29° 48′	7	0·906	—7° 45′	13	0·912	—5° 17′
2	0·877	—28° 5′	8	0·908	—7° 1′	14	0·914	—4° 27′
3	0·883	—23° 20′	9	0·910	—6° 42′	15	0·917	—4° 4′
4	0.890	—18° 0′	10	0·910	—6° 38′	16	0·923	—3° 7′
5	0·897	—12° 30′	11	0·910	—6° 16′	17	0·934	—1° 40′
6	0·904	— 9° 20′	12	0·911	—5° 55′	18	0·934	+0° 53′

The fractions 1 and 2 consisted chiefly of terpenes; they were mixed and distilled at first under reduced pressure; then over sodium at normal pressure: two fractions of different boiling point were thus obtained, the first consisting of camphene, the second of dipentene and limonene.

Camphene.—Sp. gr. 0·8642 at 15°, rotation —62° 3′ at 15° C., n_D at 16° C. = 1·46367, boiling point 159°—161° C. By hydration with glacial acetic and sulphuric acid and saponification readily yielded iso-borneol, melting at 212° C.,[2] a solid nitroso compound could not be obtained by Jagelki's method.[3]

Dipentene.—Sp. gr. 0·847 at 15° C., rotation — 54° 21′ at 22° C., n_D = 1·46912 at 22° C.[4] By treatment with bromine in ether solution, dipentene tetra-bromide was readily formed, and after recrystallisation from acetic ether it melted at 125° C. By fractional crystallisation limonene tetrabromide, melting at 105° C., was obtained from the mother-liquors.

For separating the geraniol the fractions 3 to 16 were treated with powdered calcium chloride until reaction ceased, and then the whole residue was treated with phtalic anhydride,[5] so that the geraniol and any citronellol present would be combined with phtalic acid as semi-esters, and dissolved as soda salts, while the secondary alcohols (borneol) are but little acted upon, and the tertiary-alcohols (linalol and terpineol) are not at all affected.

The aqueous solution of semi-esters was three times shaken with ether acidulated with sulphuric acid, and the ether solution of acid ester separated; ether entirely distilled off the residue mixed with twice its volume of petroleum spirit, and kept for several days at a temperature below —5° C.,[6] the abundant crystals of geranyl-phtalic acid separated by filtration. The filtrate, saponified with alcoholic potash, gave about 20 Gms. of an oil which was distilled fractionally with steam under reduced pressure (15 Mm.). Almost the whole

* Abstracted from the *Bericht* of Messrs. Schimmel and Co., Leipzig.

[1] Geraniol and citronellal together.
[2] *J. prakt. Chem.* ii., **49**, 1.
[3] *Berichte*, **32**, 1,498.
[4] *J. prakt. Chem.*, ii., **49**, 16.
[5] *J. prakt. Chem.*, ii., **60**, 248.
[6] *Compt. d.*, **126**, 1,725, and *Bull. Soc. Chim.*, iii., **19**,

distilled between 118° and 120° C., and had a sp. gr. 0·882 at 15° boiling point 228°—230° C. at 760 Mm., formed a solid compound with calcium chloride, by oxidation with chromic acid yielded citral, by treatment with diphenyl-carbamine chloride yielded geranyl-diphenyl urethane, melting at 80°—81° C., and when boiled with concentrated formic acid, it was almost entirely converted into terpene. The oil was therefore geraniol, and citronellol could not have been present in the oil operated upon. The geraniol separated from the crystals of geranyl-phtalic ester acid deposited from the petroleum spirit had a sp. gr. 881 at 15° C., rotation ± 0° at 20° C., boiling point 229°—230° C. at 760 Mm. n_D at 23° = 1·47392.

The acid geranyl-phtalic ester is not entirely insoluble in petroleum spirit, and the statement of Flatau and Labbe[7] as to the presence of citronellol in citronella oil is to be attributed to that circumstance.

The portion of oil uncombined with phtalic acid was mixed with the oil, washed out by ether, and three times washed with warm water to separate the phtalate dissolved by ether and prevent some admixture of geraniol. The washed oil was then fractionally distilled under a pressure of 12 Mm.

Fraction.	Boiling Point.	Sp. Gr.	Rotation.	Yield.
				Cub.Cent.
1	70°— 91°	—	—12° 40′	5·5
2	91°—101°	0·910	—10° 13′	14·0
3	101°—107°	0·922	—16° 25′	73·0
4	107°—111°	0·917	—16° 47′	75·0
5	111°—115°	0·900	—11° 10′	37·0
6	115°—122°	0·908	—6° 2′	32·0
7	122°—134°	0·961	—1° 37′	61·0
8	134°—139°	0·967	—4° 53′	59·0
Residue				5·0
				361·5

The first two fractions contained little or no linalol or terpineol, and in the later fractions borneol could be detected by its smell. Fractions 6 and 7 contained other substances which were also present in later fractions. To separate the borneol the first six fractions were mixed with an equal weight of benzoic anhydride, the mixture heated for four hours on the water bath, then neutralised with warm soda solution, the benzoate driven off by steaming, and the oil passing over fractionated under a reduced pressure of 14 Mm.

	Boiling Point.	Sp. gr.	Rotation.	Yield.
				Per Cent.
1	84°— 95°	0·883	— 7° 22′	8·8
2	95°—101°	0·903	—12° 40′	22·0
3	101°—105°	0·911	—20° 00′	13·2
4	105°—110°	0·914	—26° 14′	12·9
5	110°—120°	0·906	—20° 12′	20·5
6	120°—125°	0·906	—13° 12′	15·6
Residue				5·0
				100·0

In fraction 1, linalol could be detected by the formation of citral on oxidation with chromic acid, but the amount of that alcohol in citronella cannot be much more than one-thousandth. Terpineol, which, according to the boiling point, would be in fractions 2 and 3, could not be detected. In fractions 4 to 6 there was in addition to some borneol that had escaped the action of benzoic anhydride, and may have caused the high rotation of those fractions, an oil smelling like mint or pulegone, which had possibly been formed through the alteration of citronellal by alcoholic potash, as the quantity (10 C.c., about) was trifling. From the benzoic compound borneol could be readily obtained, and it had the normal character melting at 203°, $[\alpha]_D$ at 20° C. = — 33° 19′ (chloroform solution) 8·23 per cent., borneol sp. gr. 1·415 at 20° C., 100 Mm. tube length, observed rotation — 3° 55′ at 20° C. By treatment with carbanil the borneol phenyl-urethane, melting at 138°–139°, could be easily obtained.

The steam fraction 17 yielded, on oxidation with permanganate, veratric acid melting at 180° C. That indicated the presence of methyl eugenol, and that body was isolated in the following manner:—A residue of geraniol was removed by distillation under a reduced pressure of 18 Mm., and the residue was well shaken with ten volumes of 60 per cent. alcohol. Methyl eugenol dissolves in ten volumes of 60 per cent. alcohol, though the sesquiterpene present in the oil does not freely dissolve. After the mixture had become clear the alcoholic liquor was separated, and the oil containing methyl eugenol was salted out. It had a sp. gr. 987 at 15° C., while pure methyl eugenol has a sp. gr. of 1·055, so that it still contained much sesquiterpene, which was afterwards found to have nearly the same boiling point as methyl eugenol (145° at 12 Mm.), and cannot, therefore, be separated by fractional distillation, but is readily altered by acids or alkalies. To destroy the sesquiterpene and convert the methyl eugenol into methyl isoeugenol, the oil containing methyl eugenol was heated for three hours to 230° C. with a 5 per cent. solution of sodium alcoholate. After distillation under reduced pressure of 12 Mm., the following fractions were obtained :—

	Boiling point.	Sp. Gr.	Yield.
1	78°—110°	—	2·6
2	110°—140°	0·948	12·9
3	140°—142°	1·004	10·2
4	142°—143°	1·017	27·6
5	143°—145°	1·023	40·7
Residue			6·0
			100·0

Fraction 5 had the boiling point of iso-methy engenol 268°—270° C. and the smell of that body, but it was not quite free from sesquiterpene, as shown by the low specific gravity.

The dibromide melting at 102° C. was prepared, and found to contain very nearly the proper amount of bromine.[8] Oxidation yielded a satisfactory amount of veratric acid, and its silver salt gave 37·41 per cent. of silver, against 37·61 per cent. calculated.

The presence of methyl eugenol in citronella oil is proved by those data.

The oil from which methyl eugenol had been separated by washing with 60 per cent. alcohol was further washed with 70 per cent. alcohol, and then separated by distillation under reduced pressure into fractions; in that way an apparently homogeneous body was obtained having a boiling point of 157° C. at 15 Mm., and under normal pressure 270° — 280° C. with distinct decomposition, sp. gr. 0·8643 at 15° C., rotation at 15° C. = + 1° 28′, index of refraction at 15° C. = 1·51849. It still contained some methyl eugenol, but was evidently for the most part a sesquiterpene of lower specific gravity than usual.

In the fraction 18 the presence of a second dextrogyre sesquiterpene, sp. gr. 0·912, at 15° C., boiling point 272°-275°, rotation + 5° 50′ at 17° C., was ascertained, but owing to the slight difference in its boiling point it could not be completely separated. This citronella oil therefore contained, in addition to the alcohol geraniol and the aldehyde citronellal, l-limonene, traces of linalol, methyl eugenol, a light sesquiterpene, and a dextrogyre heavy sesquiterpene, and the proportion of the chief constituents was found to be :—

	Per cent.	
Citronellal	28·2	= 69·1
Geraniol	32·9	
Methyl eugenol	8·0	

[7] *Comp. rend.*, **126**, 1,726.

[8] *Berichte*, **23**, 1,165.

INCOMPATIBILITY AND SOME OF ITS LESSONS.*

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Part I.—General.

The decline in the art of prescribing has been a frequent subject of lament of late years, and with some practitioners it is to be feared that the atrophy of disuse has almost blighted their capacity to think out and indite a good prescription.

To some extent this is inevitable, owing, partly to the rapid changes which have swept over modern pharmacy, and in part to the hurry-scurry of active practice, and to the ultra-fastidiousness of the public, who have learned to insist on being delicately catered for by the pharmacist.

But there still remains some scope for the educated practitioner who, while not disdaining convenient and palatable forms of medication. prefers sometimes to soar above soloids, tabloids, and bipalatinoids, to choose his own combinations, and to use his judgment as to the forms in which these shall be cast.

Knowledge of this kind, "*quamvis non faciat medicum, aptiorem tamen medicinæ reddit.*"

Apart from stupid and sometimes ludicrous mistakes, serious inconveniences, dangerous accidents, and even loss of life have been the penalty of contravening simple and fundamental principles.

Hence it needs no apology to the readers of a journal whose title seems to invite such communications, to offer some remarks upon the correct formulation of a prescription, regarded from a chemical point of view.

And it may be safely said that this subject is either ignored or inadequately discussed in text-books upon materia medica, and even in manuals of practical pharmacy it scarcely meets with that systematic exposition which its merits demand.†

For example, what is the use or meaning of such a list of incompatibilities as the following, taken from a well-known text-book :—

"Corrosive sublimate with carbonates, lime water, iodide of potassium, opium, vegetable infusions, tannin."

Students are very prone to misunderstand formulæ and equations, and sometimes interpret them in a way that is comical enough :—

For example, take these answers :—

"How would you prepare quicksilver?

"$2NO_2AgO$ + CaO = N_2O_4CaO + Ag_2

Nitrate of Silver. Quicklime. Nitrate of Lime. Quicksilver.

"How is phosgene gas prepared?

"By the action of hydrochloric acid on metallic cobalt, as is shown by the following equation :—

"$Co + 2HCl = H_2 + COCl_2$"

(*Pharm. Journ.*, Dec. 7, 1895.)

These are, no doubt, extreme cases. It is, however, true that our mode of regarding chemical changes has altered much within the last twenty years. We are not content to worship the fetish of mere formulæ, but strive to go deeper, and to inquire into the dynamical processes that underlie all chemical change.

Hence I shall, by way of introduction, briefly advert to some general considerations which help us to better understand the inner meaning of a chemical equation in accordance with modern ideas.

The two broad subdivisions of theoretical chemistry are :—

(1) *Chemical Statics.*—This deals with single substances; with views upon the structure of matter; the conception of atoms and molecules; and the determination of molecular configuration.

(2) *Chemical Dynamics.*—This branch discusses the actions between two or more substances, *i.e.*, chemical change, velocity of reaction, and chemical equilibrium, *i.e.*, the result of chemical change.

Chemical dynamics has assumed the foremost place in chemical philosophy within the past ten years, and it is to some topics in relation to it that I wish to invite attention.*

Chemistry has to do with ponderable matter, and atoms are the building-stones of chemistry. Our idea of what we call matter is inextricably bound up with the notion of some form of motion, and every phenomenon we can perceive can be traced to motions going on in the world around us, *i.e.*, to kinetic energy, and this seems to be dependent upon temperature. Since at absolute zero, *i.e.*, −273° C., all atomic motions would stop, it is an attractive subject for the mind to try and imagine what would be the properties of matter at that paralysing temperature. Results of extraordinary importance will surely accrue if investigations are made upon the properties of bodies near the absolute zero.

The temperature of the upper air is about −66°, but Professor Dewar has shown that liquid hydrogen boils at −253° in a vacuum, and this is only −20° above absolute zero. By exhaustion he was able to attain a temperature of only −15° absolute T.

Cold retards chemical reactions. At temperatures below −120° such reactions as those between sulphuric acid and caustic soda do not take place, and even the coloration of litmus by acids commences only at temperatures above −80°. Metallic sodium has no action upon dilute alcohol at −80°. Metallic sodium and HCl do not act upon one another visibly at −80°. But a more exact study shows that it is really a *retardation* which occurs. The HCl, after having been (apparently without reaction) in contact with Na, is actually found to contain Na (van't Hoff). Liquid fluorine boils at −187°, and at −210° it has no action upon oxygen, water, or mercury, but explodes with hydrogen or oil of turpentine.

Conversely, it is easy to see how a rise in temperature generally accelerates chemical change because it acts in three ways :—

(1) It alters, usually diminishes, the cohesion of the molecules.

(2) It increases the motion or the store of energy of the molecules, and brings about a greater number of molecular collisions in unit of time.

(3) It probably effects the motion of the atoms themselves in the molecules.

A parallel kind of change is accomplished by the act of solution, and dilution with water operates like heat in favouring chemical change.

In short, chemical change cannot otherwise be explained than as change of motion.

Every chemical reaction requires certain limits of temperature for its accomplishment, and doubtless many of the chemical changes observed by us cannot take place in the sun where the temperature is very high, or in the moon, where it is very low.

The study of the influence of change of temperature upon chemical equilibrium leads to the following generalisation :—

Rise of temperature favours the system formed with absorption of heat. Therefore, all equilibria are displaced at high temperatures towards the side that is formed with absorption of heat; whilst at low temperatures displacement in the opposite sense takes place.

When we remember that the temperature of our surroundings is comparatively low, only about 273° removed from absolute zero, it is clear that, under the conditions usually obtaining, the majority of chemical equilibria tend to the side of the system formed with

* Reprinted, by special permission, from the *Practitioner*.

† The best and fullest account I have met with is given in Scoville's 'Art of Compounding,' 1895. It includes an instructive illustrative collection of incompatible prescriptions

* In penning these introductory observations (intended chiefly for students and junior practitioners) I have freely borrowed, sometimes the language, from the writings of Nernst, Mendeléeff, Ostwald, and van't Hoff.

evolution of heat (exothermal). Consider more exactly the equilibrium :—

$$2H_2O \rightleftharpoons 2H_2 + O_2.$$

Water is partially decomposed at 1000°. Upon cooling, this equilibrium must be displaced, in accordance with the above principle, towards the side formed with evolution of heat, *i.e.*, water, and this has been experimentally verified.

This displacement implies that at ordinary temperatures water is the stable form of a mixture of oxygen and hydrogen, and accordingly the latter is, under the most varied circumstances, completely transformed into water.

Hence it will be seen that such chemical changes as take place at ordinary temperatures are, for the most part, accompanied by evolution of heat.

Analogous considerations lead to the conclusion that the reverse must be true at high temperatures.

Both conclusions are most completely verified by experience.

This is not quite the same expression as Thomsen and Berthelot's "principle of maximum work," which was claimed to be the guiding principle of chemical mechanics.

For although this is mostly true under ordinary circumstances it would only be strictly true at the absolute zero.

At the absolute zero point compounds formed with evolution of heat replace the others fully, *i.e.*, reactions are complete and exothermic.

It will now be perceived that we are compelled to renounce the idea of any substance being in a condition of absolute rest or stagnation, and we grasp the conception that chemical equilibrium is not static, but dynamic.

It must be admitted that we know scarcely anything definite either about the nature of the forces which bind the atoms together in the molecule, and which hinder them from flying apart, or regarding the laws of action.

It seems clear, however, that our whole conception of affinity requires to be completely reconstructed, and we fix our attention not on potential, but upon kinetic energy.

The mutual action of atoms evidently varies with their nature, and the case is very rare where the course of the reaction can have but one issue depending solely upon the chemical forces.

The affinity certainly changes with external conditions of temperature and pressure in all cases.

Thus, Spring has shown that some finely powdered solids which do not react upon each other at the ordinary temperature may do so under an increased pressure, *e.g.*, sulphur and metals. He also proved that the powder of solid metals, when exposed to a pressure of over 1,000 atmospheres, gave by its homogeneity, crystalline structure, etc., quite the impression of having been melted.

In the case of gases* we have little difficulty in recognising the freedom and velocity of molecular movement,† and the kinetic theory of gases must be considered as one of the most brilliant acquisitions of the latter half of the present century.

In the case of liquids, also, we can easily comprehend the comparative freedom of molecular interchange, and hence most chemical experiments are carried out in a state of solution.

The possible interaction of gases with liquids, and of liquids with insoluble solids, can be foreseen, and of the latter event we have a familiar example in the preparation of Lotio Nigra.

But it requires some effort to firmly implant in the mind the doctrine of the universality of molecular motion, and to realise that it is applicable not only to gases and liquids, but also to solids, and this whether they be elements or compounds.

Let me refer to a simple and convincing experiment by Sir William Roberts-Austen, who has investigated the diffusibility of metals into each other.

He maintained cylinders of lead and gold at a constant T., far below the melting point of lead, for several days. Analysis showed that solid gold placed at the bottom of a cylinder of lead about three inches long will diffuse to the top in notable quantities in three days. He has also lately shown, by investigations on the cooling curves of metals and alloys, that steel and cast iron (carburised iron alloys) behave exactly as certain saline solutions do. (*Nature*, April 13, 1899.)

The ancient dictum—*Corpora non agunt, nisi fluida*, no longer holds good.

It is easy to give examples of the mutual interaction of solids in the absence of water or any other liquid. Some of them are of interest to pharmacists.

I divide them into two groups :—

(*a*) *Formation of Molecular Complexes.*—These are unstable liquid or pasty compounds, easily resolved into their components. The "valence" hypothesis does not embrace such facts as these, viz. :—

Camphor and chloral.
" " menthol.
" " phenols (carbolic acid ; resorcin).
Phenacetin, exalgin, or acetanilide and salicylic acid.
Acetanilide + antipyrin.

(*b*) *Double Decompositions.*—Alum (or zinc sulphate) and acetate of lead, *e.g.*—

$$ZnSO_4 7H_2O + PbAc_2, 3H_2O = PbSO_4 + ZnAc_2, 3H_2O + 4H_2O.$$

The mass becomes moist when triturated, owing to liberation of some of the water of crystallisation.

Similarly, potassium nitrate and sodium acetate—

$$KNO_3 + NaAc, 3H_2O = KAc + NaNO_3 + 3H_2O.$$

Iodoform left in contact with calomel or grey powder, slowly reacts and forms red iodide of mercury.

Every free element, every acid, and every base seems to contain a fixed amount of energy, which, in the act of combination, may in part be utilised in the production of change or liberated as heat.

A chemical change is invariably accompanied by changes of energy, and the energy is not produced by the chemical affinity but rather is set at liberty by it. Chemical energy passes most easily and completely into heat.

A chemical change is a complicated problem, and the chief problem of theoretical chemistry is to express the mutual reactions between substances by means of certain characteristic numerical coefficients; but we are, as yet, far distant from having a clear conception of the precise course of chemical combination. When this is feasible, we may feel pretty sure that it will be on a kinetic basis, probably including electrical actions.

So far as the number of reacting molecules has been investigated, it appears that the mechanism of reaction is, in general, very simple, and is nearly always mono- or bi-molecular. If an equation, in order to express a reaction, quantitatively shows the interaction of several molecules, it is probably in reality a combination of processes taking place consecutively. Thus—

$$2HI + H_2O_2 = 2H_2O + I_2$$

probably should read as

(*a*) $HI + H_2O_2 = HIO + H_2O.$
(*b*) $HIO + HI = I_2 + H_2O.$

Kinetically, the rarity of polymolecular reactions is quite intelligible. The probability of a simultaneous collision between three molecules and those of specified kinds is a very small one; so the reaction proceeds, if it is possible, by the actions taking place within a single molecule or on the meeting of two molecules (van't Hoff).

* The derivation of the word "gas," invented by Van Helmont has been differently given, but the truth is that it was suggested to him by the Greek word "chaos." For, he says, "Halitum illum 'gas' vocavi, non longe a Chao veterum secretum."—(*Historical English Dictionary.*)

† A molecule of H if it moved in a straight line and unimpeded would travel 1¼ mile in one second. Similarly, oxygen ¼ mile, about, *i.e.*, inversely as quare roots of densities, viz., 16 : 1

Let us consider for a moment more closely the common case of double decomposition. The general equation will be

$$\overset{+-}{A}B + \overset{+-}{C}D \rightleftharpoons AD + BC$$

Iron Chloride + Sodium Acetate = Iron Acetate + Sodium Chloride.
Red solution.

Silver Nitrate + Sodium Chloride = AgCl + $NaNO_3$.
Ppt.

We will assume that neither AC nor BD nor any other substance is produced, and this may be admitted as commonly true in cases of double decomposition of salts in which A and C are metals or alkaloids.

But this is just the class of decompositions which most concerns practical pharmacists.

If all the products are soluble, or if nothing separates out from the sphere of action (*Homogeneous System*), the decomposition will presently cease, because a state of mobile or dynamic equilibrium will be established, and, instead of two, there will remain four substances in the mass, viz., a portion of the original bodies AB and CD, and a certain quantity of the newly-formed substances AD and BC.

Next consider what will happen if one of the new substances is capable of being removed from the sphere of action. Suppose one of the new products to be (*a*) a gas, while the others are liquid or solid; or (*b*) an insoluble solid, *i.e.*, a precipitate, while the others are liquid (*Heterogeneous System*). Then, under the influence of mass action, the reaction will evidently go on to the end, *i.e.*, until all the removable product is subtracted.

(*To be continued*).

SELECTED PRACTICAL FORMULÆ.

Collutoria for Infantile Thrush.

(1) Borax, 4; tincture of benzoin, 4; syrup of raspberries, 40. Applied with a camel's hair pencil to the affected parts. (2) Potash alum, 1; tincture of catechu, 4; honey of roses, 30. —*Formulary of Nouv. Rem.*

To Check Lacteal Secretion.

Atropine sulphate, 3 centigrammes; magnesium sulphate, 90 grammes; infusion of gentian, 240 grammes. A tablespoonful every two hours, until four such doses have been taken.—*Rev. Med. Pharm.*, **6**, 208.

Guaiacol Syrup.

Crystalline guaiacol, 7·50; glycerin, 92·5; simple syrup, 900. A dessertspoonful five or six times a day with food.—*Rev. Med. Pharm.*, **6**, 207.

Creosote Syrup.

Beechwood creosote, 5; glycerin, 80; simple syrup, 915. A dessertspoonful five or six times daily with food.—*Rev. Med. Pharm.*, **6**, 207.

Anti-rheumatic Liniment.

Oil of turpentine, 200; sodium salicylate, gamboge, myrrh canella bark, in powder, of each, 10. To be rubbed in thrice daily, and then covered with wool.—*Pharm. Post*, **32**, 407.

Essence of Buckthorn.

Rhamnus frangula bark, 10, is heated with water, 50, on a water bath, pressed, and the expressed liquor evaporated to 9; tincture of orange, 1, is then added. To prepare the essence extemporaneously, fluid extract of rhamnus frangula, 10, may be mixed with tincture of orange, 1.—*Pharm. Post*, **32**, 407.

Impermeable Paper.

The paper is treated on both sides with a solution of gelatin, 1, and glycerin, 1, in water, 4. After drying it is dipped in a 10 per cent. solution of formalin and again dried.—*L'Union Pharm.*, **40**, 411, after *Rev. Chem. Indust.*

THE COMPANY PHARMACY PROBLEM.—IV.

BY AN ORDINARY PHARMACIST.

At last, and in spite of all precedent, we have been favoured with the views of a member of the Council of the Pharmaceutical Society and of the Law and Parliamentary Committee of that body; of one, also, who is understood to lead that section of the Council which favours recognition and regulation of companies of unqualified persons carrying on the business of a chemist and druggist. A more capable leader could not well be conceived, and we have it on the authority of Mr. Michael Carteighe that his scheme is a "wonderful panacea" of great ingenuity. But a careful perusal of Mr. Glyn-Jones's article confirms me in the view—originally based on a careful study of the report of the last Council meeting—that his plan of dealing with the problem presented to us, though admirably conceived and honestly intended to benefit the craft, is nevertheless fraught with mischief. It is, however, impossible to speak with certainty on that point until we have the draft of the scheme before us. For the present, therefore, we are limited to the report of the author's remarks at the Council meeting, and to his article published in last week's Journal.

That "Wonderful Panacea."

Briefly, Mr. Glyn-Jones asserts that absolute consistency is impossible and that company regulation is inevitable. He would provide, therefore, that a board of directors must exist in the case of any company carrying on the business of a chemist and druggist, and that each director must be a person duly registered under the Pharmacy Acts. Moreover, those directors must have absolute control over the conduct of the business, the other shareholders presumably being allowed to have no voice in the management of affairs, except such as the law specifically allows them at annual meetings. As a general comment upon Mr. Glyn-Jones's statement, I will merely remark that his "wonderful panacea" appears to be little more than a carefully thought-out scheme on the lines suggested in the concluding words of my second article. But, whereas I proposed such an arrangement only as a means of enabling existing companies of unqualified persons to bring themselves into line, he would make it apply generally, and in such a manner as would result, indirectly but virtually, in preventing companies of unqualified persons from carrying on the business of a chemist and druggist. Under the circumstances, I can only echo Mr. Carteighe's expression of regret that the "wonderful panacea" has not yet been published.

Courses Open to the Council.

But, to return to its creator's modest exposition of his views, as presented all too briefly—so far as concerns original matter, apart from quotations—in last week's Journal. According to Mr. Glyn-Jones there are three courses open to the Council of the Pharmaceutical Society. It seems to me, however, that those three do not cover the whole ground, nor are they complete in themselves. In my opinion the Council might—

(1) Draft a clause simply prohibiting the use of pharmaceutical titles by companies or other corporate bodies;

(2) Add to that clause words making companies or other corporate bodies liable for offences under Section 15 of the Pharmacy Act, 1868, in the same manner as individuals, and likewise prohibiting the keeping of open shop for the retailing, dispensing, or compounding of poisons by companies of unqualified individuals;

(3) Recognise the expediency of permitting companies or other corporate bodies to retail, dispense, or compound poisons, provided the directors or managers are duly qualified under the Pharmacy Acts;

(4) Wait to see what the Government proposes to do in the next Session of Parliament, and then oppose what seemed to be antagonistic to the interests of registered chemists, whilst not conferring any real benefit on the public;

(5) Pass a formal resolution, expressing the views of the Council, and depute a limited number of members to negotiate with the Government on that basis, after which a clause embodying what seemed feasible might be drafted and submitted to the Council for approval.

(1) Protection of Titles Only.

The first plan, as I have previously explained, is the easiest one to adopt, but it involves opposition of Clause 2 of the Companies Bill, if that clause should be re-introduced next Session, and it will not satisfy the Lord Chancellor, nor will it commend itself to the majority of registered chemists. The Lord Chancellor's chief concern, as expressed by him at the outset of the present agitation, is that all medicines should be dispensed for the public by competent persons. He evidently does not care in the least whether chemists' titles are protected or not, and if nothing more than that should be proposed he might almost certainly be expected to decline to insert such a clause in a Companies Bill promoted by the Government. Now, it is a simple matter to oppose the Lord Chancellor with all our forces if he should again propose an objectionable clause ; but if we desire his assistance we must be prepared to submit something which may strike him as being worthy of his consideration. And that, a clause simply restricting the use of titles most certainly is not. For, though Lord Halsbury is chiefly concerned about the proper dispensing of medicines, his attention has also been directed to a notable defect in the Pharmacy Acts, which enables an association of unqualified persons to evade the operation of the law, and he has displayed some little anxiety to secure a remedy for that defect. He has gone to the extent of introducing a Pharmacy Bill with that object in view and, more wonderful still, he has since secured the insertion of a clause dealing with the subject in a Companies Bill promoted by the Government, in spite of the fact that the Council of the Pharmaceutical Society had been assured repeatedly that the matter could not, under any circumstances, be dealt with in such a measure.

Not Likely to Satisfy the Lord Chancellor.

Now, a Lord Chancellor does not take all that trouble for nothing, and it would be absurd to imagine that he will drop his intention of making companies amenable to the law because the Pharmaceutical Society prefers to shirk the point and asks him to help to secure protection for chemists' titles only. I grant that there should be but little difficulty in persuading him how undesirable it is, in the public interest, that associations of unqualified individuals should be permitted to assume and use titles which the law says shall only be assumed and used by individuals when they possess the proper qualification to perform duties for which that qualification is requisite. But, he may not unreasonably ask how far that will help him otherwise to secure that anything which would be an offence under Section 15 of the Pharmacy Act, 1868, if committed by an individual, shall be equally an offence if committed by a company. He would probably argue that restriction of the use of titles to legally qualified individuals is primarily a personal matter with chemists, and ask how that provided for the safety of the public as affected by the sale and dispensing of poisons by incompetent persons. The answer to that question must, of necessity, be a distinctly unsatisfactory one, and I think we may safely assume that his Lordship would subsequently proceed to deal with the matter as he thought fit, without devoting much further consideration to any views held by the Pharmaceutical Society on the subject. The position would then be a decidedly awkward one, for—if opposition to any clause subsequently drafted became necessary—we should be open to the charge of being unwilling either to do anything in the direction of reform ourselves or to permit anyone else to do anything. The value of our opposition would then be largely discounted, and the last state of British pharmacy might not inconceivably become very much worse than the first.

(2) Prohibition of Unqualified Companies.

The second course is, in my opinion, the only fair and logical one for the Council to follow. The use by companies or other corporate bodies of titles implying qualification under the Pharmacy Acts, must be as strenuously resisted as in the case of unqualified individuals. As pointed out by the *British Medical Journal*, a certain measure of protection is afforded to the public by preserving a proper significance to professional titles and, inadequate though that protection may be, it must not be weakened. But, over and above the public value of pharmaceutical titles, the legitimate holders of them are quite in order in demanding, on purely selfish grounds, that they should be restricted to themselves. Those titles can only be acquired after arduous labour, and the expenditure of much time and money. It is, therefore, quite beyond the limits of what is reasonable that others, who have not so qualified themselves, should be able to benefit by the use of chemists' titles. The restriction of those titles must be defended, therefore, on two distinct grounds: (1) because a certain measure of protection can thus be afforded to the public, and (2) because only those who have paid the proper price for a thing are entitled to possess it. In addition to that, if the pharmacy law of this country is to be logical and consistent throughout, all corporations carrying on the business of a chemist and druggist must be made amenable to the provisions of Section 15 of the Pharmacy Act, 1868, in the same manner as individuals. It is necessary, in any clause that may be drafted, to make specific reference to Section 15 in this connection, in order to avoid the constant reiteration of the almost stupid objection that, inasmuch as companies cannot fulfil the requirements of the first fifteen Sections, they must, of necessity, remain outside the purview of an Act intended only to regulate the position of individuals. The obvious retort is that companies, if they cannot fulfil the legal requirements of the situation, should cease to usurp chemists' titles and to retail, dispense, or compound poisons.

Discrimination to be Avoided.

It is not desirable to make invidious distinctions between companies consisting of qualified and unqualified individuals respectively. No company can be examined and registered as required of individuals registered under the Pharmacy Acts ; no company, therefore, should be permitted to assume or use any title implying qualification under those Acts. Whilst, therefore, nothing need be done that will prevent registered chemists from taking advantage of the provisions of the Companies Acts if they should desire to rearrange their business affairs on a joint-stock basis, all companies must be rendered liable to penalties for doing what would be an offence under Section 15 of the 1868 Act if done by an individual. No registered chemists could reasonably object to that provision, which is absolutely necessary in the public interest and should specially appeal to the Lord Chancellor's sense of justice. Finally, no association consisting of individuals who are not registered under the Pharmacy Acts should be permitted to keep open shop for the retailing, dispensing, or compounding of poisons. There are, then, three points to be embodied in a complete clause, the first of which is imperatively demanded if qualification of chemists and druggists is to continue of any value, whilst the second and third are necessary in the public interest, besides being both reasonable and just. There are doubtless many real difficulties in the way of drafting, and securing the adoption of, a clause that would satisfactorily embody those requirements, but the difficulties are not insuperable. Moreover, it is the duty of the Council of the Society to meet and overcome such difficulties, not to invent imaginary ones and despairingly shirk the issues that do present themselves. The Council has both public and private interests to protect, and, having decided upon a clear and settled policy, must be prepared to

do its utmost to persuade the Government to do what is right and fair.

(3) Recognition and Regulation of Companies.

Coming next to the third course which is open, so far as recognition of the principle of joint-stock trading is concerned, the Council has no option, as the thing is an accomplished fact and will remain so. But it is neither necessary nor expedient that our leaders should sanction any step which can be construed as recognising the right of companies consisting of unqualified individuals to assume pharmaceutical titles or keep open shop for the retailing, dispensing, or compounding of poi ons. It must be borne in mind that regulation of companies means admitting any unqualified individual to the privileges of qualification, without the preliminaries of study and examination. Nor must any excuse be admitted for granting specially favourable terms to companies consisting of qualified individuals. What the individuals constituting any company may do, irrespective of assuming a title indicating qualification under the Pharmacy Acts, the company should be permitted to do, but nothing beyond that. I repeat, with insistence, that we cannot afford to yield an iota of our claim that no unqualified person shall be permitted to benefit by the use of pharmaceutical titles or to exercise any control over the business of a chemist and druggist. If once we offer to negotiate on the basis of allowing that the appointment of qualified directors or managers might meet the necessities of the case, we shall have abandoned our main position, and nothing that we can do afterwards will enable us to regain it. For, if we give the Lord Chancellor the impression that we should be satisfied with the appointment of qualified directors or managers, under certain conditions, what is to prevent him regarding the concession as an absolute one and arranging the conditions to meet the views of the companies rather than of ourselves? Let us then refuse to concede anything in that direction, and continue to maintain our position intact and unimpaired. It is useless to shut our eyes to the fact that the position of pharmacy as a profession cannot be established on a sure basis in this country unless we secure a reversal of the House of Lords' decision in the case of the London and Provincial Supply Association. That, apparently, can only be done by Act of Parliament, and the initiative must be taken by ourselves. The Lord Chancellor's efforts seem, so far, to have been exerted in the direction of establishing the House of Lords' decision upon a clear statutory basis, but what pharmacists desire, and the public safety needs, is that the decision should be upset. That is the clear issue, plainly stated, and we look to the Council to repudiate any intention of encouraging the Lord Chancellor in his retrograde policy.

(4) Waiting upon the Course of Events.

If all attempts to secure practical unanimity in the Council should fail, nothing useful can be done now. We must wait to see what the Government proposes to do in the next Session of Parliament, and then decide whether or not to oppose any clause that may be published in a Companies Bill. The chief disadvantage of this fourth course is that we are thereby precluded from having a share in the drafting of the clause, and may have to accept or reject it as it stands, without being able to secure its modification in any degree. On the other hand, our opponents are not likely to allow similar scruples to affect them, and they will probably miss no opportunity of helping to shape the clause so as to meet their views. Unless, therefore, the direst necessity should indicate a policy of waiting to be the only one possible under the circumstances, I fail to see anything but weakness in the recommendation that such a course should be adopted. If we are assured of the justice of our cause—and I take it that every member of the Council most certainly is—why should we be ashamed of taking up a pronounced and definite position, or be backward in advancing arguments in support of that position? Surely the Council is not as lacking in constructive ability as the Editor has accused many of its critics of being. If not, let matters be fairly placed before the Lord Chancellor and other members of the Government, with some definite exposition of policy. Otherwise, Lord Halsbury may be driven to assume that the now historic "suggestions" exhausted the possibilities of the case, from the pharmaceutical point of view, and that the field is now left clear for displays of ingenuity on the part of himself and the companies affected, in endeavours to knock the bottom out of the Pharmacy Acts.

(5) Desirability of an Expression of Opinion.

To prevent the possibility of such a mistaken notion gaining ground in Government circles, I would recommend the fifth course as being alike expedient, dignified and proper. Something ought to be done forthwith, but there is no occasion that what is done now need partake of the inelastic nature of a clause for a Companies Bill. Some measure of freedom of action should be reserved, and for the moment I see no actual necessity for anything beyond a sincere confession of pharmaceutical faith by the Council. Failing immediate agreement regarding the details of a suitable clause—a non-essential point at the present juncture—why should not the Council, as representing British pharmacy, formally pass a resolution stating that, inasmuch as a company cannot be examined and registered in accordance with the provisions of the Pharmacy Acts, it should be unlawful for any company or other corporate body, as such, to assume or use any title implying registration under those Acts; that all companies or other corporate bodies should be liable to penalties for doing what would be an offence under Section 15 of the Pharmacy Act, 1868, if done by an individual, and that it is not desirable, in the public interest, that any individual who is not registered under the Pharmacy Acts should be permitted to exercise any control over the retailing, dispensing, or compounding of poisons? The references to "other corporate bodies" are necessary to cover the case of firms in Scotland, which are held to be bodies corporate. Such a resolution would include the three points which I have suggested should be embodied in a complete clause of a Companies Bill, and to pass it would clear the air and provide a definite basis for the Council or its Law and Parliamentary Committee to work upon.. I doubt whether a single member of the Council could conscientiously decline to vote for that resolution, and a useful degree of unanimity would thus be attained at the outset. It has been a matter of surprise to me that some such resolution was not passed by the Council long ago, before the discussion of the company pharmacy problem reached its present acute form. But it is not now too late to adopt that course in good time to provide a definite basis of operations for next year's Parliamentary campaign, and I commend this suggestion to the serious consideration of our representatives on the Council. In fact, taking everything into consideration, I am disposed to think that the passing of a formal resolution, and the appointment of a small deputation to lay the views of the Council before the Government, should precede any further premature experiments in clause drafting. Mr. Glyn-Jones has appealed to every critic of the Council's multi-policy to draft and submit a clause suitable for a Companies Bill, and he has rightly stated that it is easier to say what we would like than to embody our views in a presentable clause. My previous attempt in that direction is admittedly imperfect, but it has, at least, served as a useful basis for discussion—at the last meeting of the Council as well as elsewhere. The attempts of others may serve a similarly useful purpose, but the Council would be better occupied in striving to agree, if possible, upon a single definite line of policy, rather than in restricting its freedom of action by committing itself—at present—to the hard and fast lines of any clause.

ANOTHER SUGGESTED CLAUSE.

In conclusion, however, I venture to suggest another clause for the consideration of Mr. Glyn-Jones and his colleagues, as well as the pharmacists of Great Britain and Ireland generally. It follows the lines of the Lord Chancellor's clause in the Companies Bill, 1899; would apply to the whole of the United Kingdom; is consistent with the intentions of the Pharmacy Acts; expresses, I believe, what pharmacists want; and means exactly what is stated. Thus:—

"A company or other corporate body may not assume or use any title implying registration under the Pharmacy Acts of Great Britain or Ireland, and if any company or other corporate body contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding £5 for every day during which the contravention happens; and anything which would be an offence under Section 15 of the Pharmacy Act, 1868, or under Section 30 of the Pharmacy Act (Ireland), 1875, if committed by an individual, shall be an offenee if committed by a company or other corporate body; provided always, that nothing in this Section shall prevent the formation of a company of persons registered under the Pharmacy Acts of Great Britain or Ireland, to retail, dispense, or compound poisons."

IS FREE TRADE IN DRUGS DESIRABLE?

BY J. C. HYSLOP.

With the advance of civilisation there is to be seen an important difference in the evolutionary processes of commerce on the one hand and those of science on theo ther. The trend of commercial progress is always towards the accumulation of various branches of trade around a common centre; that of science, on the contrary, is of an opposite tendency, being distinguished by a differentiation of functions, almost *ad infinitum*. Hence the great advantage to the public welfare derived from the working of the Joint Stock and Limited Liability Company Acts, when honestly taken advantage of and applied, to facilitate commercial prosperity, as it was originally intended they should be. Hence, likewise, the disadvantage that must accrue to the public service when it is attempted to divert the machinery of those Acts from its proper sphere of action, and cause it to intermeddle with such strictly scientific pursuits as medicine and pharmacy.

A thriving commerce demands that stocks be accumulated and dispersed abroad with the utmost rapidity and with the minimum of cost as between producer and consumer. This rapid interchange of value for cash is equally good for both parties—small profits—quick returns. Accordingly, by the operation of the Limited Liability Acts, a wonderful change has been wrought in the character as well as the bulk of British commerce. And this change is still proceeding. No longer can we be taunted by our neighbours aeross the Channel with being a nation of petty shopkeepers, for the small shopkeeper is being rapidly wiped out of existence. The rapid character of his decadence is largely due to the arrogant extortion he was wont so long to inflict upon the public, that is a vice to which both he and the big store that has supplanted him seem equally addicted, only the bigger offender can stand his ground whilst the weaker one must go the wall. So it comes about that the British nation bids fair to become one of the big companies financed by those who know nothing of the business carried on in any of its departments; but depending for general success upon an army of branch managers, recruited largely from the ranks of the original shopkeepers, these being usually unknown men in the respective neighbourhoods where they are told off to transact business, always a mixed one, sometimes a very mean, at others a thriving one, but mean because badly managed, or thriving for the opposite reason matters little to the directorate, these branches and these managers being kept going mainly as an advertisement for the large concern which lays claim on paper to the ownership of such a gigantic list of depôts.

One would have thought that a moment's reflection was enough to bring home to any reasonable mind the wide differenee that exists between the two functions. First, that of the daily distribution of the ordinary necessaries of life and the comforts of healthy existence, and, secondly, those of the fitful and petty but onerous duties connected with the distribution of drugs and the compounding of medieines for the sick, with the supply of the various, often fantastie, aceessories that suddenly become needful, night and day, at times when ordinary traders are all closed for rest or holiday, for the benefit of all sorts and conditions of men.

Here, on the one hand, we have a steady and a rapidly flowing current, becoming more rapid and more extending still by taking a greedy advantage of every discovery and invention of science to supply the need of hungry mortals with a speed and a cheapness that is ever on the increase. Hurry of method and blatant self-assertion its native charaeteristic: a raee that does appear to be to the swift and a battle to the strong, where competition is the great watchword—fairness or unfairness being seldom regarded in this struggle. There, on the other, we have a dammed-up reservoir of all that is needed to alleviate the miseries of sickness, to cure where possible, and to sustain in as much comfort as we can the life that is fast ebbing away. The output here is under the control of men that have passed a statutory examination, and are sent forth with legal qualification for the fulfilment of their important duties. These are practically, as of old, the medical man and his store-keeper—a "pharmaceutical chemist" or a "chemist and druggist." These are supposed to spend their lives in awaiting the calls of duty. Engaged meantime in constant attention to the orderly arrangement and availability of his own individual system of things, somewhat as is the military man in attending to his proper drill, and keeping in order his ammunition and aceoutrements, in the event of a sudden call to arms.

Where you had before rapid disposal and ehange of stock, here you have a fixity of tenure ready for the rising emergency. The stock of a pharmaceutical chemist, though large and varied, need not be of a bulky kind, nor planned on an ostentatious scale. Nor is it likely to deteriorate with age if only its items be properly located and revised from time to time.

Here a man has no scope for competition in a trade sense, indeed the word need scarcely enter his business vocabulary. As to his profits and his returns, moreover, the latter can never be "quick;" the former must and ought to be large. "Business" in the case of the pharmacist is not a mere clearance of stocks of differing values for various qualities, it is rather a case of the aceurate selection of the very best picked articles of their kind, for rich and poor alike, that whether he dispenses prescriptions therewith, or sells them in doses or otherwise, he can with unerring technical skill certify their entire suitability for the purposes intended. He spends his life not in seizing upon all the appliances of science to outstrip his neighbours in the race for notoriety or for wealth, but in the application of science as science to the duties of that higher sphere of unlimited responsibility into which he is called to act.

Here there is no occasion for large capital; after the initial outlay of the man's educational equipment a small purse, a large mind, and individual industry is all that is needed.

In the wish to ignore these facts, people who should know better fall into curious mistakes. What can be more absurd, for instance, than to advise a young man fresh from the examination-room to get an assistantship in some of the large company stores, so as to gain an insight into business matters there? As if the mysteries of money taking in a big concern, the check-till with its accessories and the balancing of large accounts, were of such importance as to make a break of a year or two necessary in the pursuit of those scientific and artistic studies he has just obtained enough proficiency in to get through his qualifying examination.

Such advice as this, however well meant, will serve but to the overthrow of many, and perpetuate that block that for years past has impeded the course of pharmacy progress, and hindered man

who had the desideratum well in view from entering the land of rest and plenty.

It cannot be too earnestly pressed upon every successful examinee that the safe road is to go on cultivating still further the subjects mentioned in his examination syllabus, and that whether he start in business on his own account or not he should make it a *sine quâ non* of his arrangements to have in his map of life a certain daily amount of leisure for further study of the subjects in which he is certified to have gained a certain amount of proficiency, that otherwise the course of things will in a very few years pass him by and leave him stranded.

Besides these radical differences between those callings to which the machinery of the Limited Liability Acts may be applied with advantage, and that of pharmacy, which we have seen to be *sui generis*, and pre-eminently of a personal character, there are many offshoots of an interesting kind that might be noted did space and time permit. One only can be specified here—one of very great importance. The pharmacist by keeping strictly to his duties has to meet with a daily commercial loss of a kind unknown to others who are in touch with simple trading. He is daily obliged to limit his own returns in deference to the public convenience or the public safety. The risks indeed which attend the performance of his duties are many and serious. For instance (putting aside for the moment the responsibilities involved in the dispensing and sale of scheduled poisons), the misuse and the extravagant use of what are supposed to be harmless drugs call for his constant attention. This matter is more urgent now than ever, because of the mendacious assertions of advertising quacks, who are always seeking to make a cat's-paw of the chemist, and the risky advise to inquiring simpletons that is found in the "Answers to Correspondents" in many daily and weekly journals of a popular character.

First ought to be mentioned the large class of emmenogogues that are used in excess by foolish women for ecbolic action. Respecting those, one has to be on the daily *qui vive*. There is no law to prevent or restrict their sale; they have their legitimate uses, and only the conscientiousness of the chemist and druggist stands in the way of their application to the purposes of vice and crime.

Again, in every neighbourhood, but more especially in one densely populated with illiterate people, the chemist has often perforce to be a "first aid" in cases of accident or sudden emergency; a mother, for instance, will run to the chemist for a powder for her child who has had a fall, hurt its head, and is sick; a powder she will have unless the chemist knows his duty enough to refuse to supply her, and soundly caution her as to her own duties in such a crisis. Again, as to the harmless medicines taken to excess, a chemist only can estimate the amount of trouble caused thereby, for if the worst comes to the worst, it is all kept from the doctor and from the coroner. He is the only one in a position to check the evil; store and company pharmacy does but promote it by its cheap, rapid, and promiscuous methods of doing business. The two ounces of Epsom salts for a dose which has again and again proved fatal; the whole ounce of compound liquorice powder which is often taken at a dose, a teaspoonful being given to very young infants, especially after a fall, are but specimens of the injurious misuse of otherwise harmless drugs which a chemist is called upon daily to check at his own loss of pecuniary profit, supposing this to be his main consideration in business life.

Is it safe then, wise, or right that free trade principles should be applied to the distribution of drugs? *Caveat emptor* is a good motto as to buying food, clothing, or house furniture, but *caveat venditor* is surely the motto for the pharmacist with his knowledge of human nature and of the heavy responsibilities that rest upon him in the conduct of all his business.

THE LAW AND PHARMACY.

BY J. F. BROWN, PH.C.

Apparently the question now said to be hopelessly dividing chemists into two camps is the expediency or otherwise of recognising the fact that companies do actually carry on business as pharmacists.

The clause brought up before the Council on the 1st inst. by the Law and Parliamentary Committee assumes its present shape because it is intended to be an integral part of a measure dealing with companies generally, hence it is a simple prohibition having nearly the same force as extending the application of the word "person" to companies would have.

But not quite. A company formed only of registered chemists would, apparently, be forbidden by the clause to do that which the original Act, if amended as above, would allow them to do.

If that prohibition became law, the arrangement adopted by some of the older co-operative stores of having an individual chemist as part of their system and printing his name upon all labels would probably be generally adopted.

Such an arrangement as that would satisfy the aspirations of those who would limit their efforts to the protection of title, as distinguished from any attempt to confine the conduct and control of the business, as well as the profits, to the hands of qualified men.

The danger of concentrating our attention on the title only is that which attends all steps towards divorcing a name from the thing properly signified thereby.

Sooner or later crude popular common sense decides that whoever does the thing shall bear the name, and that if grocers and storekeepers do supply drugs, chemicals, and medicines, they are to all intents and purposes chemists.

To try and enforce the nominal distinction after the actual barriers of practice had been broken down would be as fruitless as to attempt to teach the public that not every medical practitioner is correctly a doctor, but only one who bears the title of M.D.

The wisdom and equity of reserving titles to those who have attained them by their personal exertions and sacrifices rests upon the assured foundation of natural justice.

But something more than this is needed to ensure the welfare of pharmacy: A proper share of the control and management of a business would necessarily carry with it a sufficient proportion of the profits to reward the exercise of proved ability.

Modern writers on economics fully recognise the distinction between the owners of capital merely and the captains of industry, or men of ability, by whose personal qualities, talents, and industry the capital is made productive.

In many departments of productive industry, the nature of the output and the value it attains in the market gauges with very considerable accuracy the worth of the man who works the business, and his remuneration follows that assessment.

It is the misfortune of pharmacy that, in its pursuit, the reward of merit is less easily discernible. Medicine is so far from being an exact science that the importance of the skill and care of a dispenser only emerges into notice in those cases—happily few—in which the lack of them has led to serious or fatal misadventures.

The prudence of the chemist who disregards the admonition "not to be wise above that which is written," and substitutes ʒss. for ʒiss. of liquor arsenicalis, because he knows, from past experience, that the smaller quantity was what the prescriber meant, remains altogether unknown to the patient, and cannot influence his judgment as to the worth of the services rendered.

Putting aside those medical practitioners who despise drugs as instruments in the art of healing, or affect to do so, the great majority of the profession possess but a very limited and defective knowledge of drugs, or even of therapeutics; and, therefore, they lack the power to discriminate between good and bad pharmacy.

Too often they descend to the level of their patients, and accept the guidance of those manufacturers of ready-made compounds, who

rely upon bold advertisement; thus the dispensing chemist is virtually ousted from his work by the girl in the factory.

In the vast field of minor or fancied ailments, for which no one thinks of resorting to medical aid, the evil is greater still: the attitude of a large section of the public is to bar out of the competition the individual chemist with whom they enter upon any personal transaction.

In such a condition of public feeling it would seem hopeless indeed to expect that the use of capital owned by unqualified persons should be proscribed in pharmacy.

Yet we are, or should be, unwilling to loosen our hold upon such poor hopes of independent existence as remain to us.

The law requires that a licence for the sale of intoxicating liquors shall be held by a specified individual, regarding whose character testimony must be forthcoming, and whose place cannot be taken by another without the sanction of the proper authority.

That procedure is found compatible with the fullest extension of company trading. Can any similar system be devised by which the requisite responsibility in our calling can be fixed upon the proper person, while the individuality of the chemist can be maintained?

If the sale of methylated spirit and of patent medicines had been licensed to registered chemists only, the needful machinery would not be far to seek.

But the course of our fiscal policy, and our economic beliefs, have alike been inspired by those maxims of unredeemed selfishness which we call political economy. The chemist's timid plea for a living wage is drowned in the blatant bellowings of the devotees of cheapness. The public views with an indulgent, if not an admiring, eye the career of the company promoter who makes—and loses—a fortune of five millions at their expense; but grudges sorely the few paltry pence we claim in reward of our services. A mad world, my masters!

Amongst the throng of suggestions put forward for the solving of this knotty problem I will only refer to that of Mr. Barnard S. Proctor, who proposes to forbid "company pharmacy" unless the company be under the direction of legally qualified men only.

With that I heartily concur; but his further proposal, to register existing unqualified directors of drug companies, is a grievous mistake. No more fatal blow could be dealt at the advancement of pharmacy than to admit past usurpation as a valid plea for ranking equally with hard-won qualification.

That education and training are essential to the proper conduct, control, and management of the chemist's business is the bed-rock of our position; upon that we must keep our feet firmly planted.

In conclusion, I suggest with confidence that the wiser, bolder, and more logical course seems to be the adoption of a clause similar to that drafted by the Law and Parliamentary Committee, since from it we can fall back, under pressure of superior force, to the position of requiring all company pharmacy to be under the direction of qualified men; and yet a third line remains—that of seeking protection for titles only.

SOAP OF SODIUM DIOXIDE FOR ACNE.—Anhydrous soap containing from 10 to 20 per cent. of sodium dioxide, and made into a paste with liquid paraffin, has been used with marked success by P. Unna in the treatment of various forms of acne. The application is made from once to thrice daily, according to the severity of the case; a thin layer is spread over the affected parts and then rubbed over with a pad of wool, moistened with water, which causes the disengagement of oxygen and produces a lather. The friction is continued until the pain which it causes becomes well marked, when the lather is at once washed off with water. In the intervals of the applications the usual ointments used for acne are employed. In chronic cases, Unna commences by using a soap containing 10 to 20 per cent. of the dioxide, gradually diminishing the strength as the case progresses.—*L'Union Pharm.*, **40**, 391.

PHARMACEUTICAL SOCIETY.

Appointment of Examiners.

The appointment of examiners at the last meeting of the Council of the Pharmaceutical Society has now been formally approved by the Privy Council, as indicated by the following Order of Council:—

AT THE COUNCIL CHAMBER, WHITEHALL,
The 11th day of November, 1899,
By the Lords of Her Majesty's Most Honourable Privy Council.

PRESENT,
LORD PRESIDENT
LORD BALFOUR OF BURLEIGH
SIR JOHN GORST.

Whereas there was this day read at the Board a letter to the Clerk of the Council from the Secretary and Registrar of the Pharmaceutical Society of Great Britain, dated the 3rd day of November, 1899, in the words following:

"I have to acquaint you that at a meeting of the Council of this Society held on Wednesday last, the gentlemen whose names appear on the other side were appointed Examiners for the ensuing year, and I am requested to submit their names to the Privy Council in accordance with the provisions of the Pharmacy Act, 1868.

"Neither of the persons appointed has held office as a Member of the Council of this Society during the year preceding the date hereof."

ENGLAND AND WALES.

William Arkinstall	Alfred James Phillips
John Bretland Farmer	John Edward Saul
Edward H. Farr	Alfred Edward Tanner
R. John Harvey-Gibson	John Millar Thomson
F. Stanley Kipping	Harold Wilson
Ernest Saville Peck	Robert Wright.

SCOTLAND.

Isaac Bayley Balfour	Jonathan Innes Fraser
Peter Boa	James Jack
Alexander Davidson	George Lunan
Leonard Dobbin	James Fowler Tocher.

And whereas by the sixth section of "The Pharmacy Act, 1868" (31 and 32 Victoria, cap. cxxi.), it is provided that no person shall conduct any examination for the purposes of that Act until his appointment has been approved by the Privy Council.

And whereas it appears that the persons appointed are, as required by the Bye Laws of the Society, under the age of 65 years, that none of them have held office as Members of the Council during the preceding twelve months, and that no objection exists to the approval of the Lords of the Council being given to such appointments.

Now, therefore, their Lordships are pleased to approve the appointments of the said persons as Examiners for the year 1900 for the purposes of the Pharmacy Act, 1868.

A. W. FITZROY.

IRON LANOLINE FOR DIPHTHERIA.—O. Katz recommends, in the *Archiv für Kinderheilkunde*, iron lanoline in conjunction with antitoxin, for the local treatment of diphtheria. The ointment is composed of iron sesquichloride, 30; distilled water, 3; lanoline, 50. To be applied several times daily. J. Braun has also used a similar ointment, which he applies by means of wool smeared with the ointment, attached to a rod, with which, by a rotatory movement, the diphtheric membrane is removed, and the affected parts brought in contact with the ointment.—*Oesterr. Zeits. für Pharm.*, **53**, 453.

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THE PROBLEM OF "COMPANY PHARMACY."

Agreement among the fifteen thousand persons whose names are on the Register of Chemists and Druggists being now a main desideratum in reference to "the problem of company pharmacy," attention may be directed to the important declaration of the President of the Pharmaceutical Society "that the members of the Council are agreed upon two great points, viz., to protect the titles and uphold the principles of the Pharmacy Act, 1868" (see page 490). That declaration appears to convey a statement of policy sufficiently definite to secure the adherence of all registered persons and to compensate for any disappointment caused by "skilful concealment" of views on that subject. But the policy indicated by that declaration appears to be directly opposed by the provisions of Clause 2 of the Companies Bill that would allow companies to use titles implying legal qualification and also to infringe the principle that persons engaged in the practice of pharmacy, should possess competent skill and knowledge. That fundamental principle of all the Pharmaceutical Society's work has been so much overlaid and concealed by consideration of trade interests that although, from the legislative point of view, the regulated practice of pharmacy has been reduced to the retailing, dispensing and compounding of scheduled poisons, the Pharmacy Act has generally been regarded as establishing a monopoly of the trade in drugs and all the other accessories of a chemist and druggist's business. To the influence of such erroneous opinion may be attributed the distinction made in the Companies Bill between the practice of medicine, etc., and pharmacy; the provisions affecting pharmaceutical practice differing from those affecting medical practice, as if the titles and qualification of pharmaceutical chemists and chemists and druggists related only to matters of trade.

Taking Clause 2 of the Companies Bill as indicating the nature of the provisions contemplated, by the Lord Chancellor and by the House of Lords' Committee, as necessary for the regulation of "chemist companies," it does not go beyond requiring that the business of a company shall be *bona fide* conducted by a duly qualified person. That may be understood as some recognition of the necessity for personal qualification, in order to make the Pharmacy Act effective for the attainment of its object—the safety of the public. At the same time, it involves the assumption, that contributed so largely to the decision of the House of Lords, viz., that the sale of poison is the great source of danger and, consequently, that qualification of the person actually selling is of more importance than qualification of the person who is the proprietor of a shop, and on whose behalf a sale is made. If the transactions referred to by that provision for regulating companies were simply matters of ordinary trade, the possibility of objecting to Clause 2 of the Companies Bill would be considerably reduced. That possibility might perhaps be altogether done away with, in regard to trade transactions, if efficient machinery could be devised for carrying out the intended regulation of "chemist companies." In support of such regulation the argument might be advanced that it would be consistent with the action of the Legislature in passing the Act of 1868 and in taking the assistant qualification as sufficiently providing for public safety. Now that the great majority of registered persons have passed the qualifying examination, the view may be taken that a legally qualified person, actually conducting the business of a "chemist company" as an assistant, would satisfy all the requirements of the Act and secure its object as well as if he were the proprietor of the business. That view of the matter would be a logical consequence of substituting the lower grade qualification that had been required for assistants, for the qualification that had previously been considered necessary for the proprietary exercise of the business. That result of the concession then made to those who took a trade view of the chemist and druggist's business, has gained such force, by the decision of the House of Lords and from the practice of companies, that many legally qualified chemists appear to regard their position as being lost beyond any possibility of recovery, so far as necessary qualification of the proprietor of a business is concerned.

Without admitting that there is an inevitable need for recognising company pharmacy, consideration of the view that some regulation of companies should be adopted, in order to remedy the abuse of chemist companies, will show that there is still considerable ground for objecting to the provisions of Clause 2 of the Companies Bill. Taking, in the first place, the business that is to be *bona fide* conducted for a company by a duly qualified person, the claim may reasonably be made that it shall be conducted in a manner consistent with the object of the Pharmacy Act and with the provisions that apply to individuals carrying on business on their own account. The person whose qualification is to give sanction to that mode of carrying on the business of a chemist and druggist should, therefore, have a more prominent and responsible position in connection with the business than that of an ordinary assistant or manager, who would be the servant of the company that owns the business. Some further regulations might be necessary

in such a case, accordingly as the business carried on was essentially of the nature of trade, *i.e.*, the mere sale of poisons, drugs, and medicinal preparations coming within the scope of the Pharmacy Act, or when it included also the more professional duties of dispensing medicines. If companies are to be allowed to carry on business of this latter kind by the agency of qualified persons, much more stringent regulation would be requisite than in the case of mere trade sales, in order to meet the view of the LORD CHANCELLOR that the public has a "right to know that its medicines are compounded and dispensed by qualified persons." Under existing conditions there is no sufficient guarantee for that being the case; for if companies are to be regarded as outside the scope of the Act they would be under no obligation to employ qualified persons to conduct either the sale, dispensing, or compounding of poisons. Nor would there be any adequate means of ascertaining improper procedure in such cases by companies.

If, therefore, companies carrying on business as chemists and druggists are to be subjected to regulations as the LORD CHANCELLOR thinks necessary, because companies "ought not to be permitted to do what a private person is prohibited from doing," Clause 2 of the Companies Bill does not sufficiently define the regulation necessary for that purpose. But the authority that clause would give to companies for using the title indicating statutory qualification, constitutes a much stronger ground for opposition to it, as being inconsistent with the LORD CHANCELLOR'S conviction "that a company ought not to be permitted to do what a private person is prohibited from doing." Opposition to that clause is still further justified by its proposal to allow companies to use the title of pharmaceutical chemist, which relates more distinctly to a professional practice, viz., the dispensing of medicine and the general practice of pharmacy. If a distinction can be made between that practice and the business of a chemist and druggist which partakes more of the nature of ordinary trade, there might be a possibility of compromise that would satisfy conflicting claims without interference with "any proper vested interest," and, on the other hand, without exposing the public to "the dangers of the practising of unqualified persons as dispensers." The carefully worded remarks of the LORD CHANCELLOR on the third reading of the Companies Bill in the House of Lords last August, may be interpreted as expressing the view that such a distinction is to be drawn: that there is a real difference between the professional duties of pharmaceutical chemists and that part of the business of chemists and druggists which is of a trade character. Regulation of the former would necessarily involve consideration of the qualification of a proprietor of a business—always held by the Pharmaceutical Society to be essential for the practice of pharmacy—and such regulation would naturally come within the scope of a Pharmacy Bill; while regulation of the business of chemists and druggists might perhaps be sufficiently adapted to the conditions of trade, to secure the object of the Pharmacy Act, 1868, and even admit of the personal qualification required by that Act being made an essential condition when a business belongs to an unqualified proprietor.—But as yet no plan has been proposed by which those objects would be secured.

SUGGESTED CLAUSE FOR THE COMPANIES BILL.

A CORRESPONDENT, who has apparently taken seriously to heart Mr. GLYN-JONES'S appeal that every critic of the Council's policy should draft and submit a clause for a Companies Bill, sends the following ingenious clause, which he suggests might advantageously take the place of Clauses 2 and 3 of the Companies Bill, 1899, if that ill-fated measure should ever be resuscitated;—

> In regard to any contravention of the Medical, the Dental, or the Pharmacy Acts in force in Great Britain (*or*, in the United Kingdom), a company or other corporate body shall be deemed to be a person, and shall be in all respect subject to the liabilities attaching to a natural person who infringes any of the provisions of those Acts or either of them.

He asks if this is not the kind of clause that the professions concerned might join forces upon? It does not prohibit the formation of companies to carry on the trading side of the professions, and it would only come into operation when a company or other corporate body (this covers the case of firms in Scotland) did something which the Statutes say an individual must not do. It goes direct to the root of the evil, and should meet with the LORD CHANCELLOR'S approval, inasmuch as it would greatly aid in preventing, if it did not entirely prevent, the compounding of medicines by incompetent persons—an evil his Lordship is greatly impressed with. In regard to existing companies and the "proper vested interests" mentioned in his Lordship's speech, the clause would not prevent those interests being conserved. If, for the convenience of the public, continues our correspondent, a company wishes to have a pharmacy on its premises, the object can easily and legitimately be accomplished—let the company arrange with a registered man to exercise his calling on the premises, which might be better for the company as well as for the registered man; for the one would receive a regular rent and the other might find advantage in a regular *clientèle*. The company, too, would escape all those little liabilities under the Sale of Food and Drugs Acts, Stamp Acts, etc., to which chemists are subject.

The suggested clause also preserves the principle of the Pharmacy Acts, and remedies without unnecessary verbiage the House of Lords' decision of 1881. However perfect that may have been from a legal point of view, so far as the determining circumstances were duly considered, it can be shown to have been contrary to public policy and to the manifest intention of the Pharmacy Acts; besides having given rise to the legal anomaly which the LORD CHANCELLOR has declared to be contrary to common sense. Objection may be made by the medical, dental, and even the pharmaceutical authorities that the clause would not remedy certain defects in their respective Acts, which is true enough. But it is contended that defects in a given Act should be more properly corrected by an amending Act of the same species. The merit of the suggested clause is that it does not deal with defects in any of the Acts quoted, but with a condition arising out of the operation of the Companies Acts, hence a Companies Acts Amendment Bill is the proper place for it. At the same time, the clause does not go beyond upholding the principle of the Pharmacy Act, 1868, as suggested by Mr. BULLEN, Mr. SMITH and — with commendable coherence—by Mr. GIFFORD (see page 519).

ANNOTATIONS.

Registered Chemists and Druggists, before resigning themselves to acquiescence in the view that regulation of "company pharmacy" is inevitable, will do well to consider, before it is too late, what would be the consequence of thus doing away with the provisions of the Pharmacy Act. If Clause 2 of the Companies Bill were enacted as it stands any grocer might convert himself into a company and have a notice posted in his shop that A. B., a duly registered person, there conducted, as his manager or assistant, the business of a chemist and druggist. In that way the number of chemists' shops throughout the country might be, to all intents and purposes, doubled, and the lawfully acquired interests of registered persons correspondingly damaged. Of the remedies proposed for such a state of things, the qualified directorate is probably the most fallacious. It appears to be an attempt to save the shadow of proprietary qualification in a way that would involve loss of the substance. In that respect it is open to objection, because it would curtail the privileges appertaining to qualification, and because it would fall short of securing the public object of the Pharmacy Act, inasmuch as the directors of a company would not be the persons conducting the business of the shop or shops owned by the company. The qualified assistant or manager plan is equally objectionable: from the chemist's point of view, because qualified persons would only be the servants of companies and, in the interest of the public, because it would do away with the necessity for qualification of the proprietor of a chemist and druggist's business, which is the really trustworthy basis of confidence. The only alternative mode of regulating "company pharmacy" appears, therefore, to be protecting the title and upholding the principle of the Pharmacy Act. The plain English of that is qualification of individual proprietors, and its effect would be the abolition of "company pharmacy."

The Pharmaceutical Position in Scotland puzzles a reader of the Journal, who cannot understand why the Pharmacy Act of 1868 should have been described by Mr. J. Rymer Young, in his interpretation of that Act (see *P.J.*, December 17, 1898), as being "practically a dead letter in Scotland." Why, he asks, is an ordinary firm held to be a body corporate north of the Tweed? We are unable to say more than that it appears to be an accepted principle in Scottish law, as illustrated by dicta by Lord Young (in the Leith Depôt case) and others. In a private letter recently received from a Scottish member of the Pharmaceutical Society, he says,:—"It may interest you to know that Scottish pharmacists are only indirectly interested in the Lord Chancellor's Bill; that is, those who really understand the situation. Even if passed to-morrow, it would be entirely inoperative in Scotland, because private firms are not affected by the Bill, and they can do all the things that only limited companies can do in England." The position in Scotland may be as stated; in fact, we know that counsel's opinion has been given to that effect. Assuming the position to be as stated, however, it is interesting since it appears to be another instance of the legal anomaly that has troubled the Lord Chancellor. If firms in Scotland can carry on their business as free from any restrictions imposed by the Pharmacy Act as a joint-stock company, they might, in that case admit unqualified persons as partners and they need be under no obligation to leave their pharmacies in charge of duly qualified individuals; but it is doubtful if they could legally sell poisons in the first part of Schedule A. For a would-be purchaser cannot be known by, or introduced to, an ideal person, nor can an ideal person make entry in a poison book of the necessary particulars, as required by Section 17 of the Pharmacy Act, 1868.

As Regards the Interpretation Act, which applies to Scotland as well as England, it certainly appears—as Mr. Rymer Young pointed out—as though that measure would permit the Council of the Pharmaceutical Society to bring actions under Section 15 of the Pharmacy Act against companies and other corporate bodies in Scotland. All offences under the Act in Scotland are "punishable on indictment or summary conviction," and the expression "person" in the Pharmacy Act would, therefore, seem to include a body corporate in Scotland. We understand, however, that counsel's opinion again blocks the way here. The Interpretation Act states that "in every enactment" the expression person shall include a body corporate, "unless the contrary intention appears," and the legal view referred to is that the contrary intention was made to appear by the House of Lords' decision in the case of the London and Provincial Supply Association. But a common-sense reading of the words of the Interpretation Act does not support that view; the "contrary" is to appear in the enactment under consideration, not in judicial interpretations thereof, and, until the contrary is specifically held by the judges to appear in the Pharmacy Act, 1868, such expressions of opinion as that of Mr. Rymer Young seem to be thoroughly justified. Mr. Young urged, in the address already referred to, that a test case should be brought under Section 15 against a Scottish limited company, the argument being pressed that the Interpretation Act renders a corporation a "person" within the meaning of the Section. Similar views are held by others in the ranks of pharmacy, who hold that—counsel's opinion notwithstanding—there is everything to gain and nothing to lose except the costs of the test case. As regards the latter, even if the case were lost, the money would be well spent, as the present condition of uncertainty as to what the law really is in Scotland would then be terminated.

That Blessed Word "Monopoly" is continually used by the self-constituted opponents of registered chemists, in their endeavours to injure the position of the latter in the eyes of legislators and persons in authority generally. The latest misapplication of the term appears in the *Grocer*, where it is gravely stated that chemists are endeavouring "to extend their monopoly" by attempting to prevent joint-stock companies from trading as chemists when they have a duly registered chemist's assistant upon the staff, also by extending the schedule of poisons which may only be sold by "a registered pharmaceutical chemist." A fine example of a diplomatic lie is the statement which follows, to the effect that chemists sought the aid of the Lord Chancellor, who, however, turned out a "regular Balaam," and instead of cursing the companies sought to bless them by introducing a Bill which made their title to carry on a chemist's trade even clearer than some think it is at present. Referring to the fact that there have recently been a great many discussions on this subject at meetings of pharmaceutical associations, it is quite correctly stated that at several meetings the claim was seriously put forward that chemists want the trade restricted for the public good; they do not desire to reap any personal advantage. The public good is the magnanimous object leading chemists have in view, and that is more than can be claimed for anything that is suggested at meetings of grocers' associations. The hysterical appeal to grocers to see that "the monopoly which the chemists secured by the remarkable reading of the Pharmacy Act of 1868 in the case of the Pharmaceutical Society *v.* Piper" is not further extended is perhaps excusable, allowing for the evidently perturbed state of the writer's mind, but he cannot seriously think that Parliament will relax the present insufficient restrictions on the sale of poisons. To talk of attempts being openly and covertly made in the direction of extending a non-existent "monopoly" is simply nonsensical, and it is equally absurd to say that proprietary medicine manufacturers and retailers will have to keep a sharp look-out during the next session of Parliament, to prevent further interference with legitimate and reasonable trading.

THE WOLVERHAMPTON CASE, referred to last week—in which, by the way, the defendant was fined forty pounds, and not forty shillings, as the compositor took it upon himself to state—is the subject of a communication from Mr. J. H. Coleman, who states that a protest from him concerning the misapplication of chemists' titles was unheeded by local newspapers. He says:—"I wrote a strongly-worded letter, in which I stated that there is no such title as 'unqualified chemist,' that the title 'chemist' was obtained after hard work and study, and that the editor of the *Midland Evening News* insulted chemists by giving the man that title." The letter, however, was suppressed, and the only response made was that the defendant had said he was "an unqualified chemist"; subsequently he was again referred to in the same papers as a chemist. Mr. Coleman asks what is to be done when "such pigheadedness" exists, and newspapers refuse to be fair. The only remedy is to keep pegging away, and urge other chemists to do the same. Every chemist in and about Wolverhampton should have followed Mr. Coleman's example. Protests should be entered, in such cases, by as many individual chemists as possible, as well as by a local association, if such a body exists. If the protests are ignored, copies of them should be sent to the Editor of the *Pharmaceutical Journal*, accompanied by the names of newspapers which have refused to print or notice them. In this connection it has been suggested to the Editor that—because a registered chemist (whose only qualification is that he was in business before August 1, 1868) was convicted at the same time as the herbalist, for selling spirit of nitrous ether deficient in strength—it would be wiser to remain silent with regard to the misapplication of the title "chemist" by local newspapers. But if Wolverhampton chemists are careful of their reputation and title they cannot afford to allow the latter to be applied indiscriminately to any dealer in medicinal articles, even though the reputation of one of their number has been unpleasantly besmirched.

THE CORRECTION NOTIFIED in the foregoing paragraph is, unfortunately, not the only one for which we must apologise to our readers this week. It may be taken for granted that no copy of a newspaper is ever produced without containing more or less serious errors, but in last week's Journal compositors and printers' readers appear to have emulated each other in making and overlooking mistakes. To such an extent did that occur that several words were omitted and wrong letters inserted after the matter had been passed for press. That is to say, after the Editor had marked the final corrections, the compositors wilfully altered what was right and made it wrong. Illustration of that excess of zeal on the part of the printers will be found in the otherwise excellent report of Professor Green's lecture at the Society's evening meeting last week. The most serious error in the report is at page 475, column 2, where line 33 was accidently dropped. The incomplete sentence should read as follows:—"When split up the formula of each product is $C_6H_{12}O_6$; one of these sugars produced by splitting up cane sugar deflects the polarised rays, etc." Other mistakes in the report and elsewhere are obvious, and we can only express regret that the compositors should have allowed themselves to be so carried away by exuberant energy. Such displays of eccentricity are, of course, not unaccompanied by a certain risk of resulting in mischief; it is hoped, however, that the steps which have now been taken will prevent any risk of that kind for the future.

FOOD PRESERVATIVES were under discussion at meetings of the Departmental Committee on Preservatives and Colouring Matters in Food last week, when Sir Herbert Maxwell, M.P., presided, and was supported by Professor Thorpe, Dr. H. Timbrell Bulstrode, Dr. Tunnicliffe, and Mr. Charles Huddart, secretary. A representative of the Grocers' Federation said it was now absolutely necessary to use borax or boric acid for preserving ham, bacon, and butter, on account of the great demand for a mild-cured article. These, he claimed, constitute the most effective preservatives known, especially for stopping fly-blow, and quite seventy-five per cent. of the hams and bacon sold in this country were said to be treated with them. After the bacon or ham has been prepared for cooking by the consumer most, if not all, of the borax or acid is said to have disappeared, so that in actual consumption the percentage present at the time the article is consumed must be small. A Kerry landowner, who has started a creamery for the benefit of his tenants, said that he generally sent to England butter described as "saltless"—that is, butter cured with one pound of boric acid to the hundredweight of butter. The preserved butter must be good, he stated, because impurities can be so easily detected in it, whereas in the heavy salted butter the salt, more or less, covers "sins" in the butter. Enormous figures were quoted by a representative of the London Chamber of Commerce, who said that the trade in Canadian hams had increased since 1889 from something like 300,000 dollars to 1,800,000 dollars in 1898, and that he attributed to the use of preservatives. If the treatment of hams by borax were prohibited, the whole of this gigantic trade from Canada would come to an end. There was also a very large and increasing trade in Australian butter, and that trade hinged upon the use of borax, the butter being washed in a solution of the preservative. The chairman of Hudson Brothers (Limited) said that his firm would have to give up selling cream, if the addition of boric acid as a preservative were prohibited. The evidence, upon the whole, in fact, was decidedly in favour of the use of borax and boric acid as preservatives being permitted to continue. No arguments of any importance have yet been advanced on the other side.

COLOURING MATTERS IN FOOD were dealt with by the representative of the preserved food section of the London Chamber of Commerce at a meeting of the Committee this week. He stated that sulphur was generally used in small quantities for dry fruits; it gave an artificial bloom to Carlsbad plums, for instance. Cochineal was used with many articles, such as jams and jellies; preserved cherries in bottles could not be sold unless they were so coloured. Copper sulphate was used for colouring greengages, peas, and beans; the public would not buy these articles unless they were artificially coloured a bright green. Preserved vegetables coloured by sulphate of copper were alleged to be eaten in all the leading hotels, restaurants, and clubs in London, and it was stated that no one had been injured in health by eating vegetables the colour of which was preserved by that means. The London Chamber advocated the imposition of a *maximum* quantity of sulphate of copper, say, two grains to a pound of peas; the trade would agree to the preserved vegetables being labelled, "These goods are artificially coloured"; but it would be difficult to say that a certain bottle contained so many grains of sulphate of copper. Asked by the Chairman if, on the use of strong poisons for colouring matter being prohibited altogether, the public would not be reconciled to buying things off colour, the witness said the public would rather do without the articles than have them of a pale colour.

THE CONFERENCE ARRANGEMENTS FOR 1900 will, presumably, be attacked seriously after Wednesday, December 6, on which day a representative General Committee will be appointed at a meeting in the Pharmaceutical Society's London House. As will be seen on perusing the letter of the honorary local secretaries at page 518, all pharmacists in London are invited to attend the general meeting, and are also privileged to subscribe to the proposed entertainment fund. Subscriptions are to be limited to two guineas in the case of individuals, or five guineas in the case of firms. Even with those limited amounts it ought not to be difficult to raise the three or four hundred pounds which it is estimated will be required. An important point to bear in mind is that it is not

sufficient to promise a subscription to the entertainment fund; the amount should be sent as early as possible to the Hon. Treasurer, Mr. J. H. Mathews, 68, Queen's Gardens, London, W.

Professor Johann Carl Wilhelm Ferdinand Tiemann died of heart disease at Meran on November 14. According to the *Times*, he was born at Rübeland in 1848, became a Ph.D. of Göttingen in 1870, and in 1882 was appointed professor of chemistry at Berlin University, undertaking from the same date the editorship of the proceedings of the German Chemical Society. Professor Tiemann was the author of numerous important researches having for their object the discovery of the constitution of the camphors, terpenes, and other organic bodies. As a result of his work in theoretical chemistry he was able to found a new and valuable branch of chemical industry, in the manufacture of artificial flavouring matters and perfumes, such as vanillin and ionone, which represent the odours of vanilla and violets respectively. In July last Professor Tiemann was in this country successfully defending his ionone patents against a petition for revocation, and the complexity of the chemical questions at issue may be judged from the fact that the case occupied the attention of Mr. Justice Cozens-Hardy for more than a week. Professor Tiemann was a brother-in-law of the famous chemist, A. W. von Hofmann, and a son-in-law of Kuno Fischer.

Sir William Dawson, the distinguished Canadian geologist, has died suddenly at Montreal. He was born at Picton, Nova Scotia, in 1820, and was partly educated there, afterwards proceeding to Edinburgh University, where he took his M.A. degree in 1842. After spending some time in scientific exploration, under Sir Charles Lyell, and contributing important papers to the Geological Society of London, he became lecturer on natural history at Dalhousie College, Halifax, and, later, superintendent of education for the province of Nova Scotia. In 1855 he was appointed Principal of McGill University, Montreal, and under his guidance that university developed marvellously. He had been President of the Royal Society of Canada and of the American Association for the Advancement of Science, was a Fellow of the Royal Society, LL.D. of Edinburgh University, and K.C.M.G.

Marconi's Wireless Telegraphy is rapidly establishing its position as an ideal means of communication between points far apart. A correspondent of the *Times* writes to say that as Mr. Marconi recently left New York he cabled to the office of his company in London that he would speak to the Needles from the steamship "St. Paul" on arrival in English waters. It was ascertained that the "St. Paul" was expected at Southampton on Wednesday of last week, andarrangements were at once made at the Needles to speak to the Haven at Poole. Signals were sent out at repeated intervals and at last, in the most natural and ordinary way, the bell rang at 2.45 p.m. The question was asked: "Is that you 'St. Paul'?" "Yes." "Where are you?" "Sixty-six nautical miles away." In a few minutes the Needles staff was transcribing four cablegrams for New York, and many telegrams for many parts of England and France, which had been sent from fifty to forty miles by "wireless telegraphy," to be despatched from the Totland Bay post office. This striking practical proof of the indisputable commercial value of Mr. Marconi's system is of very great interest, for, as pointed out by the writer of the letter, steamers, ships, lighthouses, lightships, with land stations all along the coast lines, can not only help commerce by this means, but will add most materially to the security of ocean travel.

Calcium Carbide has now become an object of attention to the Thames Conservancy, and notice has been given by that body to the effect that—whereas calcium carbide presents dangers similar to those presented by petroleum, and whereas by an Order in Council on the 26th day of February, 1897, it was ordered and prescribed that certain parts of the Petroleum Acts, 1871 to 1881, shall apply to calcium carbide in the same manner as if it were petroleum to which the Acts apply, the carbide shall only be carried on the river Thames in metal drums, which shall be strongly made and securely closed, so as to be air-tight and water-tight. The quantity contained in any drum is not to exceed 140lb. avoirdupois. Above or to the westward of Thames Haven, calcium carbide is only to be carried on the river Thames in open barges licensed for the purpose by the Conservators. At the same time, nothing in the Conservancy bye-laws is to prevent the Conservators from giving permission in writing, under the hand of the secretary, for the carriage of small quantities of carbide on the Thames, above or to the westward of Thames Haven, in other than licensed barges, subject to any conditions specified in such permission.

Donations to the Benevolent Fund.—Mr. T. R. Williams, of Messrs. Wright, Layman, and Umney, Limited, has been good enough to interest himself on behalf of the Benevolent Fund of the Pharmaceutical Society amongst his friends in London, north of the Thames, from whom he has made a sixpenny collection, amounting to £4 1s. 6d., which has been handed over to the Secretary, Mr. Richard Bremridge. Mr. W. J. Henson, acting on behalf of the Committee of the Junior Pharmacy Ball, has also forwarded the sum of £10 10s. for the Benevolent Fund.

The First List of Stewards for the Chemists' Ball is about to be printed, and the Hon. Secretary, Mr. William Warren, asks us to state that he will be glad to receive the names of any gentlemen who are desirous of assisting in the capacity of steward. Names received at 24, Russell Street, Covent Garden, W.C., on or before Monday next will be included in the list now in course of preparation.

The "Bogus" or "One-Man" Company, in which 94 per cent. of the share capital may be in the hands of one shareholder who is really the company, is the great danger to be feared by the registered chemist. The Companies Bill does not touch that abuse, but the precedent furnished by such companies might be utilised for the purpose of preventing that abuse by a clause to the effect that a company formed to carry on any profession or business requiring legal qualification shall have one director holding that qualification, and that his qualification as director of the company shall amount to not less than three-fourths of the share capital.

Veils Cause Red Noses, according to a German physician, whom the *Medical Press* quotes as having formulated an indictment of the veil as a cause of acne rosacea affecting the nose. He relates a number of instances in which young women, otherwise in excellent health, developed this distressing condition consequent upon the habit of riding, cycling, etc., in veils. His view is that the lesion is caused by the friction of the skin against the veil, impregnated with moisture from the breath, the effect being exaggerated by the tightness with which it is necessary to attach the veil when indulging in athletic pursuits. The remedy suggested is to abandon the use of the veil or to wear it loose, anointing the nose with lanoline or some other suitable lubricant.

The First Evening Meeting in Edinburgh will be held in the Pharmaceutical Society's House, 36, York Place, on Wednesday next, November 29, at half-past eight. An inaugural address will be delivered by Mr. Peter Boa, Chairman of the Executive of the North British Branch, and the Assistant Secretary will subsequently refer to the recent additions to the Museum and Library in Edinburgh.

CHEMICAL SOCIETY.

A meeting was held on Thursday, November 16, the PRESIDENT, Dr. Thorpe, F.R.S., in the chair. The first paper, by W. J. Sell, M.A., and F. W. Dootson, M.A., dealt with the chlorine derivatives of pyridine, part iv.

THE CONSTITUTION OF TETRACHLORPYRIDINES

It was shown that three tetrachlorpyridines are possible. The action of phosphorus pentachloride on pyridine yields two of them. The proof of their constitution was gone into in some detail.

The most important communication of the evening was that of Wyndham R. Dunstan, F.R.S., and Harold M. Read, on

JAPACONITINE AND THE ALKALOIDS OF JAPANESE ACONITE ROOT.

This makes the fifteenth contribution to our knowledge of the aconite alkaloids that has been made by Dunstan and his co-workers.

The alkaloids of the Japanese aconite-root have been worked on by several workers, but hitherto their results have shown no very close agreement. In 1879 Wright and Luff made an investigation of the crystalline alkaloid japaconitine, obtained from the Japanese root, and gave it the formula $C_{66}H_{88}N_2O_{21}$. Since then it has been stated by Mandelin, Lübbe, Freund and Beck that the crystalline alkaloid aconitine, obtained from *Aconitum napellus*, is identical with japaconitine. Wright and Luff consider them to be distinct, and that japaconitine is the anhydride derived from two molecules of the parent alkaloid.

The authors have taken up the investigation of the alkaloids of the Japanese root, and have come to the conclusion that Wright and Luff were correct in regarding japaconitine as different from aconitine. They do not, however, agree with Wright and Luff as to the composition and properties of the alkaloid and its derivatives.

According to the authors japaconitine crystallises in colourless needles, melting at 204·5° C. Pope has recently examined the crystallographic characters of the three alkaloids japaconitine, aconitine, and pseudaconitine (obtained from *Aconitum ferox*), and finds them different. Japaconitine is almost insoluble in water and light petroleum, and soluble in acetone, chloroform, ether, and in alcohol. Cash is now engaged in investigating the physiological action of the alkaloid; at present he finds it closely resembles aconitine in physiological action.

The composition of japaconitine is given provisionally, and its complete exposition will furnish material for a future paper. It contains four methoxyl groups, one acetyl group, and one benzoyl group. Its formula may be temporarily looked upon as

$$C_{21}H_{29}(OCH_3)_4(CH_3CO)(C_6H_5CO)NO_3$$

Among the salts of japaconitine that have been examined are the following:—

Hydrochloride	m.p.	149-150° C.
Hydrobromide	,,	172-173° C.
Hydriodide	,,	207-208° C.
Nitrate	,,	194° C.
Aurichloride	,,	231° C.

All these salts are lævorotatory; japaconitine resembles aconitine in being dextrorotatory, but its specific rotation is higher.

Japaconitine is hydrolysed by alkalis and by acids, yielding acetic acid and a new crystalline alkaloid, to which the name japbenzaconine has been given. The reaction may be represented by the equation—

$$C_{34}H_{49}NO_{11} + H_2O = C_{32}H_{47}NO_{10} + CH_3COOH.$$

This alkaloid occurs in rectangular plates, melting at 182–183° C. It is about twice as lævorotatory as aconitine. The salts, which readily crystallise, include:—

Hydrochloride	m.p.	253° C.
Hydrobromide	,,	205° C.
Aurichloride	,,	228° C.
A colourless aurichlor derivative	,,	178° C.

Japbenzaconine is itself capable of being hydrolysed by alkalis or acids, with the production of benzoic acid and the alkaloid japaconine, according to the equation—

$$C_{32}H_{47}NO_{10} + H_2O = C_{25}H_{43}NO_9 + C_6H_5{\cdot}COOH.$$

Japaconine cannot be crystallised, and its salts do not crystallise easily. Japaconine hydrobromide has a melting point of 221° C.

On heating japaconitine it melts, decomposing into acetic acid, and a new crystalline base, called pyrojapaconitine, $C_{32}H_{45}NO_9$. This alkaloid is lævorotatory, as are its salts—

Hydrochloride (crystalline)	m.p.	175-176° C.
Hydrobromide, in two forms	,,	208° C.
	,,	241° C.
Aurichloride	,,	161° C.

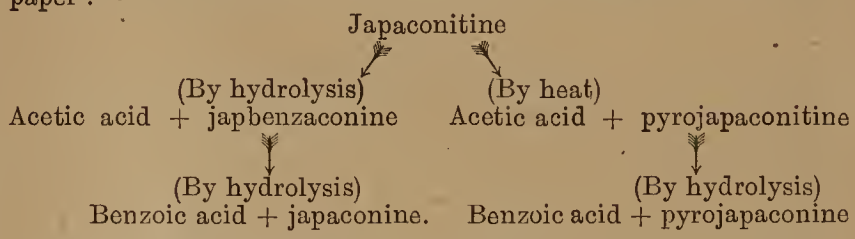
When pyrojapaconitine is hydrolysed by alkalis or by acids it yields benzoic acid and pyrojapaconine, $C_{25}H_{41}NO_8$. This alkaloid and its salts do not crystallise.

The methiodide of japaconitine is decomposed by potash, giving a triacetyl and a monomethyl derivative.

The properties of japaconitine and its derivatives are different from those of aconitine and pseudaconitine and their derivatives, although there is a strong general resemblance running through the three groups.

The Japanese aconite root contains, in addition to crystalline aconitine, a small quantity of japbenzaconine, the first product of hydrolysis. There is a larger quantity of crystalline japaconitine in the Japanese root than of aconitine in the English root. The amount of benzaconine in the English root is greater than that of japbenzaconine in the Japanese root.

The following table will render it somewhat easier to follow this paper:—



The paper drew forth a bright discussion.

In reply to the Chairman's question as to whether any botanical affinity exists between monkshood and the Japanese aconite plant, Mr. DUNSTAN said that the plants were recognised by botanists to be different, the botanical source of the Japanese plant being *Aconitum fischeri* or *A. chinense*. Dr. TILDEN asked how many of the aconite alkaloids were alike in properties. The reply was that both japaconitine and pseudaconitine act in exactly the same way. Their toxic dose is the same. Professor Cash is at work in order to find out whether there are any yet undiscovered differences. As to the difference in physiological action of the salts it has been ascertained that the difference of the kind of action is *nil*; it is entirely one of degree. Mr. DAVID HOWARD'S remarks touched an interesting topic. He spoke of the interesting and obscure problems connected with the relation of the chemical composition of the alkaloids to their physiological action. In the reply it transpired that the removal of the acetyl group from any of these toxic alkaloids causes their toxic power to disappear; indeed, the action on heart, nerve, and muscle disappears.

Professor DIVERS, of Tokio, was present, and expressed the pleasure he felt in again being present after an absence of over a quarter of a century. The Chairman then called for a hearty vote of thanks to the authors for their valuable communication.

The next paper by Professor Walker dealt with

DISSOCIATION CONSTANTS OF VERY WEAK ACIDS.

The acids examined included boric, acetic, hydrocyanic, hydrosulphuric, and carbonic acids. Phenol also was included. The details of the investigation and the figures obtained may be found in the paper. Professor WALKER mentioned that the purest distilled water obtainable, even when freshly prepared for the purpose, has an appreciable electrical conductivity (about 0·7).

This paper called forth remarks from Mr. Vernon Harcourt and Professors J. Millar Thomson and Tilden.

The next paper by the same author dealt with

THE PREPARATION AND PROPERTIES OF SOLID AMMONIUM CYANATE.

This compound cannot be prepared by recrystallisation on account of the extreme readiness with which it passes into urea. When, however, ethereal solutions of cyanic acid and ammonia gas are mixed together and cooled by means of a freezing mixture, the solid ammonium cyanate falls as a voluminous precipitate. In the absence of a freezing mixture the heat of formation rapidly effects the conversion into urea. The substance may also be prepared by diluting the ingredients with hydrogen and air and then mixing.

The substance keeps for months in the dry state, well corked up. On exposure to air it passes into urea in an hour or two. The transformation becomes more rapid as the temperature rises, until at 80° C. the transformation is instantaneous.

The next paper was read by J. Davis, on

DERIVATIVES OF β-NAPHTHOL.

The last paper, on the "Determination of Transition Temperatures," by H. M. Dawson, Ph.D., B.Sc., and P. Williams, B.Sc., was taken as read.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.

A special meeting of the above Association was held on Wednesday last to consider the suggestions for proposed legislation received from the Secretary of the Federation of Local Pharmaceutical Associations. Mr. F. Maitland (President) was in the chair, and Messrs. C. J. Park, F. W. Hunt, J. D. Turney, J. Cocks, R. F. Roper, C. T. Weary, J. Barge, H. D. Davey, and G. Breeze (Hon. Secretary) were also present.

The Chairman read the five proposed resolutions submitted by the Federation, and said he was of opinion that the only one to support was that proposing to protect chemists' titles and make it illegal for companies of unregistered persons to keep open shop for selling scheduled poisons. A deputation from the Association had recently waited upon Mr. S. F. Mendl, M.P. (Plymouth), and been promised the hearty support of that member if legislation on the lines of such a resolution should be brought before the House of Commons.

Mr. J. Cocks said he would like to preface his few remarks by saying that he was speaking as an individual chemist and druggist, and not as Secretary of the Federation, the policy of which was to organise, collect evidence, and act accordingly. In dealing with the present controversy he thought the large amount of correspondence and speeches had tended to confuse members in trying to arrive at reasonable and definite opinions. Dealing with titles first, he would ask what is the qualifying examination for? It is an examination ordered by Parliament, thereby guaranteeing an efficient individual to administer to the wants and protection of the public. Having qualified, the Government's agent—the Council—issues to the successful candidate his title deeds and certificate, bearing the hall mark of chemist and druggist. Clearly, if the latter title is usurped, it is in the interest of the public that the law should prevent that being done; consequently there can be only one opinion as to the protection of titles. He thought chemists should try to get all they could by joining hands, and unanimously supporting the first resolution. Referring to the last meeting of the Council, the speaker said it read as though the majority and minority were practically at one, it only being a matter of expediency, for in subsequent remarks of the leader of the majority—Mr. Glyn-Jones—he suggested that the whole directorate should be qualified, which surely, if it means anything, means persons.

After considerable discussion the following resolution, proposed by Mr. J. D. Turney, seconded by Mr. J. Barge, was carried:—

That this meeting supports the following resolution:—To protect chemists' titles, and make it illegal for companies of unregistered persons to keep open shop for the dispensing and selling of scheduled poisons, as in the case of individuals.

Mr. R. F. Roper proposed, and Mr. C. T. Weary seconded:—

That the above resolution in the form of a memorial be sent for signature to every registered chemist in the district, and forwarded to the Pharmaceutical Council.

Messrs. F. Maitland, C. T. Weary, J. D. Turney, and R. F. Roper were elected delegates to the Federation of Local Pharmaceutical Associations.

COLCHESTER CHEMISTS' ASSOCIATION.

A meeting of the Colchester Chemists' Association was held on Tuesday, November 21, when the objects and methods of the recently-formed Chemists' Defence Association were described and explained by Mr. Wm. Johnston, one of the provisional directors. Considerable interest was shown by the members, a large number of questions being asked relative to the actual working of the scheme. After some discussion a resolution was carried, expressing approval of the scheme, and wishing the Association success. The subject of "company pharmacy" was also discussed, the opinion of the meeting being that the titles obtained by examination ought to be protected, and their use restricted to the individual possessors; that all directors of companies keeping open shop for the sale of poisons ought to be qualified, and each shop in charge of a qualified chemist, who should be registered for the purpose and whose name should appear in connection with the business. It was further considered that the Pharmaceutical Society ought to have power to remove from the Register the names of persons convicted of wilful offences under the Pharmacy Act, or the Sale of Food and Drugs Act.

CHEMISTS' ASSISTANTS' ASSOCIATION.

On Thursday, November 16, a meeting of this Association was held at 73, Newman Street, London, W., the President, (Mr. F. W. Gamble) in the chair. The minutes of the previous meeting having been read and confirmed, the President said he was sorry to have to state that once again on a "Short Papers" evening there was a dearth of communications, the only one submitted being by Mr. H. H. Robins.

Mr. Robins then communicated somo notes on

Bitter Oranges,

which are printed at page 495.

He also exhibited specimens of oranges with the outer part of the pericarp removed by an ingenious machine, which left the pith, and could be fixed so as to take off the rind in one continuous length, or evenly cut up into short pieces. He had also on view specimens of tincture prepared from the three kinds of oranges on the market, Malaga, Seville, and Messina.

The President, referring to the paper, said there seemed to be a general consensus of opinion that the fresh tincture was a great improvement on the old official tincture prepared from the dried peel, but he had heard of complaints from medical men that on dilution with water it developed a certain amount of cloudiness. Their thanks were due to Mr. Robins for his interesting paper; he thought it was to be regretted that more members did not take up that class of work. It was not merely research work that was wanted, but the work of comparison.

Mr. Martin said his firm used a large quantity of tincture of orange in the manufacture of mineral waters, and when the fresh tincture became official they compared it with what they had been using, and found that the old tincture was certainly better for their purpose both as regards strength and flavour.

Mr. Robins said that in making a comparison such as that mentioned by Mr. Martin, it was necessary to be quite sure that the same kind of fruit was used under the same conditions.

Mr. T. Morley Taylor was rather surprised that the old tincture was omitted from the B.P. 1898, because he considered that it was a much better tonic than the new tincture, as the volatile oil which the latter contained was apt to upset the stomach.

Mr. Dewhirst could not agree that tincture of orange was used as a tonic; he did not think it was so used, at least not to any great extent. He wished to know if Mr. Robins had tried to ascertain the amount of oil produced from different peels.

Mr. Robins said he had not done so, but thought it would be both interesting and useful to endeavour to find out the amount of oil present in the several peels.

Dispensing Problems.

A vote of thanks having been accorded to Mr. Robins, a suggestion was made by Mr. Hymans that, in view of the short paper evenings, it would be a good plan for each member to make a note of any dispensing problems that occurred in the ordinary course of business, and bring them forward in the form of a short paper.

Following up Mr. Hyman's suggestion, Mr. J. Fothergill mentioned a case that had come under his notice, in which a mixture containing spirit of nitrous ether and sodium salicylate formed a red colour after it had been dispensed, owing to some chemical change. He wished to know if anyone could give an explanation of the change.

Several gentlemen having expressed their views of the matter, Mr. Fothergill then related the circumstances of a case in which glycero-phosphates of soda, lime and potash were ordered to be dispensed in the form of cachets. The mixture being in a semi-liquid state, how ought the dispenser to act in such a case?

Mr. Martin suggested mixing with liquorice powder.

The President thought that, as a rule, in a case of that kind it was advisable to consult with the prescriber. Of course, it was to the benefit of the pharmacist to foster the idea of prescribing cachets in preference to tablets and compressed drugs generally. In the first place they required more labour in the making, hence a higher charge could reasonably be made. Then, too, cachets were preferable to tablets in that they were more soluble, some of the latter being almost insoluble. In such instances as that mentioned by Mr. Fothergill and others that had come under his own notice, he thought that where the pharmacist could venture to put forward his opinion to the physician, it was advisable to do so, and as a rule he thought that the physician would be very willing to accept any suggestion the pharmacist might make.

Mr. HYMANS, referring to the President's remarks as to the insolubility of tablets, said there were tablets and tablets. He did not think that the pharmacist would be doing the best thing for the public in general by substituting cachets for tablets. The latter was the most convenient and most suitable form of medication, for travellers especially.

The PRESIDENT explained that he did not mean that pharmacists should totally exclude tablets, but he did say it was to the benefit of pharmacists that they should encourage the dispensing of cachets.

Another dispensing problem was mentioned by Mr. LATREILLE, who had dispensed a preparation for the throat, containing zinc chloride, as a clear solution, whereas another firm had turned it out in a flocculent state, and the doctor wanted to know the reason why. The explanation was that the zinc chloride was dissolved in the water, and cleared of its flocculence by the addition of a little dilute hydrochloric acid.

SALE OF FERRICYANIDE.

Mr. HYMANS then related his experience in trying to obtain a quantity of ferricyanide for experimental purposes. He said it was an old thread-bare story, and he thought the idea had been exploded long ago, but recently he went into five different chemists' shops in the West End for some ferricyanide, and could not get it because he was not known, and he was told that it was in the poison schedule. Finally he had to go out of his way to a friend in order to get it.

The PRESIDENT said this was a question that was continually appearing in the trade journals, but he thought ferricyanide was not in the poison schedule. The *Pharmaceutical Journal* had stated decidedly that it was not a noxious poison. It was a point which, if followed up, would lead to most absurd extremes. Other questions were also asked and answered, and the meeting then adjourned.

MIDLAND CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held at the Exchange Rooms, Birmingham, on the 15th inst., Mr. F. A. SPEAR presiding. Mr. F. H. ALCOCK read a paper entitled

Remarks on Laboratory Chemicals,

in which he gave results of experiments made by himself during the last year or two. The following is a summary:—

ACIDS.

Hydrochloric Acid.—This he had found to contain a great deal of arsenic, and as it was largely used in conjunction with stannous chloride as a test for arsenic, it had been looked upon with suspicion for a long time.

Sulphuric Acid was largely used in the Kjeldhal process for the determination of nitrogen in organic substances, which, when boiled with it, converted the nitrogen into ammonium sulphate, which was subsequently distilled in the presence of alkali. It should therefore be tested for ammonia, as this was used to purify the acid from the nitrates incidental to its manufacture. In place of ammonium sulphate, oxalic acid would be found useful to get rid of the nitrates.

Nitric Acid.—This was used in getting rid of organic matter when testing for lead in urine, and should therefore be free from the contamination of lead. It was a difficult thing to obtain it lead-free unless it was made specially in suitable vessels. The common variety had been found to contain as much as 1 per cent. of iron calculated as oxide.

Glacial Acetic Acid was a source of considerable trouble, because no very good and handy test of strength is recorded in the books, and as it was much used as a test reagent in the B.P. it behoved them to see that it was up to the right strength. Moreover, it was largely exported to Australia, where a duty was charged according to its strength, and therefore it was subject to tests by the Customs officers. They were aware that its specific gravity was not a conclusive test of strength, because, curiously enough, an acid having only 46 per cent. of acetic acid in it had the same specific gravity. He was told that the simple test he suggested some time ago—the use of an equal volume of turpentine, which should form a clear and perfectly miscible solution—had been found useful by the authorities in detecting the presence of even ½ per cent. of water. The lecturer illustrated this by putting half a fluid ounce of each together, and when the President dropped in a few drops of water the two immediately separated into clear and well-defined layers.

Phosphoric Acid.—One sample of this could not be used for laboratory purposes because it gave a voluminous precipitate on the addition of excess of ammonium hydrate. This precipitate was found to be aluminium phosphate with a little lime.

Boric Acid.—This should be soluble in alcohol, and as borax was not, a means was thus obtained of distinguishing the one from the other. As much as 9 per cent. had been found to be insoluble in spirit which consisted chiefly of borax with some sulphate.

ALKALIES.

Solution of Ammonia, 0·880, contained sometimes an undue proportion of iron, which got in the way in some chemical operations. He had found it to exist to the extent of 0·03 per cent. in some samples.

Potassium Hydrate and Sodium Hydrate, in sticks.—An objection was made to the use of parchment paper when these were packed in bottles, as they are much used in making strong alkaline permanganate solution. A little of this might do serious damage to the reagent.

Sodium Bicarbonate had sometimes ammonia salts present in unusual quantities, which occasionally interfered in some chemical operations.

Ammonium Carbonate was sometimes sold in powder, and this could not be too strongly objected to, because he had never found in his experience a sample anything near the official requirements, and no doubt during the process of powdering much ammonia gas was lost, and what remained consisted largely of bicarbonate. This salt should also be free from fixed residue, because its solution was used to moisten precipitates of calcium carbonate during the final stage of ignition in the assay of lime salts; 0·5 per cent. of iron had been found in this.

Lime was much used in the determination of sulphur in coke, but it was difficult to get it reasonably free from sulphate unless specially prepared from marble. One sample contained so much sulphate as to yield no less than 15 per cent. of barium sulphate.

Ammonium Sulphydrate.—The Pharmacopœia required this to be freshly made, and perhaps in many operations it could be dispensed with altogether by passing sulphuretted hydrogen gas through the solution with ammonium hydrate in excess, but so long as it was to be obtained commercially it should be free from such objectionable substances as sulphates. It was difficult to know why this should be present, unless it was that the gas used in making had not first been washed, generated as it was by the action of diluted sulphuric acid upon iron sulphide.

SALTS, ETC.

Iron Sulphide.—This very humble chemical often gave trouble. Sometimes it was found in such a passive condition as to resist the blandishments of dilute acids, and refused to be acted upon by them. It was often said to be "burnt"—that was, prepared at too high a temperature. Again, it had been met with, when, after all chemical action had ceased, a black insoluble residue remained, amounting to 12 or 15 per cent., which resisted the action of both dilute hydrochloric acid and sulphuric acid. On ignition it seemed to contain both iron and sulphur in some peculiar form.

Litharge.—Some use in the laboratory was found for this. It had been met with containing 10 per cent. of metallic lead, owing, no doubt, to imperfect oxidation, or to the fact that the sample had not been sifted.

Stannic Oxide.—He had met with this containing 5 per cent. of lead compounds. These were readily detected by warming the sample with a mixture of ammonium sulphide and hydrate. A black residue is left behind, which will generally be found to consist of lead sulphide.

Calcium Phosphate.—On one occasion a sample was found which could not have been purified according to official requirements, for it contained 9 per cent. of calcium carbonate. As this was a convenient substance to practise on for the determination of the phosphoric radical, such a sample was not calculated to imbue the student with much faith in chemistry.

Red Lead was of great value as a test for manganese in complex mixtures, and also as a quantitative colorimetric test for manganese in steels. It sometimes contained lead monoxide, which lessened its value when so used, and as many samples he had examined contained manganese this would spoil its use for the detection of manganese unless its amount was previously determined, which was not a satisfactory mode of procedure.

Sodium Arsenate.—This was marked "Puriss:" and no doubt would have been found so if in the transference from the stock-bottle into the purchaser's, the attendant had not added a few pieces of glass, which, in a quantity of 4 oz., weighed 60 grains.

This seemed to him a fruitful source of danger, and called for more care on the part of those who retailed such substances, for glass and sodium arsenate were both without colour, and had transparency in common.

Potassium Permanganate was sometimes a source of trouble, and this was not surprising when it was remembered that it was imported in wooden barrels.

Strontium Nitrate.—A perennial source of anxiety to the teacher and perplexity to the student. The latter read that with potassium chromate in an acetic acid solution no precipitate was obtained with strontium salts, but to his great surprise he got a precipitate, and, thinking to have discovered something wrong, he appealed, only to find that it was adulterated with barium salts. As these strontium salts were sometimes used in medicine it was well to call attention to this point.

Saltpetre was not so styled in the chemical laboratory, but a circumstance came to mind which nearly ruined the reputation of a certain teacher of chemistry. It was on an occasion when a test for potassium salts was being applied. The cream of tartar test, the platinum chloride test, and even the less known picric acid test had all failed, and no doubt the beam of delight on the face of the students with the expressions of chagrin on the face of the administrator were in marked contrast. But a happy inspiration suggested an examination of the vessel from which the specimen had been taken. It had been purchased as saltpetre, and was found to consist of the Chili variety, and not true saltpetre. This had occurred so constantly that special attention should be directed to it. It was bought as saltpetre, and that, to the pharmacist, was potassium nitrate, but to others it was not so, for sodium nitrate was sold in enormous quantities under that name.

Potassium Iodide.—A very costly substance, which, by reason of its great solubility in water, was very liable to be abused in the chemical laboratory where students were engaged. It was generally unsatisfactory, containing moisture from 1 to 5 per cent. This, at a shilling an ounce, paid well. It also contained sulphates in appreciable quantities, and conveyed the idea generally that pearlash had been used in the preparation of the hydrate from which the potassium iodide was made.

Hydrogen Peroxide had been found to contain both sulphuric and hydrochloric acids. It was not desirable to have both present, because they limited its use in the laboratory.

Emplastrum Plumbi found a use in the chemical laboratory for the preparation of the stronger soap solution, which, on dilution, was used to determine hardness in water. It had been found to contain undecomposed litharge, and in one instance pieces of the size of flax seeds were removed. Such a sample could not be used with confidence, although it would not greatly interfere with the final solution, which, as it did not keep well, was always standardised at the time of its use.

Rod Metallic Zinc was much used for the reduction of ferric solutions to the ferrous condition before titration with permanganate. As much as 10 grammes of zinc were recommended for 0·15 gramme of iron. If the quantity of iron present in the zinc was at all great the allowance to be made for its presence would be almost as great as the iron present in the solution under examination. A sample shown, which was sold as iron-free, contained 0.1725 per cent. of iron.

Ammonium Chloride.—A sample shown had a distinct pink colour, due to a double-barrelled admixture—the presence of iron in the ferric condition and the presence of a little ammonium thiocyanate, which developed with keeping some time, and was due to the formation of ferric thiocyanate.

Oxalic Acid and Ammonium Oxalate.—These were used for the titration of potassium permanganate, not as officially recommended, for it was feared that would not be a success—(see B.P., page 265)—seeing that the text-books suggested the use of a temperature at or about 60 deg. Cels., which was not mentioned in the official instructions. Of the two the latter was to be preferred for the determination of permanganate solution, for when carefully prepared in glass vessels there was less fear of organic and other impurities being present. The impurity in oxalic acid was of organic origin, for five grammes of it when incinerated left only three milligrammes of residue.

Urea.—This was used in organic analysis and for comparative tests in urine testing. A sample shown contained 3 per cent. of barium carbonate, the origin of which was not known.

Ether was sometimes not up to the mark, but a test suggested by Mr. Gerrard some time ago would detect the hydrogen peroxide or ozone, or whatever it was which was sometimes present, and would liberate iodine from potassium iodide. It was an addition of iodoform.

A discussion followed in which Messrs. Holland, Moseley, Selby, Spear, and Billington took part.

Afterwards Mr. Alcock was heartily thanked for his paper, and the meeting ended.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.

There was a good attendance of the members of this Society at the Liverpool School of Pharmacy on Thursday evening, the 16th instant, the President, Mr. Prosper H. Marsden, occupying the chair. Five new members were elected—Messrs. Harrod, H. Moses, W. Moses, Irving, and C. Wright.

As a miscellaneous communication Mr. Hughes read out

Some Prescriptions

containing interesting peculiarities.

A pill of carbolic acid, ½ grain, and morphine acetate, ¼ grain, required a considerable amount of liquorice powder to mass it, and when turned out was fully of three-grain size, whereas the doctor wished for a small pill.

Oleum rusci ʒiii., hyd. ammon. 20 grs., sulph. subl. 80 grs., lanolinum ʒii., and tinct. quillaiæ, *q.s.*, were to be made into a cream thin enough to be applied with a brush. The result was more like a jelly than a cream, and did not seem very appropriate for application in the way directed.

In the discussion Mr. Cowley accounted for the deliquescent state of the pill ingredients by the known weakness of the morphine base for the acetic radicle, and the somewhat acid behaviour of phenols in general, resulting in free acetic acid being produced, and possibly a morphine carbolate formed, or at any rate a solution of the morphine in the phenol. The addition of some absorbent powder was the only way out of the difficulty, and unless the alkaloid were substituted for the acetate a small pill could not be made.

Mr. Wyatt would use dried powdered marshmallow root, and if a really small pill were required enough shaved beeswax to bind the mass.

A similarly soft pill had been made up by Mr. Morgan from thymol, ½ grain, and menthol, ½ grain. He had massed the two ingredients separately, and then enclosed them in gelatin capsules. The softness in this case was caused by the thymol-*a*-phenol dissolving in the menthol-*a*-camphor.

Mr. Hughes, during a urine analysis, had noticed a heavy whitish precipitate come down on adding the Fehling's solution, but no reduction had taken place, and he would like to know the cause of this change.

Messrs. Marsden and Cowley said the precipitate might be due to mucin or other interfering substance.

The use of Allen's modification of Fehling's test was advised by Mr. Wyatt, the copper solution being mixed with the boiling urine, allowed to cool, then enough saturated and slightly acid solution of sodium acetate poured in, and the whole filtered after a few minutes. To the clear blue solution—an acetate of copper with the glucose—the alkaline tartrate solution is added, and on heating to boiling the slightest trace of glucose is easily recognisable. The boiling of the urine coagulates albumin, and the subsequent addition of the copper throws down phosphates, whilst the acetate of copper in the cold removes creatinine and other bodies likely to affect the identification of the glucose. It was an easily worked test, and very accurate.

The President then called upon Mr. Cowley to give an address upon

Nitrogen and Its Allies.

The elements of the Fifth Group of the Periodic System of Classification—that is to say, nitrogen, phosphorus, arsenic, antimony, and bismuth—were exhaustively treated by the lecturer, who showed their resemblance to one another as set forth by their halogen compounds, their oxides, and their sulphur compounds. The interesting way in which the address was delivered, and the clear explanation afforded by the lecturer as to certain knotty points, which he elucidated by recourse to graphic formulæ, fixed and retained the interest of his audience to the close. Such topics as had a direct bearing on pharmacy were enlarged upon, and nitrogen

iodides, together with the effect of washing with water upon bismuth oxy-salts were discussed very fully.

The President, in complimenting Mr. Cowley on his lecture, remarked upon the interest of nitrogen compounds at the present time from the part they play in modern warfare as component parts of most smokeless powders, and such terrific explosives as lyddite or melinite.

A vote of thanks was proposed by Mr. H. Wyatt, jun., to Mr. Cowley for his contribution, and in answer to a remark of Mr. Cowley's as to the best way of dispensing bismuth oxy-nitrate or oxy-cloride with an alkaline carbonate or bicarbonate, Mr. Wyatt said he should add to the bismuth salt a little of the carbonate and enough hot water to hasten the evolution of carbonic acid gas, and then keep adding successive portions of water to the bismuth in the mortar, rubbing well between each addition, and pouring off the lighter particles so as to levigate the powder; by so doing the theoretical removal of the acid radicle could be performed in practice, and the mixture so made would be more sightly, more efficacious, and do, consequently, more credit to the dispenser than if the bismuth salt were added any way.

Following the remarks of the President, Mr. Wyatt spoke generally as to the composition and mode of action of the commonly known explosives used for military purposes, and of the ingenious mechanical contrivances necessary to overcome their violent action and divert it in the direction required.

The vote was seconded by Mr. Smalley, and accorded to Mr. Cowley, who, in reply, thanked his audience for their attention to what he had been afraid at first might be a somewhat dry and uninteresting subject

Mr. Edward Davies, who should have lectured to the Society at its next meeting, being unable to keep his engagement owing to the recent death of his wife, it was resolved, upon the proposition of Mr. Cowley, to send him a letter of condolence, as he had at all times proved himself a friend to the Society, particularly in its younger days.

The President asked Mr. Wyatt to take Mr. Davies's place on the date mentioned, and to give a lecture on "Arms and Ammunition."

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION.

A special meeting of this Association was held on Monday, November 20, to hear an address by Mr. W. S. Glyn-Jones. Mr. Abraham Foster presided, and there were representatives present from Dewsbury, Heckmondwike, Savile Town, Ossett, and Batley.

After a brief introduction by the Chairman, Mr. W. S. Glyn-Jones addressed the members on the

P.A.T.A. and its Defence Fund.

He said it was his first duty to speak of the work of the P.A.T.A. If the usefulness of that organisation could be gauged from the amount of the increasing work thrown upon the Association, then its existence was more than justified. Before the existence of the P.A.T.A. discontent had been shown by chemists throughout the country, and complaints, more or less spasmodic, had been made by individual chemists in various parts of the country. The P.A.T.A. had brought together over 3,000 retailers, with the result that they had a growing list of protected articles. A number of letters, which they were constantly receiving, showed that their efforts had been appreciated. Apart altogether from the articles which had been added to the protected list, the result of the Association's work was seen in the remarkable growth of the tendency on the part of proprietors to facilitate the trade. It was true that some of the important proprietors had brought forward schemes for protecting profits, which the Association had been compelled to oppose. They had been charged with adopting the "dog in the manger" attitude, and of opposing the efforts of such proprietors to guarantee a profit, because in those cases the Association's organisation had not been used by the proprietors. In no case had this been the reason for such opposition.

Anti-Cutting Schemes.

Every anti-cutting scheme put forward was considered by the Executive on its merits. The main question asked in reference to such a scheme was, did the proprietor propose an adequate rate of profit? and secondly, was the scheme a workable one? In other words, would that profit really be secured. He need not say anything to them at Dewsbury about Mr. Beecham's scheme, but perhaps a word of explanation was necessary in reference to the position of antagonism taken up by the Association towards the scheme which the proprietors of Seigel's Syrup were now adopting. The P.A.T.A. opposed Seigel's Syrup scheme because the profit which they sought to secure was far too meagre. To ask the chemist who paid 12s. or 12s. 3d. per dozen for an article to sign an agreement not to sell that article below 1s. 0½d. was almost tantamount to an insult. It had been argued that a retailer could buy in £5 parcels direct from the proprietors at 11s. 6d., and thus be guaranteed a profit of a penny. Anyone who knew what an immense number of proprietary articles chemists were called upon to stock would recognise how impossible for them it was to buy such articles direct from the maker. There should be a margin between the proprietor's bottom price and his minimum retail price, which would permit of the goods reaching the chemist through a wholesale house, and which would enable both the wholesaler and the retailer to be adequately remunerated for their services as distributors. It is impossible to admit that there was such a margin between 11s. 6d. and 12s. 6d. He therefore hoped that until, in some way or another, that margin was increased, the trade, especially members of the P.A.T.A., would decline to come to terms as to the price at which they would sell Seigel's Syrup. A direct result of the Association's work was that it was now, he was glad to say, almost impossible to successfully introduce a proprietary article to the drug trade without first placing that article upon the P.A.T.A.'s list and guaranteeing a profit.

The Collection of Subscriptions.

He was sorry to say that the Association was given more trouble in connection with the collection of the retail subscriptions than was, in the interests of the Association, wise. A subscription of five shillings was a small one, and they would see that if it had to be applied for many times, and certainly if it had to be specially called for, there was a danger that too large a portion of that subscription would be swallowed up in expenses. The Committee had, therefore, with the kind assistance of a number of the wholesale houses, adopted a scheme whereby members could sign a form requesting one of their wholesale houses to pay their five shillings subscription to the Association each year when it became due, the order being so worded that it was possible for the chemist to countermand it at any time. He had some of those forms with him, and he hoped that every one of their members in Dewsbury would relieve the Association of unnecessary trouble by filling them up. It would also save them the trouble and expense of remittance. It was a regrettable fact that there were at least 5,000 chemists in business who were reaping the benefits of an association paid for and supported by 3,000 members, and the Executive were glad of the opportunity which the Defence Fund would give them of providing some distinct advantage over and above non-subscribers.

Objects of the Defence Fund.

They would see from the copies of the circular the details of the scheme. He hardly thought it would want much advocacy from him. Every man who kept a retail shop for any time had to reckon with the chances of being prosecuted under one of the many Acts affecting his business, and he knew of no business which was so liable to such risks as that of the chemist and druggist. They could, of course, have no sympathy with any man who wilfully or fraudulently committed an offence against any of the laws of this country, but he doubted whether there was a chemist in business who was absolutely certain of not inadvertently breaking the law upon some technical point or another. Thousands of offences were being committed every week through ignorance of those technicalities. He was also bound to say that he considered the responsible officers were too ready to seize upon trivial and technical offences in order to get convictions, rather than deal with serious cases committed with fraudulent intent. In some instances, it appeared to him to be a question of the local authorities securing a certain number of convictions a year, and they appeared to find it easier to reach that number by taking up what appeared to be trivial if not vexatious prosecutions. For a subscription of 10s. 6d. a year members of the P.A.T.A. would be defended in these cases. The value of the defence, under the direction of a solicitor who had made a special study of trade legislation, and if necessary, with the help of expert witnesses, could not be gainsaid. The recent triumph of chemists

in the south-west of London when charged by the Vestry under the Foods and Drugs Act with putting an excess of an expensive ingredient into a prescription, proved this, but he doubted whether a conviction would have been avoided in these cases had it not been for the assistance of Dr. Attfield's evidence. The insurance against loss due to a mistake in dispensing or retailing was also a very solid advantage which they were offering to their members. He had often thought that, when in the past an accident of this kind had happened, by which one of their trade brothers had perhaps been ruined through a mistake on the part of an assistant, that there was sufficient *esprit de corps* in the trade to have produced a fund which would have recouped the unfortunate chemist. By the means of their Defence Fund they were now providing such mutual help. It should be remembered that in addition to *bonâ-fide* cases, where a chemist was actually liable, they were always open to bogus claims being made for so-called damages, and here again the legal assistance offered by the Association would be of immense advantage. Cases were often lost for want of expert evidence, or of legal advice of the right kind. The case referred to in the circular, he thought, was one of such cases. A boy had eaten food in quantity and kind sufficient to kill any ordinary mortal, and in addition it is alleged that the chemist gave him 8 gr. of atropine. He did not die, as by the laws of all medical science he ought to have done, but the poor fellow suffered, and an action for damages was brought, not against the commissariat department, but against the poor chemist who was said to have given him the 8 gr. of atropine. If the chemist had given him the atropine, and the boy is still alive, we hope that at the next meeting of the British Medical Association they will have them both on show. We think that if the defence had been provided with a very clever lawyer and analyst, it might have been possible to convince even a County Court Judge that the result of taking 8 gr. of atropine would not have been two or three days' absence from work only. He had said that many offences were committed against the law through ignorance, but he was aware that ignorance was not a sufficient plea in defence. It would be the duty of this new organisation, by means of circulars and otherwise, to keep its members posted as to the various Acts of Parliament under which they might be liable, and in addition to these benefits, a member would always be able to obtain, through the Association, the advice of its solicitor upon any legal matter pertaining to his business in which he was in doubt. It might be argued that the Chemists' and Druggists' Association had come to grief, after an existence of some years, and that it was not a very hopeful sign, but the essential difference between this scheme and the plan adopted by the former association was that under this scheme each member who paid his subscription could feel sure that his case, if he should be unfortunate enough to have one, would be dealt with. Under the old organisation an immense amount of trouble and expense was entailed, because the Executive had to be called together to consider every case reported to them upon its merits, and although the chemist had paid a subscription for many years, he could not feel certain that his case would be defended. Convictions had been given against the trade which, he thought, would have been reversed on appeal, and it would be the duty of this Association, in cases where there was any doubt as to the meaning of the Act of Parliament, and it was considered of interest to the whole trade to take such a case to the Higher Courts and get a final decision. He hoped he had said enough to show the advantages of their scheme, and that all the chemists of Dewsbury would avail themselves of these advantages by becoming members.

At the close Mr. Jones expressed his willingness to answer any questions, and intimated that the Executive Committee would be glad to receive suggestions from the Dewsbury Association. The memorandum of association had only been registered on the previous Friday, and the Dewsbury chemists were the first he had had the pleasure of speaking to.

The Chairman asked for further information respecting share subscriptions.

Mr. Jones replied that members were simply asked to pay 5s. towards the £1 share, and to be responsible for the remaining 15s. The subscription of 10s. 6d. a year was irrespective of the guarantee.

Mr. Stead (Heckmondwike): And if a man is not a member of the P.A.T.A. his subscription is a guinea a year instead of 10s. 6d.?

Mr. Jones replied in the affirmative, and went on to state that in some districts the local authorities were much more active than in others in getting up prosecutions. He mentioned a case at Fulham in which four or five chemists were prosecuted by the Vestry for putting too much potass. iodi in medicine. This was a most serious charge to bring against chemists. Dr. Attfield gave evidence for them, and all the cases were dismissed. There was little doubt that if these cases had been brought in the country all the men would have been convicted. All the gentlemen, with the exception of himself and Mr. Johnston, who had signed the memorandum were members of the retail section of the Committee. They would act as directors until the annual meeting of shareholders.

Mr. Walker (Dewsbury): Will these gentlemen act as directors without payment?

Mr. Jones: Oh, yes. I don't know what will be done by the shareholders. That has not been thought out at all. That matter will have to be considered when permanent directors are appointed.—Answering a further question, Mr. Jones said the election would take place by voting, and went on to suggest that it would be advisable to appoint a fair number living in London as directors so as to save expense. The matter of investing the money, said the speaker in answer to a question, would have to be considered by the directors. It was owing to the strong advice of their solicitor that they decided to form a limited company.

Mr. Broadhead (Batley) agreed with the idea of a defence scheme, and thought it would meet a long-felt want—it touched the spot. There was a point he wanted clearing up in reference to the P.A.T.A. As it was at present formed it included a mixed lot of chemists and grocers. Grocers who were members of the P.A.T.A. would simply apply for a share and pay the extra subscription, and when they were prosecuted they would come down on the Association.

Mr. Jones pointed out that there was a rule which prohibited anyone being a member of the Chemists' Defence Association who was not a registered chemist. No one could be a member unless he held a share. Rule 11 said that every member should hold at least one share. If a member's subscription was more than one calendar month in arrear he would forfeit all benefits. They could not make a member forfeit his share.

In reply to Mr. Gledhill (Secretary), Mr. Jones said that after the reserve fund of £1,000 had been formed the directors would apply part of the profits in payment of a dividend of 5 per cent., and credit the balance, if any, to members in proportion to the amount of their respective subscriptions. There was something more in this. They might do so well that the authorities would cease to bring cases against them, and the public cease to bring actions for damages. They would not want the whole of the 10s. 6d. a year as subscription. In that case the balance could be applied in reducing the subscription.

Mr. Day (Savile Town) was of the opinion that it would have been better if it had been definitely stated.

Mr. Jones, in answer to further questions, said the present staff of the P.A.T.A. would do the secretarial work, but mentioned that when the Association was properly launched it could be decided how the work should be done.

Mr. Barker (Heckmondwike) next mentioned the Defence Fund formed at Birmingham some years ago, and Mr. Jones said that the object of the Association was to defend cases, and, if necessary, appeal to a higher court. There was, however, the same difficulty there as with the P.A.T.A. The man who subscribed did so for the good of the trade at large, and he could not feel sure that he would receive a benefit which the man who did not subscribe received. And so after an existence of about twelve years it wound up in 1883.

Mr. Stead said he was a member during the whole time that fund was in existence. It was wound up because of the apathy of the trade generally.

After further remarks Mr. Stead moved that the Association tender its heartiest thanks to Mr. Jones. The Dewsbury Association were fortunate in being the first to have had the honour of hearing Mr. Jones explain the scheme. The Defence Association was worthy of their most serious consideration—especially the consideration of the younger members of the trade. By becoming members of this Association they would get good value for their money. As business men, when they fully looked into the matter they would see that their money would be wisely invested.

Mr. Cussons (Ossett) seconded the proposition, which, after being supported by the Chairman, was carried unanimously.

Mr. JONES, in returning thanks, thought it would be quite possible when they had a sufficiently large number of members enrolled to make arrangements with fire insurance companies whereby a considerable reduction could be affected in premiums. They had already been approached by a large insurance company with certain proposals. He congratulated the Dewsbury Association on the lively interest they took in matters affecting trade, and asked them not to be disheartened by criticism. The Pharmaceutical Society realised, and would realise more fully, that their safety depended upon their keeping alive active associations throughout the country.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.

This Association met on Tuesday, November 21, at the Bradford and County Restaurant, when Mr. Glyn-Jones read a paper on "The Chemists' Defence Fund." The chair was occupied by Mr. H. G. ROGERSON, the President, and there was a large attendance.

The PRESIDENT, in introducing the lecturer, said that although they might not agree with Mr. Glyn-Jones upon every phase of pharmaceutical politics, there was no question that every one of them thoroughly appreciated his organising abilities, and were grateful to him for what he had done for the profession.

Mr. GLYN-JONES having explained the scope and details of the scheme (see pp. 506*b* and 516), a discussion took place, in which the PRESIDENT asked if the new Defence Association would take up the cases of any of its members who might be prosecuted under various Trades Marks Acts. Mr. STEAD asked if the Association was likely to take up the fire insurance as well as plate-glass insurance, while Mr. BLAKE wished to know if the Association would deal with questions relating to the Inland Revenue.

Mr. WATSON (Shipley) asked if the new Association would interfere in any way with the work of the Pharmaceutical Society, which they all looked to as the chief source of help.

Several other gentlemen also spoke, approving of the objects of the Association.

Mr. GLYN-JONES, in reply, said that the Executive would be quite prepared under Rule 1 to give all the advice they possibly could to any member who was threatened with an action under the Trade Marks Act—and he should think he might say that they would be prepared to do for the members exactly what the old association would have done. In the scheme the hope was expressed that a satisfactory arrangement would be made in reference to plate-glass insurance. The fact was that the Council of the Association had already been approached by a plate-glass insurance company of considerable standing with a proposal whereby they would issue policies in the name of the Defence Association at rates which it was assured would be at least 25 or 30 per cent. below ordinary charges. That, of course, would not be compulsory on any member, but the society would take *en bloc* those who wished to be insured, and make this substantial reduction. With regard to the question as to the patent medicine stamps, that was intended to be covered by the mention of the words "Excise laws affecting the trade." The cause of offence which had been referred to in that regard was one with which the Committee thought they would most frequently have to deal. As had been said, the Association would have nothing to do with defending a chemist or anyone else against any action brought by the Pharmaceutical Society. The work of the Association would not in any way conflict with the work of the Pharmaceutical Society. Mr. Glyn-Jones then dealt with the financial aspect of the subject, and expressed the opinion that there should be five hundred members before the Association could take the dispensing risk.

A hearty vote of thanks to Mr. Glyn-Jones concluded the proceedings.

VESICATING LIQUID.—Powdered cantharides, 100; chloroform, *q.s.*; white wax, 1. The cantharides are exhausted with the necessary amount of chloroform, the solution evaporated to 100 Gm., in which the wax is dissolved. Keep in well-stoppered bottle. (2) Powdered cantharides, 50; ether, *q.s.*; acetic ether, *q.s.*; flexible collodion, 25. The cantharides are percolated with the ether mixture (100 Gm.), the percolate evaporated to 75 Gm. and mixed with the collodion.—*Oesterr. Zeitschrift fur Pharmaeie*, **53**, 644.

LETTERS TO THE EDITOR.

The Conference Meeting in London.

Sir,—A preliminary meeting of London pharmacists was held (by kind permission) at 17, Bloomsbury Square, on Wednesday, October 25, for the purpose of considering the best means of promoting interest in the forthcoming meeting of the British Pharmaceutical Conference in London. It was resolved that a general meeting of pharmacists, both wholesale and retail, be called for Wednesday, December 6, at 3 p.m., at 17, Bloomsbury Square, London, at which a large and representative general committee should be formed for the purpose of making the necessary arrangements. It was decided to invite subscriptions for an entertainment fund from all pharmacists in the London district, and it was agreed that such subscriptions should not exceed two guineas from an individual or five guineas from a firm. We hope the meeting will be largely attended by both sections of the trade, and any person unable to attend the meeting, but who is desirous of co-operating in giving the Conference a hearty welcome next year, is invited to send the amount of his subscription to Mr. J. H. Mathews, hon. treasurer of the entertainment fund, 68, Queen's Gardens, London, W., by whom they will be duly acknowledged.

WILLIAM WARREN,
HERBERT CRACKNELL,
Hon. Local Secretaries to the British Pharmaceutical Conference.

London, November 18, 1899

Chemists and Members of Parliament.

Sir,—On Friday last, November 17, a deputation (consisting of Messrs. C. J. Park, G. Breeze, Hon. Secretary, and myself as President) from the Plymouth, Devonport, Stonehouse and District Chemists' Association, waited on Mr. Mendl, M.P. for Plymouth, soliciting his support to the amended clauses of the Companies Bill if it should be introduced noxt session in Parliament. We submitted the clauses which would protect chemists' titles and make it illegal for companies of unregistered persons to keep open shop for the sale of poisons. After some discussion, Mr. Mendl, who appeared to thoroughly grasp the subject, not only promised us his hearty support, but voluntarily offered to form one of a deputation, if necessary, to the Lord Chancellor or the Government Department which had charge of the Bill, as he considered chemists not only had a moral, but legal claim to have their titles equally protected as those of surgeons, dentists, etc. My object in writing is to induce, if possible, other associations, and where none exist, small deputations of chemists to wait on their parliamentary representatives and solicit their assistance. It is really surprising what can be done in this way with very little effort to further our cause; and if similar means are adopted throughout the country, our position will be assured. We are all agreed that a new Pharmacy Act up to date is highly necessary, which at the present moment seems impossible, and if legislation affecting chemists can only be obtained in piecemeal fashion, it is better than nothing at all, and worth trying for.

Stonehouse, Devon, November 21, 1899. F. MAITLAND.

The Company Pharmacy Problem.

Sir,—As it seems, and to my mind is, desirable that all connected with pharmacy should state their views, I think they cannot do better than say Yes or No to the Annotation beginning "The Position Taken Up" in *Ph. J.*, November 18, 1899. That puts the thing clearly and concisely, and is what we ought to ask for and try by all proper means to get from Parliament. Do not let us ask for less than we really want, but let us ask for all that we want, as it seems very probable that we shall get less than we ask for.

Bollington, November 17, 1899. J. HERBERT ANDREW.

Sir,—I quite endorse the position you take up as stated on page 483 of the last issue of the *P.J.*, regarding company trading, and think it would be nothing short of suicidal to try for less. It is quite time that chemists should agitate for a recognition of their services more akin to that accorded to their continental brethren than is at present bestowed on them, and anything I can do to help on the cause I shall be glad to do.

Forest Hill, S.E., November 20, 1899. E. CLARKE.

Company Pharmacy: Its Abolition or Regulation.

Sir,—Chemists generally will be decidedly gratified that the Council has taken a new departure by giving a full-dress debate on the company question before the electors, and I hope that the same practice will be maintained with regard to all questions of first-rate importance, as such a system will undoubtedly tend to largely increase the popularity and usefulness of the Society. With regard to chemists and the limited liability principle I do not think chemists' titles and the principle of the Pharmacy Act are at all proper factors for limited liability treatment; at the same time, as the President pertinently reminded us, we are living in 1899, and not in 1867, and that in dealing with this question it means dealing with considerable vested interests which, as we all know, are held in considerable reverence both by the average Briton and the average legislator. In the face of this consideration, therefore, I think it is desirable that the regulation of company pharmacy should be carefully considered as to whether it is possible so to regulate companies that they may correspond exactly with the individual chemist. If it is found possible to securely effect this I should have no hesitation in advocating such an arrangement, both on the score of expediency, and because the question is urgent. With regard to company regulation my suggestion towards a solution of the subject is that no company should be considered legal with less than a qualified directorate of five, the title of the company to be that of the lowest title on the board, in the event of the board consisting of mixed titles. There is no doubt this company regulation question is a very knotty problem to solve, and if after careful consideration by the Council and its legal advisers it is not considered possible to bring companies *securely* within the four corners of the Pharmacy Act with absolute protection of titles, then I would refrain from attempting company regulation, and nail the flag "No Company Pharmacy" to the mast, relying upon time and persistent effort to effect the just and reasonable reform.

Ashby-de-la-Zouch, November 20, 1899. G. W. Bullen.

Sir,—As one of the "infinitesimal number" who carry on business strictly on the ideal conditions upon which the Pharmacy Act should be conducted, I feel it incumbent upon me to give Mr. Glyn-Jones (who I must thank for his candour in telling us how he carries on his business under an assumed name, etc.), the bit of plain English that is wanted so much from critics of the Society. It is "that the Pharmacy Act shall be something or nothing to us." If nothing, so let things be as they are. If something, let us oppose tooth and nail any such thing as unqualified pirating of our business and title. I wonder how long law would tolerate, as we do, any company of unqualified persons practising and calling themselves solicitors with the aid of one qualified person? I take it that we can only stop this by a system of licensing all qualified and registered men, such licence being only allowed to be given to those who are going into business for themselves or in partnership with another qualified and duly licensed person, and then we should exclude the unqualified pirate. To practise as a solicitor, the Law Society takes an annual fee as a licence, and I am told no one can practise without such licence—if so, why cannot our Society do the same thing? Is there no such power? If not there ought to be. I had always regarded our certificates and yearly subscription as a licence until I found we could please ourselves whether we paid our subscription to belong to the Society or not, as we thought fit.

Torquay, November 18, 1899. Wm. Jno. Rawling.

Sir,—I agree with the statement made by two writers in last week's *Pharmaceutical Journal*, that there has been enough discussion on abstract principles, and I will, therefore, confine these remarks to the policy to be pursued. Mr. Glyn-Jones believes there are three courses open to the Council (*vide* p. 493), and argues in favour of a clause which would permit companies of unregistered persons to use chemists' titles and keep open shop for the dispensing and sale of poisons subject to certain conditions, the main one being that the business should be under the control of qualified directors. I do not believe the qualified director arrangement would be entertained by Parliament for a moment. The duties of directors and the means by which they may be shirked or delegated are well known to our legislators, and the proposal, even if it was accepted by pharmacists, would probably be rejected by Parliament. Of what use, it would be asked, is the pharmaceutical qualification of a director who lives in London, say, to a business carried on in Birmingham? There is in addition a danger to our position in making the admission this proposal would involve, viz., that qualified proprietorship is not essential. That admitted, the qualified director proposal would probably be brushed aside, and the question settled by the abandonment of the necessity for the Pharmaceutical Society's qualification for keeping open shop and the establishment of a system of registration of qualified persons employed where poisons are sold and dispensed. Sooner or later, too, there would be some system of inspection to ensure the carrying out of the law. This seems to me the probable course that events would take if we were to recognise the right of companies of unregistered persons to keep open shop for dispensing and selling poisons.

If we are prepared to accept that solution—and through the "bogus company" it would mean recognising the right of any unqualified individual to keep open shop for dispensing and selling poisons—then we need not trouble ourselves further, for it is the course that Parliament will be most ready to adopt. If not, it will take us all our time to escape that danger, and avoid helping it forward by the dangerous admission I have referred to. If that proposal is adopted we will always have to face the results of that action, whether success attends it or not, and Mr. Walter Hills' hopes that we may some day have legislation which will place pharmacy in a higher position will be doomed. I appreciate the motive which actuates those who would attempt this compromise, but if the view I take be correct, these is no middle course open to us, we must either fight or surrender. Assuming that the intentions of the 1868 Act are correctly indicated in general terms in the preamble it is not quite correct to urge in opposition to those who would stand by the intentions of the Act that they are asking for more than the Act gives. The only offer in the shape of compromise that occurs to me which would not involve a sacrifice of principle is that a limit of time should be granted to existing company pharmacies. Very little is heard now of the clause in the Companies Bill that would make practice as doctors, midwives, etc., illegal for companies, but I think chemists should still try to get themselves included in that clause, and endeavour to have another clause introduced which would restrict the use of chemists' titles to registered persons. Bearing in mind the probability of a general election next year, it will be our duty to consider carefully what action should be taken at that time, and to be prepared accordingly.

John Smith,
Liverpool, November 21, 1899. *Local Secretary.*

Sir,—I am often requested to fancy myself in a position of responsibility—*e.g.*, a very esteemed correspondent says: "If you were President of the Pharmaceutical Society what would you be prepared to take to the Government, asking them to adopt, and, if they refused, to fight them in Parliament. I think you would need to have—in the present case—a clause which, if the Government would not adopt, you felt you would have a reasonable chance of getting Parliament to force upon the Government." We have now Mr. Glyn-Jones insisting upon the duty of anyone who discusses policy to give at the same time a draft clause for the benefit of the Council.

Granting for the moment it is right we should labour under this onerous condition, and whilst accepting the challenge I will point to the really urgent necessity for clear thinking and plain speaking.

Now the principal note of Mr. Glyn-Jones's paper is a demand for plain English and "no ambiguity," therefore one would expect his paper to be characterised by these very desirable attributes; but is it? 1. His text: He has had to go back twenty years for an excuse for playing a game of run away. 2. "There we have the clearest indication that the Government have no intention," etc. Good heavens! What did he expect from the Government? Does he fancy the Government needs no education on what company pharmacy means? 3. "I know it will be urged that my suggestion will be useless," etc. Knowing this, surely an apostle of plain English and practicality would have given us a clause showing his suggestion to be feasible. I have defied, and I again defy, the wit of man to devise such a clause as shall have the effect of showing that a qualified directorate is not inconsistent with individual responsibility under any circumstances whatever.

4. Critics of the the "Council's policy" are addressed, though the Council has no policy! It is engaged in formulating one. We are asked for clauses, and the "wonderful panacea" is unproduced—*i.e.*, we may not know what it is until accepted or rejected by the Committee. I protest against this method of evolving a policy. The six extraordinary facts for clause framers are adequately dealt with in your Editorial of the 18th inst., still I would like to empha-

sise the fact that "we have suffered enough from ambiguity already."

Well, I desire a policy decided upon, which would be practically the decision of the Law and Parliamentary Committee last month. I would let this pass through the hands of expert draftsmen, and I would then have our President take it to the Government. I would bring to bear every possible influence to gain its acceptance, and, if unsuccessful, employ every source the Society could command to enforce the clause or its equivalent. Why? Because this should be the "irreducible minimum," as it was the fundamental intention of the Act of 1868, and the only valuable thing in that Act.

After laying myself bare for destructive criticism, I may be permitted to support the position by dealing with my esteemed friend's (Mr. Glyn-Jones) paper, which, I ask, should be kept in mind during my remarks. We are said to have three policies open to us—but, his third not being entertained should not appear; whilst he manages to shut off the first by a simple stroke of the pen—one would think it could not so easily be disposed of. He thus leaves himself, by this assumptive reasoning, with only one possibility of dealing with this question—viz., *regulating companies to practise pharmacy.*

I say there are two clear policies possible. 1. Standing to our guns and regaining, or rather, keeping, our rightful position. 2. Abandonment—*i.e., a policy of scuttle!* There cannot be anything between. I say that no one can bring forward a single argument in favour of company pharmacy, and substantiate it Why? Because company pharmacy and personal qualification and responsibility do not cohere. Would it be sensible to go to the Lord Chancellor and ask him to make them cohere? Has Mr. Glyn-Jones ever thought what the Lord Chancellor would be likely to accept? I submit there are only two courses open to his logical mind. The first one, to allow the contention that we have a righteous claim, which he has allowed already. 2. If we have not the courage to ask for simple justice then we have not a leg to stand on. Our qualification becomes in his mind one of the type of engine or tramcar drivers. As illustrative of my contention that the case resolves itself into one or other of these two propositions, take the exceptional cases which have been mentioned—perfectly proper combinations *apparently*, but really not so. The essential feature to keep in a "title and practice" is unlimited liability and responsibility. No reasoning can make limited responsibility right in regard to a qualification; but the end and aim of limited liability law is to do that. Let us not deal sophistically with our problem, but face the naked issue. Do not clothe the subject so as to make it appear something different, and then deal with that different thing.

By all means let us have plain English, and also plain facts. "We are all agreed on what we ought to have, but there has been enough discussion upon abstract principle. The time has come for dealing with the matter practically." Going in for something which will bring "immediate direct results." How do these lines of least-resistance reasoners go about it? Why, simply by dropping my idealistic (which is the shortest way of calling it the only practical) principle. Reminiscent this of Lowell—

"I *don't* believe in princerple
But oh I du in interest."

We are told that the majority of chemists do not object to legitimate companies. I have already shown legitimate to be an impossible word in that relation; but, surely, it is not so much what the majority thinks, as to know what *is right, what is truth:* we want to know what is the sound position, the impregnable position to take up. I protest against any policy of abandonment of principle.

I beg to refer to the matter of personal interests. It is possible that the application of my idealistic fancies might eventuate seriously for me; but in searching for right methods all personal considerations must be ignored. Acts of Parliament are not made for individuals, or even to suit sectional bodies. I would say—

"Go put your creed into your deed,
Nor speak with double tongue."

Blackburn, November 21, 1899. R. LORD GIFFORD.

Impurities in Hypophosphites.

Sir,—In your "Answers to Queries" column last week, under the heading "Malt Extract and Hypophosphites," I notice the recommendation that the "hypophosphites used should be free from sulphates," as the presence of that impurity gives rise to an unpleasant odour. I pointed out in 1894 that a sulphuretted odour frequently arose from certain impurities in the hypophosphites, which impurities might be completely removed by carefully precipitating the solution of the mixed hypophosphites with a solution of barium hypophosphite. The precipitate generally consists chiefly of sulphate, but there may be present in addition sulphites, phosphates and phosphites. Mr. W. A. H. Naylor, in a subsequent investigation of this subject, proved conclusively that sulphate impurities played no part in the development of a sulphuretted odour, but that in every case a disagreeable flavour followed the use in a hypophosphite preparation of a salt containing *sulphite* as an impurity.

London, November 22, 1899. F. C. J. BIRD,

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Brown Oil for Veterinary Use (A. W. B.—36/11).—Linseed oil, 2; rape oil, 2; Barbados tar, 1; turpentine, 1; oil of amber, 1.

Manufacturers of Optical Instruments (W. H. B.—36/1)—By "Elliott Bros." we presume you mean the opticians. Their address is 101 and 102, St. Martin's Lane, W.C.

To Blacken Copper (J. H. — 36/8). — Clean the surface thoroughly, then apply a little liq. antim. chlor. Watch the formation of the deposit, and as soon as the desired colour is obtained, rub off the liquid and burnish with a soft rag.

Makers of Magic Lanterns (W. H. B.—36/1).—Watson and Sons, 313, High Holborn, W.C.; John Wrench and Son, 50, Gray's Inn Road, W.C.; J. H. Steward, Strand, W.C.; Clarkson and Co., patentees of the Duplex regulator, 28, Bartlett's Buildings, Holborn Circus, W.C., are among the chief houses in this branch of the opticians' trade.

Dilution of Alcohol (W. H. B. W.—36/1).—There is no simple arithmetical formula or factor that you can use for accurately calculating the requisite dilution of spirit with water. The contraction of volume introduces an error which requires a complex algebraic formula to solve it. You would find it more convenient to consult a "table," or to use a "spirit rule."

French Polish (G. O. P.—36/9).—This is best applied with a pad of soft rag made up into a sort of ball by packing pieces of absorbent rag or cotton wool inside a piece of very fine linen and tying the whole up tight. The pad is thoroughly moistened with the polish, then rubbed with a circular motion over the surface of the wood until the gloss appears. Brush polish is good carriage varnish applied by means of a camel's hair brush.

Ferri et Quininæ Citras (W. W.—36/6).—Your calculation is quite correct, and there is no reason why you should not adopt the plan you propose. It would be advisable, however, to evaporate the solution to a low bulk in order to remove ammonia and then redilute the product in accordance with the calculation based upon the quinine present. If you wish to make quite certain that the product would comply with the official requirements you could assay a measured quantity of the concentrated solution, and dilute in accordance with the results of the assay. This would remove any doubt about the possible loss of quinine.

Cleaning Rain Water (J. B. B.—36/14).—The dirty scum your customer complains of is probably due to suspended foreign matter derived from the rain water running from a roof, possibly into a dirty tub. If the rain be caught in a clean vessel, as it falls, it will not contain any impurity. If he employs steam, he could easily fit a cooling worm on to his exhaust steam pipe, and by this means obtain any quantity of soft water pure enough for his purpose. Or he could soften his main water with slaked lime and sodium carbonate; such softened water will answer perfectly for washing the most delicate white fabrics.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

EFFECTS OF CANNABIS INDICA.

Dr. W. E. Dixon has examined the physiological activity of various samples of crude Indian hemp and of some derivatives of that substance. He concludes that hemp exerts its effects differently according to the preparation used, fresh hemp, for example, being diuretic, whilst the dried possesses little such action. Its effects vary according to the manner in which it is taken into the system; when smoked exhilaration is most manifest, whilst when taken by the mouth in small quantities exhilaration is generally not observed. It is recommended that where an immediate effect is desired the drug should be smoked, the fumes being drawn through water. In fits of depression, mental fatigue, nervous headache, and exhaustion a few inhalations are said to produce an almost immediate effect, causing sense of depression, headache and feeling of fatigue to disappear, and the subject being enabled to continue his work, feeling refreshed and soothed. Other results claimed are to give staying power and alter the feelings of muscular fatigue which follow hard physical labour. Absorption does not occur for one to two hours when the drug is taken by the mouth, but the effects produced are more lasting than when it is inhaled. Hemp taken as an inhalation is placed in the same category as coffee, tea, and kola, being free from danger and without alarming effects. In fact, Dr. Dixon has come to regard it, in this form, as a useful and refreshing stimulant and food accessory, and one whose use does not lead to a habit which grows upon its votary. If taken by the mouth hemp must be classified with the narcotics, and when given in that way the nervous effects produced may be such as to cause serious alarm, though no danger is to be apprehended whilst the heart remains regular and strong. "It is to be feared, however, that cannabis indica can never become popular until its active principle has been isolated, that is, the isolation of a compound of fixed strength. Like any other stimulant or sedative narcotic, hemp may be abused, as when taken to produce an intoxicant or deliriant effect, but this abuse is rare, and there is reason to believe has been grossly exaggerated." Finally, from a frequent observation of hemp, both subjective and objective, the author affirms that hemp is soothing and stimulating, being a specially valuable cerebral stimulant when inhaled. He believes it to be an exceedingly useful therapeutic agent, one not likely to lead to abuse, and producing in proper dosage no untoward after-effects.—*Brit. Med. Journ.*, Nov. 11, 1899, p. 1354.

ANATOMY OF ENCEPHALARTOS.

W. C. Wordsdell has read a paper before the Linnean Society, in which he shows that the chief features of the anatomy of certain species of *Encephalartos* is the presence of several vascular cylinders in the stem, a character found also in *Cycas* and *Macrozamia*; in addition, the medullary system of vascular bundles forms, as in *Macrozamia fraseri*, Miq., a complex network, intimately united with a corresponding network of mucilage-canals. The system of mucilage-canals in the pith is continuous with that of the cortex, but the medullary bundles form an independent primary system. The mucilage-canal system is probably of use as a storehouse of moisture during the dry season, when the roots and foliage die away. A younger seedling plant of *E. horridus*, Lehm., was found to exhibit in the hypocotyledonary region, the transitional region between stem and root, at one point a curious large cauline, and partially concentric strand, and several smaller strands or bundles lying farther out in the cortex. Those are thought to represent the rudiments of the outer vascular cylinders. The character of the strands and the region in which they occur (which is that where the first-formed tissues are located, and where, therefore, ancestral characters would be sure to preponderate) tend to show that the collaterally-constructed vascular cylinders were originally derived from vascular cylinders possessing a concentric type of structure such as is met with in the stems of such fossil plants as the *Medulloseæ*. In the opinion of the author the ancestry of modern Cycads must be looked for in that fossil group.

PARSLEY AS A POISON.

J. E. Harting has communicated to the Linnean Society particulars of several cases in which parrots have been poisoned by eating parsley. After commenting on instances in which plants that are innocuous to man have proved fatal to some of the lower animals, he mentioned in support of the converse case that the berries of the yew and privet, which are generally considered to be poisonous to man, are greedily eaten by blackbirds, thrushes, bullfinches, and other birds; while, on the other hand, several cases are on record of pheasants having been poisoned by eating yew leaves. The immunity of goats from yew poisoning was thought to be remarkable in view of the fact that deer and cattle have died after eating the leaves of that tree, although it had been stated that the ill effects were due to the leaves having been eaten in a desiccated state, and not while growing on the tree.

CORROSION OF WEIGHTS.

E. T. Allen publishes some notes on a remarkable case of metallic corrosion, the objects of attack being gold-plated brass weights. They had been put away for the summer in an iron safe and were then in good condition, but when the boxes were opened it was seen that moisture had gained access. The ivory points of the tweezers and velvet linings of the boxes were white with mould and a white coating was apparent on the top of every weight. The weights proved to be abnormally heavy; when the coating was scraped off it was found to be insoluble in water, but soluble in hydrochloric and nitric acids. The nitric acid solution gave no precipitate with silver nitrate, and the hydrochloric acid solution gave no precipitate with ammonia, but it yielded a white precipitate with potassium ferrocyanide. The ammoniacal solution yielded a brownish-white precipitate with ammonium sulphide. Heating on platinum foil revealed the presence of a certain amount of organic matter, and the white substance proved to be a compound of zinc—either the hydroxide mixed with mould or a zinc salt of some organic acid. Apparently the zinc—the more positive metal—in the brass of the weights had been attacked by water and mould, while the copper and gold remained unaffected.—*Chem. News*, **80**, 246.

FLEXIBLE AND STYPTIC COLLODIONS.

W. T. Caldwell suggests the following modified formula for flexible collodion:—Glycerin, 2 parts, by weight; Venice turpentine, 5; lard, 10; collodion, 83. The turpentine and lard are said to give elasticity, and the glycerin suppleness. When the preparation is applied to the skin, the film does not contract unduly or crack. The author also proposes to use glycerin in preparing styptic collodion with the object of insuring perfect solution of the tannin in the U.S.P. formula. So far as can be gathered from his somewhat vague note, he rubs tannin, 20 parts, with glycerin (? 2 parts), then adds 94 per cent. alcohol, 5 fl. pts.; ether, 25; and collodion, *q.s.* to make 100 fl. pts. By adding 15 parts of carbolic acid to 85 of this styptic collodion, an excellent antiseptic preparation is obtained.—*Pharm. Era*, **22**, 667.

COMPANY PHARMACY: ITS ABOLITION OR REGULATION.

BY W. S. GLYN-JONES.

The interest taken by your readers in the above subject is my excuse for returning to it. The tone of the discussion is, I think, distinctly hopeful, and is likely to have a practical outcome so long as those who take part in it maintain a spirit of tolerance and give credit to those holding opposite views for having the best intentions in the interests of chemists and druggists. My suggestion that critics should produce a clause seems to have met with general approval, with a result that the discussion is narrowing down to practical issues. From remarks made by various of your correspondents I fear that I did not make my position sufficiently clear, and I should like to deal with the matter by taking up the alternative suggestions sent out by the Federation for the consideration of the various local associations. In doing so I hope to reply to criticisms on my last paper made by your various correspondents, in their proper connection.

SUGGESTION ONE—TITLES AND PRACTICE.

"(1) To protect chemists' titles and make it illegal for companies of unregistered persons to keep open shop for selling poisons, as in the case of individuals."

I would divide this into two sub-divisions:—(*a*) Title; (*b*) Practice. (*a*) I think we shall have a strong case in asking that no corporate entity shall use our title. However a company may be constituted, I think "it" cannot be a pharmaceutical chemist, or chemist and druggist, for the good reason that "it" cannot pass examinations. For a company to call itself a chemist would be equally absurd as it would be for "it" to take the title Bachelor of Arts, or even Bachelors of Art. The title is something which applies to an individual, and should, I suggest, only be used by him or her. Having taken that position, I expect those who do not agree with me to say that logically I ought to accept the second part (*b*) of this first suggestion, which would make it illegal for companies of unregistered persons to keep open shop for selling poisons, as in the case of individuals. And they are right. "In law" a company may be considered to carry on a business or keep open shop. "In fact," a company, a corporate entity—an "it"—which could not pass an examination, cannot and does not do anything of the kind. Either the shareholders do it and should be made responsible for any penalties which they may incur for so acting, or they appoint one or more directors who, on behalf of the company, keep open shop. This is a view which, as I pointed out in my former paper, was taken up by some of the judges who gave the decision in the notable case governing company pharmacy. (*b*) The first question to be considered in connection with the second sub-division is: Shall we seek to prevent qualified persons using company machinery? Mr. Lord Gifford is one of the comparatively few who take up the position that no company, however constituted, should own a shop kept open for the sale of poisons. He says there can be no legitimate company pharmacy. I have already admitted that, in an ideal state of pharmacy, Mr. Lord Gifford's position would be tenable. If the profession of pharmacy, which the founders of the Pharmaceutical Society had in their minds, was to-day carried on under the ideal conditions which they sought to impose, Mr. Gifford's contention would be a strong one; but we must remember that the 1868 Pharmacy Act did not create such a position. It provided for the safe distribution of a comparatively few poisonous articles, and, as it has oftentimes been pointed out, it is simply an Act which treats chemists and druggists as the proper people to sell by retail such dangerous articles. I think that from Mr. Gifford's ideal standpoint it might be equally well argued that no company of ship-owners should be formed unless each of the shareholders held a captain's or master's certificate, or that no colliery company should exist unless each of the shareholders is a mining engineer. Mr. Gifford must forgive me for unceremoniously brushing that position aside. I am convinced that, however desirable it may be, it is unobtainable, and I think the majority of your readers hold this view. My answer to the second part of Suggestion 1 (Practice) would be:—That whilst no attempt be made to prohibit people who were not qualified holding shares in a limited company formed to finance retail pharmacy, we should satisfy ourselves that in the case of such companies some responsible person or persons should be appointed by the company to "keep open shop" for "it," and that this person (or persons) should fulfil the conditions imposed under the 1868 Act upon any individual desiring to keep such open shop. I shall have to explain how this might be done in dealing with the remaining suggestions.

SUGGESTION TWO—TITLES ONLY.

"(2) To apply for protection of titles only."

I would strongly advise anyone who has any idea of adopting this suggestion to carefully read what "An Ordinary Pharmacist" says on the subject under the heading "Protection of Titles Only," on page 502 of last week's Journal. I think that to confine our efforts to titles alone would be suicidal. I agree with "An Ordinary Pharmacist" when he says that such a suggestion would stand no chance of being received by the Government. I am further of opinion that the protection of the title only, apart from satisfactory regulations protecting the practice, would be comparatively of little use.

SUGGESTION THREE—QUALIFIED DIRECTORS.

"(3) That all the directors of a company shall be qualified."

I pin my faith to this suggestion as being an effective method of preventing unqualified people using company legislation to enable them to do what otherwise the Pharmacy Act declares to be illegal. I have frequently been met, especially during the past week, with the following expression of opinion from our members:—"All I care about is that seven unqualified people shall not be allowed to do what either one of them singly is prevented from doing by the Pharmacy Act." And I heartily agree with that. One, if not our chief, grievance is briefly stated as follows:—A man either makes no attempt, or has made one or more unsuccessful attempts, to qualify as a person who shall be enabled to (1) use the title of chemist and druggist, or pharmaceutical chemist, as the case may be; (2) keep open shop for the sale of poisons; (3) conduct the actual sale of a poison. He cannot, as an unqualified individual, do either of these things, but with the help of six unqualified persons he may become a company—an "it"—and "in law" this impersonal thing may assume the title, and keep open shop; but "it" cannot conduct the actual sale, so "it" employs a qualified assistant, not to keep open shop, but to do the selling for "it." In the case of such a company, who "in fact" keeps open shop for the sale of poisons? Mr. Justice Bramwell says it is not the company, the impersonal thing, nor is it the assistants. He says it is the director, and, in fact, we know that it is the unqualified person who provides himself with the six dummy shareholders who is really the culprit. If you can get the Government to adopt Mr. Gifford's suggestion and prevent a company, having either of the above three things for its objects, being formed, the evil would be remedied; but I again repeat it is at least twenty years too late to expect the Government to do anything of the kind. We can, however, reasonably ask them to provide that the shop will be kept open—in other words, the business conducted—by one or more qualified individuals, and, in my opinion, we must seek to get this by insisting that a company having either of these things as part of its object, shall appoint one or more qualified directors, in whom shall be vested the fullest powers of controlling both the capital and the business. We can surely ask as much in the interests of the public safety, and in order to prevent an unqualified person of the stamp we have referred to circumventing the Pharmacy Act. Mr. John Smith, criticising this suggestion, says:—"I do not believe the qualified director arrangement would be entertained by Parliament for a moment. The duties of directors, and the means by which they may be shirked or delegated, are well known to our legislators, and the proposal, even if it was accepted by pharmacists, would probably be rejected by Parliament. Of what use, it would be asked, is the pharmaceutical quali-

fication of a director who lives in London, say, to a business carried on in Birmingham? There is, in addition, a danger to our position in making the admission this proposal would involve—viz., that qualified proprietorship is not essential." His contention is perfectly sound, unless the clause which we suggest would prevent "dummy" directors, and I can assure Mr. Smith, and those who may share his doubts, that it is quite possible to draft a clause which would absolutely prohibit the state of things which he prophesies would come about as the result of the employment of irresponsible directors.

Suggestion Four—Qualified Managing Director.

"(4) That the managing director only need be qualified."

I do not think that this would be satisfactory, because I cannot admit the right of any unqualified person to be a member of a board of directors controlling a business where poisons are sold. In other words, I agree that "no unregistered person should be permitted to exercise any control over the retailing, dispensing, or compounding of poisons."

Suggestion Five—Qualified Manager or Assistant.

"(5.) That a company shall be allowed to carry on the business with a qualified manager or assistant, who shall be registered for the purpose, and whose name shall appear in connection with the business."

I have said enough to show that I could under no circumstances approve of this suggestion. I strongly object to the contention which would allow of a qualified manager or assistant acting as the servant of unqualified directors. It would in no way benefit our present position, or prevent an unqualified individual making use of company machinery in order to enable him to carry on our business. We have already the power to insist, under the Pharmacy Act, that in every shop where poisons are sold there shall be a qualified person to conduct the sales.

An Ordinary Pharmacist's Five Courses.

I think that we should be wise to ask for a clause in the Companies Bill which would prevent the use of titles by any kind of limited company, and which would insist that in the case of companies keeping open shop for the sale of poisons there should be a director, or directors, who should be in sole control, and that these should be registered persons. Having secured that, I admit the necessity for an amendment of the Pharmacy Act, which would enable us more effectively to enforce its present conditions, not only against companies, but, unfortunately, against a large number of our own people. "An Ordinary Pharmacist," in his paper (No. 4), gives a list of five alternative courses, which, in his opinion, the Council might adopt. I think that the three alternative courses mentioned by me in my former article really combine his five. Whether they do or not is not a matter of practical importance. I have already dealt in this article with the first three of the courses he mentions; the fourth commences with a word which at once prejudices me against it.

The Fourth Course.

"(4) Wait to see what the Government proposes to do in the next Session of Parliament, and then oppose what seemed to be antagonistic to the interests of registered chemists, whilst not conferring any real benefit on the public."

Wait! Wait!! Wait!!! We have been waiting with a vengeance for twenty years, with disastrous results, and my first inclination is to vote against anything which means waiting. I am convinced it would be the worst possible tactics to *again wait* until the Government have further committed themselves to a clause, and then go to them asking them to undo what they have done, and, failing that, oppose them. I do not say that it will not be necessary to oppose them, but, as our Editor has said: "The further opinion that the wisest and most politic course would be for chemists to offer their assistance to the Government in drawing up a suitable amending clause, will also commend itself to most minds as reasonable."

The Fifth Course.

"(5) Pass a formal resolution, expressing the views of the Council, and depute a limited number of members to negotiate with the Government on that basis, after which a clause embodying what seemed feasible might be drafted and submitted to the Council for approval."

There is here some hope of agreement between "An Ordinary Pharmacist" and myself. I desire that the Government should be asked to receive a deputation from our Council, and I have no objection whatever to that deputation expressing to the Government the opinion that no company should be allowed to do those things which the Pharmacy Act lays down can only be done by qualified individuals. I have no objection to that deputation stating that in the opinion of our members no company should be allowed to keep open shop for the sale of poisons; but I ask that, in what I consider to be the inevitable event of the Government refusing to take such a course, the deputation should be immediately prepared with an alternative clause for regulating such companies, and if any better suggestion can be made for an alternative clause than that which I am advocating I should only be too delighted to adopt it. I do object, however, to such a deputation going to the Government unless it is prepared to negotiate upon some such basis, involving regulation of companies, in the event of our meeting with a direct refusal by the Government to insert the clause which would mean prohibition. I candidly confess that I do not see the practical utility of passing such a formal resolution expressing our views. The Government already knows them, and it has not acted upon them. Still, if any one of our members thinks that we have not yet had a refusal by the Government to act upon the suggestion made in the clause submitted by the Law and Parliamentary Committee, at the last meeting of the Council, I have no objection to their minds being set at rest by adopting some such course as I have outlined in this paragraph. I should like to add that before any expression of opinion is sent to the Government, or any deputation meets them, a conference should be arranged with the Irish Society, and, if possible, we should act together and lay before the Government proposals satisfactory to both Societies.

THE PRESENT POSITION OF PHARMACY.*

BY PETER BOA,

Chairman of the Executive of the North-British Branch of the Pharmaceutical Society of Great Britain.

We are on the threshold of important changes in some of the conditions regulating the entrance to our calling. Our Society is to relinquish the First Examination which it at present holds, and in lieu thereof it will receive certificates of specified educational bodies holding examinations. Algebra, Euclid, and a modern language have been added to the subjects which the present examination includes, and the standard has been raised. The examination, therefore, will be somewhat more formidable. However, it need not be passed all at one sitting. A candidate may obtain the requisite certificates at two examinations. There can be no doubt that the First Examination, as it is at present conducted, is a simple and convenient arrangement for intending entrants. When a youth thinks of adopting pharmacy for his career the first thing he does is to ask a pharmacist how he is to proceed to obtain entrance. The pharmacist tells him that he must pass the First Examination, and it is an easy matter to inform him how to enter himself for it. The simplicity of the procedure attracts inquirers, I believe, in many cases. The system of accepting certificates from a multiplicity of examining bodies may by and bye be quite as convenient, but at first I feel sure it will give rise to a lot of trouble and irritation. A busy pharmacist cannot be expected to have at his finger ends the ways of getting at the various bodies whose examinations are recognised. He may give the inquirer a copy of the Society's Syllabus of Examinations—as the Society does not advertise, he will not get

* Inaugural Address delivered at an Evening Meeting held on November 92.

one unless he applies for it—but that will not help him. A youth fresh from school has no great liking for writing letters as to examinations. His father probably is a busy man, who has no time to make inquiries. This pharmacy business is designated too troublesome, and the youth is absorbed by a calling with a less complex entrance. I may be wrong in anticipating trouble. I hope my fears may prove groundless.

The Apprentice Difficulty.

At present many pharmacists complain of not being able to obtain apprentices. Should the new method of passing the First Examination prove troublesome at first the scarcity of apprentices will be intensified. Some say that is as it should be. We want to limit the entrants. Too many are in the business already. That may be so. I am not prepared to express an opinion in that connection. This I will say, that I am surprised the supply of apprentices has kept up as well as it has done when the inducements are considered. Unless in a few pharmacies the hours of business frighten even the most enthusiastic of those who entertain the notion of becoming pharmacists. I quote from the lettering on the door of a good pharmacy:—"Hours, 8.30 a.m. to 9 p.m.; Saturdays, 10.30 p.m. Attendance on Sundays, 10 to 10.45 a.m., 1 to 2, and 6 to 8.30 p.m." Some pharmacists tell me they simply cannot get an apprentice; others tell me they get one readily when they have a vacancy. Hours, I find, are the differentiating factor. Banks, law, insurance, absorb most of our best youths. The prospects are quite as good as in pharmacy, and the hours about one-half. I often hear a desire expressed for a better educated, more luxuriously brought-up class of entrants to our calling. These cannot reasonably be expected so long as our hours of business remain as they are. I consider the long hours of business obtaining in pharmacy out of date, unnecessary, and a hindrance to pharmacy's best interests. In saying this I am alive to the probability of your wanting to know how they can be shortened. Probably by combination; but that, experience teaches, is among us difficult to get. It is a pity that our hours of business should frighten away desirable youths—not only on our account, but on their account. There is no more delightful occupation than pharmacy. Its never-ending variety is a continual entertainment to a thinking man. When a man has been engaged in pharmacy for ten years his stock of general and useful knowledge is probably unequalled by that of a corresponding man in any other business. Personally I cannot imagine a pleasanter occupation than pharmacy.

Pharmaceutical Education and Examination.

The course of education which has to be undergone before the Minor is passed is well designed to fit those who qualify for carrying on their after work. We have, it is true, a very large percentage of failures in the Minor Examination, and this is taken by some to point to defective systems of education. I am not prepared to admit that these failures are due to defective educational facilities. The examination itself is a fairly stringent one, and it is carried out on the basis of a high standard. The percentage of failures, although regrettably high, fluctuates very little from examination to examination and from year to year, and there is wonderful uniformity in the passes and failures in both London and Edinburgh. This steady uniformity, to my mind, is an assuring indication that the examination is not being conducted in any haphazard or slipshod manner. When the number of subjects which have to be got up and kept up is considered, it must be admitted that the examination is a very heavy one. In fact, I believe it is the heaviest examination in this country. The question of dividing it has been raised. It is divided as it is, but the interval between the two portions is too short to be of much service as a relief to candidates. The subjects have been extended from time to time since the present system of conducting the Minor was introduced, and now the strain upon a candidate is considerable in keeping them all simultaneously up to examination point. Should a further extension of any of the subjects be deemed expedient, it is very likely that the question of relieving this strain will be considered. Many find comparatively little difficulty in undertaking the examination as it is, but to others it is a severe tax on their mental powers. The majority of failures, however, so far as I can judge, are due to candidates coming up too soon. It is a perfectly natural thing for a candidate to endeavour to pass as quickly as he can, and, as we have not a compulsory curriculum, the time when is practically left to his own judgment. In his haste he is liable to get knowledge without understanding. The tendency to this has increased within recent years. Men pass very young now. It is a credit to their perseverance and their head that they do, and the possession of some undigested information must not be regarded too severely. Examiners are occasionally blamed for failures. This is with me tender ground, and you can scarcely expect me to criticise or defend. It would be kindness, however, to the members of the Board of Examiners to remember always that they are only human. The majority of failures occur, so far as I have observed, in the simplest things.

Some Curious Examples.

I hope I shall not be accused of telling tales out of school if I give you examples. During the last examination I gave to each of two men on two different days the following as part of their practical dispensing:—

℞ Magnes. Sulph., ʒss.
Fiat pulvis, et divide in chartulas, iv.

My object in giving this was to see (1) that the candidate knew that ʒss. meant 240 grs, (2) that in accordance with the direction he powdered the salt, (3) that he weighed the powders, and (4) that I might observe his manipulation. You will be surprised when I tell you that two out of the four men divided the salt ordered into six powders instead of four. These are not exceptional cases. They may be taken as typical ones. In the oral examination the same want of attention to simple details is experienced. We have on our materia medica table a specimen of carrageen, or, as it is commonly called, Irish moss. This I showed to a candidate, and he immediately told me that it was "Irish moss, *Chondrus crispus*, natural order Algæ." On asking him if it were quite correct to call it a moss, he said "No; it is a lichen." On my asking him if he knew where it grew, he told me it grew on the rocks in mountainous districts. Another candidate who readily told me its name, natural order, and composition assured me that it could not live in the sea, but that it grew on the rocks above high-water mark. Such men as these last have come up rather soon; many candidates do. They come up to see what the examination is like on the chance of squeezing through. I have nothing hard to say against them for this—I was once a student myself. It is, however, doubtful discretion. Failure is taken lightly in such cases. After having had a disappointing candidate one day during last examination, I got one who was, as the saying goes, "very well up." I was so grateful for the change that I could not help saying to him that he appeared to know something of the subject. He replied very good-naturedly and with evident appreciation of the humour of the situation, "I should think I do. You ploughed me last time." I almost think he regarded me as his benefactor.

Division of the Qualifying Examination Advisable.

Division of the Minor Examination into two portions, with an interval of at least three months between them, would almost certainly lead to a higher standard of real knowledge being attained. A student very naturally may be expected to go more thoroughly into two or three subjects than into half a dozen. Such a division of the qualifying examination is a matter which would require to be very carefully arranged. Probably the first portion might suitably consist of the scientific subjects—botany, chemistry, and physics; and the second portion the technical subjects and practical work. Fewer subjects and a higher standard would suit all

candidates. Some have great difficulty in keeping a number of subjects in their mind at once. Such men are frequently possessed of good ability to grasp thoroughly one or two subjects at a time. Division would suit them, and it would make no difference to those who do not suffer from their defect, if it can be so designated. The scientific subjects are a fine mental training, leading students into the method of observing, thinking, and understanding things in a systematic way. Their precedence of the technical subjects might, therefore, be expected to bring about a clearer apprehension of the latter. The increased fee for the Minor, which will be charged after the July examination of next year, will probably operate towards preventing premature presentation. I am not, however, sanguine that it will. After all, it is only five guineas more than the present fee, and the return fee is to be the same as it is now. Until we have an enforced course of study we need not expect but that a number will always come up on the minimum of preparation calculated to give them a chance. I must not be apprehended in saying this to mean that our students would get better teaching by an enforced curriculum than they get now. I question whether they would get as good, but they would get it spread over a longer period, and what is taught them might be better assimilated. The teaching obtainable at the present time by students of pharmacy is excellent. They will not, however, take enough of it.

VALUE OF THE QUALIFICATION.

The value of the Minor qualification has very materially increased since the introduction of the five-guinea fee. If it increase in proportion after the advent of the ten-guinea fee, the qualification will be, in common parlance, cheap at the price. The fee may not have had anything to do with the increase in the value of the qualification. Its rapid advance in value was, however, so suggestively synchronous with the imposition of the larger fee that their connection cannot well be disregarded. It is convenient, but scarcely correct, to speak of the ten-guinea fee. Although that is the sum to be paid on entrance for the Minor, only one-half—or the same sum as now—is the fee for examination, the other half being in the nature of a registration fee. The Society, as you know, is saddled with the responsibility of prosecuting, in the public interest, persons who are reported to have infringed the Pharmacy Act. As to whether the Society should hold this responsibility or not, this is not the place to express an opinion. The responsibility may be a privilege, but it is a costly one. When the Society prosecutes, at the instance of a legal officer of the Crown, an unqualified person, say, who has sold a scheduled poison to someone who is thereby enabled to commit suicide or murder, it never gets credit for serving the public, but is instead invariably deluged with abuse for endeavouring to establish a monopoly on behalf of its members, and such a prosecution means a heavy bill of costs to the Society. Prosecutions for infringement of the Pharmacy Act, although primarily intended to conduce to the safety of the public, have their value in protecting the interests of qualified persons. No provision was originally made to meet the outlay which they entail. For many years the expenses on their account were small. In recent years they have become seriously heavy, and it has become necessary to make some provision for the future in regard to their probable still further increase. Since examination became compulsory, connection with the Society has been optional. A person who passes the qualifying examination may join the Society, or he may not, just as he pleases.

THE SOCIETY AND THE TRADE.

The Society, in fact, has no further control over him. As it has happened, only about one-third of those whose names are on the Register have joined the Society, and it follows as a deplorable sequence that the subscriptions of those who join the Society have to be partly expended in maintaining the rights of the many who remain outside and pay nothing. Since two-thirds of those who have qualified in the past have shown themselves regardless of their obvious duty, it seems only just and reasonable to arrange now for levying an assessment, at the time of passing the qualifying examination, sufficient to prevent the Society from being out of pocket in caring for the material interests of the possessor of the qualification. It seems to me a pity that our Society has not some control over persons whose names it places on the Register. In law and medicine, societies and licensing bodies have powers to take their members or licentiates to task for doing anything which is derogatory to the dignity or honour of these bodies, and they exercise those powers frequently and strictly by suspending, temporarily or permanently, offenders' qualification. Our Society, no doubt, can remove a person from membership, but it has not power to cancel his qualification. To a person who can offend to this extent the cancelling of his membership is a small matter. If his qualification were cancelled, it would be a different story. The person on the Register has at present the whip hand on the Society. If the Society had a disciplinary power, it would have the whip hand of him. I venture with some timidity to entertain the opinion that it would be well if the Society had power to control the conduct of those who hold its qualifications. We are more and more coming into confidential relationships with medical men and their patients. Why, therefore, should not pharmacists be pledged to fidelity in all things relating to their business, and their licensing body provided with powers to bring them to book in case of unbecoming conduct, such as supplying inferior medicines, supplying drugs or appliances for immoral purposes, covering unqualified persons so as to enable them to carry on business, and such-like practices? The Society might reasonably ask those powers; it might readily get them; if obtained, they might be found very useful—more useful probably than many of the numerous suggestions which have recently been made for the Society's benefit.

MEDICINE AND PHARMACY.

There can be no doubt that strained relations between members of our calling and physicians are created from time to time by a want of regard on both sides for each other's interests. In Edinburgh and the east of Scotland, pharmacists and physicians confine their operations to their legitimate spheres. The former do not prescribe, and the latter do not compound medicines. The result of this is, I believe, highly satisfactory to the public, as well as to prescribers and dispensers. Unfortunately, in some towns in Scotland, and in many across the Border, physicians supply the medicines which their patients require, and chemists in these towns prescribe, and advertise quack medicines—so it is alleged. I have seen a letter in a medical journal from a practitioner to the effect that his income was being seriously affected by a prescribing chemist, to whom he said the people seemed to prefer to go. Physicians and chemists in these towns have been educated and trained, like their brethren in other towns, for the work in which they are expected to engage, but in practice they have largely exchanged their respective duties, and the consequence is that these duties are discharged in a manner that is inefficient, and a source of danger to those who are the subjects of them. The safety of the public, and the credit of the two classes involved, demand that this sort of thing should cease. The person who should, but does not, write prescriptions is the primary factor in the case. There is no use in a few setting examples, and possibly thereby making martyrs of themselves. The movement must be general and compulsory to be effective. That our Society has no controlling power in regard to the conduct of registered chemists is used as an argument against the legitimate dispenser. What guarantee is there, it is asked, that prescriptions will be treated in good faith and honourably compounded? If our Society were to obtain the disciplinary powers which I have indicated I believe it would be an important step towards the abolition of medical dispensing. The division of labour in this matter is practically universal in educated sections

of the community. If this be found best in the quarters best able to form an opinion on the subject, surely it cannot be the worst in other places—as one might be led to infer from the prevailing practice. I do not think it fair to blame either side; they are only continuing a state of things which they have found existent. It would be well, however, for both to set their house in order before the public, on its own initiative, rise up and demand that this be done.

THE USE OF THE MICROSCOPE.*

BY G. T. W. NEWSHOLME.

In dealing with the use of the microscope from an educational point of view, it may be pointed out that, in its true sense, education consists of drawing out and strengthening and developing the various faculties and powers with which we are endowed. To train the eyes to see and the hands to handle is no small part of the education of our youth, and in this relation what instrument or means can there be so valuable as the microscope? A person working with the microscope is learning something about the object he is viewing; but more than that, he is learning to see to a degree which those who do not use this instrument cannot understand.

The successful microscopist must have acquired, in a high degree, delicacy of touch, lightness, accuracy, flexibility, and steadiness of manipulation. The value of an educated hand is not properly appreciated, and yet from time to time we become practically sensible of it. It would be an easy matter to give many illustrations of its value, more particularly in relation to the practice of surgery. In every relation of life an educated eye to see and a trained hand to perform are of great importance. It may be claimed for the microscope a superiority over all other means of training these two organs.

As to training the intellectual faculties, it is not possible to work honestly and industriously in any department of natural science without profitably exercising the intellectual faculties. An untrained person is liable to see a little and to imagine a great deal; but the habit of accurate observation essential to the use of the microscope develops a corresponding care to interpret correctly.

The use of the microscope for cultivating the faculty pertaining to the sense of the beautiful is another important factor in education. In the education and development of the artistic sense the microscope takes us to the beauties of the Creator's work. In the perfection this instrument reveals to us there is never a line out of drawing or a colour or tint too few or too many, and, unlike man's work, the more God's work is magnified and the clearer becomes the detail, the more beautiful does it appear.

The use of the microscope in the education of the young (and I would have microscopy taught in every school in the kingdom) cannot but have the most salutary influence upon their sense of proportion and of harmony, and help them in the appreciation of all that is beautiful.

As to the use of the microscope in everyday life applied to our daily work, there are many persons who go through life and follow their several callings without knowing the amount of knowledge which the microscope would let in upon their pursuits. On the other hand, there are many in professions and trades of various kinds to whom the microscope is well nigh indispensable.

The science of biology, at least, in its modern aspect in relation to botany and zoology, owes its very existence to the microscope, and the great advances in our knowledge of minute structure and growth in quite recent years have taken place in consequence of the many improvements in microscopes themselves and in microscopic methods of research, notably, the employment of various methods of staining. Indeed, at the present day it would be quite impossible to teach these sciences without the microscope.

Bacteriology, one of the most modern of sciences, owes everything to the microscope. It would be impossible to say how much the medical profession and the whole world have benefited by the discoveries in recent years of the existence of certain bacteria, the causes of many diseases.

In the science of chemistry the microscope plays a most important part. Minute quantities can be recognised and many delicate chemical reactions detected.

In the practice of medicine and surgery it is the indispensable instrument of the medical man.

In the practice of pharmacy it is all important. In these days of severe competition adulteration and substitution are rife. The importance of being able to tell the difference, say, between true and false ipecacuanha; between ginger which has been deprived of its active principle, and nothing but woody fibre being sold, mixed with a small quantity of the genuine article, and sold as the finest ginger; the difference between the various kinds of arrowroots, the value of which range between 4d. per lb. and 3s. 6d. per lb.; or of the various substitutes and mixtures sold for or as finest ground pepper; and many other articles I could mention.

One could hardly find any trade in which the microscope does not play an important part. Its influence has been demonstrated over and over again. We know how important it is to us in buying our clothes, drapery goods, etc., that when we want silk or wool we don't get cotton, and yet I dare say many of us do not put to the test the knowledge we possess even in this matter, but I assure you adulteration in wearing apparel is equally rife with that in food and drugs, but at present unfortunately the law does not cover these articles.

In dealing with the application of the microscope to various branches of trades and professions, I am leaving to the last one of its most important ones. I mean its application to the examination of steel and iron. Sheffield may, I think, take full credit for this. The pioneer in this work was her distinguished citizen Dr. H. Clifton Sorby. Work commenced many years ago, but unfortunately not followed up by others until recent years, when another distinguished member of the Sheffield Microscopical Society—Professor Arnold—did great work, and I think he should have the credit of putting metallurgical miscroscopy on a satisfactory basis. This reference would not be complete without my recognising the splendid work done by Mr. B. W. Winder, of Sheffield, and also that of Mr. Thomas Andrews, F.R.S., of Wortley. Sheffield has a world-wide reputation for its steel, and the gentlemen whose names I have mentioned have done not a little in enhancing that reputation.

Notwithstanding all that has been done, there are still vast untrodden fields of discovery waiting to be explored, and the humblest worker may, by diligent and honest labour in the field of microscopy, add his contribution to the great array of facts which are daily accumulating.

I trust I have succeeded in conveying to your minds who are at least some of the people to whom the microscope should appeal. You will admit that the class is a numerous one, and that a microscopical society in a town like this should, instead of its having even the large number of 154 members, have at least ten times that number. Everyone who uses a microscope for business or pleasure should join a microscopical society and attend fairly frequently its meetings, so that he may be kept well posted up in all that is new in the microscope itself and in microscopical methods that may be helpful in his special pursuit.

A microscopical society should be the common meeting-ground of all interested in microscopic science. The society by its meetings should afford the opportunity to every earnest worker to bring the fruit of his labour into contact with other minds, either to be confirmed or corrected, so that he may be set on the right path by someone who has gone over the ground before. The meetings should permit the opportunity of making known to each other many of the ingenious devices and clever expedients which suggest

* From the Presidential Address delivered to the Sheffield Microscopical Society on Monday, November 13, 1899.

themselves in practice, and which often make the difference between the successful and unsuccessful microscopists. Every encouragement should be given to members to bring notes and queries to the meetings.

Many observations and suggestions, in themselves valuable, are lost frequently because the opportunity has not been afforded for their notes to be recorded in a permanent form. For this purpose every society should publish a periodical report of its works. The Sheffield Microscopical Society's transactions of last year are a step in the right direction, and the yearly publication will be of great value.

Another feature of great importance to a microscopical society should be the formation of a library of the standard works of reference in microscopical literature and the formation of a museum of typical slides and specimens. In Sheffield, we have already made a very small beginning in this direction, but the lack of funds limits our extension. It is almost impossible for each microscopist to possess himself of copies of books which are essential to him if he is to do good work. The museum, I think, might grow perhaps more easily than the library if each member could think of the society when mounting slides, and mount a duplicate one at the same time. A society may be helped in many ways—first, by becoming a member and worker with the microscope, and so contributing a quota to the share of work which the society may accomplish. Still, I hope no one will be deterred from joining a society because he has not hitherto worked with the microscope. Secondly, by paying his annual subscription, which, though small sums to him, helps to swell the fund of the society and to greatly increase its power for usefulness.

I cannot better conclude my address than by quoting, as an inducement to the study of microscopy, the following words from the presidential address of Dr. C. T. Hudson at the meeting of the Royal Microscopical Society, February 13, 1899:—"To gaze into that wonderful world which lies in a drop of water, crossed by some atoms of green weed; to see transparent living mechanism at work, and to gain some idea of its mode of action; to watch a tiny speck that can sail through the prick of a needle's point; to see its crystal armour flashing with ever-varying tint, its head glorious with the halo of its quivering cilia; to see it gliding through the emerald stems, hunting for its food, snatching at its prey, fleeing from its enemy, chasing its mate (the fiercest of our passions blazing in an invisible speck); to see it whirling in a mad dance to the sound of its own music, the music of its happiness, the exquisite happiness of living—can anyone who has once enjoyed the sight ever turn from it to mere books and drawings without the sense that he has left all fairyland behind him?"

THE RELATION OF THE WHOLESALE TO THE RETAIL TRADE IN PHARMACY.*

BY F. CURRY.

Pharmacy as a trade occupies a special and unique position. It is not only a trade—it has also its professional aspect. And from this fact the position it holds relative to the public is somewhat of a responsible character. In the articles it handles the public have no criterion of value; they tender their prescription and the price, and leave more or less to the conscience of the pharmacist its careful and proper preparation. An ordinary tradesman, dealing in general articles, is open to severe criticism from his customers—and criticism with knowledge on their part; but in the case of a chemist this is not always, or often, so. The public cannot judge of the quality or reliability of their purchases by their appearance, or even their effect as medicines. They have to repose upon the skill, knowledge and integrity of the chemist to a far greater extent than is necessary in buying their provisions or other articles of daily need. It is most essential, then, from this point of view alone, that the relation between the wholesale and the retail should be all that may be desired. Men connected with pharmacy have to handle potent and deadly drugs, the lives of their clients repose in their hands, and are staked upon their caution and knowledge a hundred times a day. How little do we ourselves sometimes realise this!

The Present Condition of Pharmacy.

In the opinion of some, pharmacy is in a most deplorable condition, and the outlook is altogether of a very discouraging character. I, myself, incline rather to favour these views, though I am aware that there are many, who from their high standing in our ranks are well qualified to judge, who are decidedly optimistic in the view they take of the future of our business. But I think that perhaps their position, more or less unique, above the storms and vicissitudes that overtake their humbler brethren, is in some degree accountable for their happy forecasts. If, on the contrary, they could look at affairs from a less elevated position, many of their sublime notions would vanish, and they would come to see that, considering the majority, at all events, their opinions are entirely erroneous. It is not the actual present that is so alarming, but the tendency of the times, and all that the future holds in store if present lines are followed, that strike a note of consternation into the minds of those who look into the future. The severe competition, driving down profits to almost vanishing point; the evils of company-trading; the gradual development of the average chemist and druggist into a mere huckster of packed goods; the restrictions and regulations imposed upon him, are some of the too numerous causes for our despair. The condition of things that obtains now was unknown to our fathers; what, then, will it be when we ourselves have grown old? It is, of course, asserted that a new generation will meet new difficulties, that the man will adapt himself to his environment; and this, in the main, is doubtless true. However, I cannot but think that the present tendency is to the utter extinction of the pharmacist, as a pharmacist (into what he will ultimately develop I dislike to think) unless some particular evils are speedily redressed. It has been these considerations, therefore, that have induced me to bring to your notice the subject in hand, as I am convinced, among the numerous questions at issue, that of the relation of the wholesale to the retail is no unimportant one.

Wholesale and Retail—Ideal and Real.

We have briefly to consider in what relation the former should stand to the latter in an ideal community, and to inquire whether the existing relationship is of such a character; if not, to intimate in what particular way it needs to be altered. In my own opinion the existing state of affairs is very far from satisfactory, nor do I think that at any time the relations between the two sections have been as they should be. In olden days, as far as I can judge—and the hasty preparation of this paper has prevented me from obtaining reliable information—the relation that existed was much the same as obtained between the retailer and his customers. A great deal was accepted on faith. There were no certificates of the genuineness of the article demanded or given then; it was bought in good faith and resold as it was bought; and as too often the trader relied upon the gullibility of the general public, it is much to be feared that the wholesale trader, as well, trusted much to the technical ignorance and general credulity of his customers, and thus was able to sell to them goods of indifferent quality. But of this we have little to do; and however this may be, one great difference exists between the wholesale section of the trade then and now. The wholesale houses did business solely with their retail customers. Their primary idea was to cultivate good fellowship between the house and its business connections—so much so that the heads of the firm would themselves take provincial rounds on purpose to be able to personally call upon their friends and inquire as to the state of trade. They rigidly adhered to legitimate wholesale trading, and would not for one moment entertain the idea of supplying a private individual unsupplied with a guaran-

* Read at a meeting of the Chemists' Assistants' Association on November 23, 1899.

tee that he was engaged in business in a *bonâ-fide* character. How absolutely foreign to such a firm was the notion of *themselves* owning retail shops! Their methods of doing business were characterised by extreme politeness and cordial friendliness. None of that commercial keenness or frigidity, so noticeable in modern times, was apparent. At Christmas time, the festive season of the year, messages of goodwill were exchanged, and often something more tangible; while on the marriage of one of the retail gentleman's sons or daughters it was no uncommon thing for the wholesale firm to send a graceful acknowledgment of the happy event. It is illustrative of the amicable feeling which existed between these two branches of trade. To further emphasise this it is enough to say that, generally speaking, it was most unusual for a retail man to change his wholesale house—different, indeed, to this time, when the eternal rage for cheapness sends the chemist from one firm to another to buy in the cheapest market. I admit the necessity of the times has much to do with this; but that is a side issue with which we have little to do.

Actual Position of a Wholesale House.

The actual position in the commercial world of a wholesale house should be that of an intermediary between the actual importer or manufacturer on the one hand, and the person who retails in a suitable condition the commodities required by the public on the other. This applies to the wholesale druggist, as well as to other trades. It is, of course, quite probable many of you will fail to see the necessity of a middle man at all, but I venture to think that his existence is an instance of the specialising of labour which tends to the general good of the trader and the community at large. From his position, the wholesaler should be able to buy, in suitable quantities, the crude drugs as they come to the market, prepare and sort them in such a way as will be for the convenience of the pharmacist. He should select barks, roots, herbs, and all the thousand and one things that comprise the materia medica, and sort them into their varying grades of quality, so that a purchaser, requiring a particular article in a particular condition, shall be able to obtain it with a minimum of trouble. To him should be entrusted the powdering of drugs, their preparation, as far as may be necessary, into suitable forms for dispatch to the druggist, who will in turn convert them into galenical preparations. For example, the sorting of cinchona barks into those qualities suitable for making official preparations and those not so suitable, the washing and bleaching of calumba root, the selection of various qualities of opium, the distilling of essential oils, and many other processes too numerous to mention, which readily suggest themselves. In the carrying on of such a business there is ample scope for all the energies the wholesaler will be able to bring to bear upon it, but when he outsteps the limit of his proper sphere he at once becomes an evil. He enters into the arena and competes with both of those he is supposed to unite. He becomes more or less of a manufacturer, preparing some of the chemicals for which small plant and less specialised labour are required. It is not in this direction, however, he becomes the greatest evil. It is when he opposes the interests of the retailer that the harm he does is most felt. Not only are the drugs bought and sorted, powdered or prepared in their various ways, but they are made into tincture or extract, syrup or liquor, and these, in their turn, are made into pill, digestive syrup, or cough linctus, Liquor Electro-Lightus cum Thundero et Tornadibus Co., as the case may be. Nor does the enterprising wholesale house stay here. It puts the pills into boxes, the syrup and linctus into bottles, and puts a label on them (printed with name and address free on orders of three dozen and upwards), and hands them over to the qualified chemist ready to sell to his customers.

Evils of the Packed Goods Trade.

It is impossible to describe the evil influence this has upon the trade generally. I am positive the baneful effects of this practice cannot be over-estimated, and the trade is swelling every day. The condition of affairs I have so briefly alluded to is becoming more and more pronounced. No pharmacist thinks now of making his tinctures, his blue-pill, his ointments; all these, until practically every article or preparation he requires in the exercise of his calling, is put down in a book to be ordered when the representative of the wholesale house calls upon him. There are many establishments, illustrative of the commercial pharmacist in distinction to the more professional class, in which nothing is ever manufactured that can possibly be bought. I have heard of such cases, where even there was no stove or apparatus for heating, beyond the sealing-wax jet and a spirit lamp, in the shop, and yet there was a large business done, with a greater turnover than falls to the lot of the average pharmacist. I do not blame the wholesale houses for the existence of such places as these, I rather blame the tendency of the times, and incline to respect the large drug firms who recognise the change that has come over business and cater for this class of trade. At the same time the house cannot expect to have both the legitimate chemist and his greatest enemy. It must not expect favour from the man whose whole training and inclination alike turn him from such a course. If it is necessary for such a class of traders to exist in the interest of the great public, then I have nothing to say but to ask "Why is it imperative that men should be trained, made to qualify by examination, simply to hand over the counter some tincture or pill, powder, lotion, or linctus, in the preparation of which they have taken no part, and of its composition they probably have little knowledge." That the wholesale of to-day is encouraging and fostering this tendency is an undoubted fact. You have only to read the monthly lists as they are published, or study the advertisement columns of your trade journals, to become convinced of this. It positively makes one weep to see this retrograde movement, this development of a highly-trained and well educated body of men into mere hucksters, and no amount of assurances that trade is better, businesses are dearer, and money more plentiful will ever lead me to believe that the business is flourishing when it contains within itself the very germs of decay. There is nothing to prevent the annexation of such a "store" business to a drapery or a grocery establishment. How utterly hopeless does it seem to press for the higher education of the pharmacist, to urge the necessity for a curriculum, while chemists themselves, by falling into these ways, are hastening on their own ruin; at all events, forming a barrier themselves to any further progress! There is but one way, and that is to make each man fully alive to his own interests, as well as to make him a skilled and able pharmacist, capable of understanding the preparation of every compound he handles, to educate higher and higher, to raise the standard of examination, and thus to inculcate, slowly, it is true, but surely, into the minds of the public that a chemist is a highly-trained and thoroughly educated man, in whom they can safely repose their trust for some of the most absolute necessities of their lives. But, first of all, it is necessary to make the pharmacist himself aware of all that he might become. By further training will come the desire to exhibit in his business the education, and its refining influences, he has received, so that the possibility of the craft falling into the position of simple salesmen will become more and more remote. To follow in the course I have endeavoured to describe is suicidal, absolutely fatal to our very best interests, and it is high time that those firms who have so closely identified themselves with this movement should understand that the policy is unwise for them as it is unjust to our calling.

Wholesale Encroaching on Retail.

Not only in this way, that of taking from us and doing for us that part of our business we can and should do for ourselves, does the wholesaler invade our province. Oh, no! In his wonderful business capacity and increasing commercial enterprise, he takes to opening retail shops and actually opposing on their own ground his own supporters. No doubt he has found this answer, or his tact and wisdom would prevent his continuing in this way; but what are we to say of the standard of commercial morals of to-day that permits such proceedings? I have endeavoured to point out, though

I fear the attempt has met with but poor success, to you gentlemen, in what particular way the wholesale and retail trades are not in their proper relationship to each other, but I am unable to suggest to you a remedy. I do not know what course would be for our advantage to take. I have simply to point out these facts; that they do exist you yourselves know, and trust that in the discussion which I hope may follow some further light will be thrown upon this question. But of this one particular, which I have endeavoured to emphasise, I would most earnestly request your careful consideration, and that is, the buying of packed goods. I do not know of anything more fatal to a chemist's high-standing in the eyes of the public, nor of anything more calculated to hasten his ruin, his utter extinction, as a class. Surely it must be seen that the personal aspect of our business is its greatest safeguard; it is this which makes it more or less elevated in the eyes of the world. But when a member of the craft deliberately sets himself to hack away one of the chief supports of his position, and even existence, whom can he blame for the darkening times that loom before him but himself? He can no longer speak confidently of the quality and curative properties of those eternally to be confounded semi-proprietary remedies. Are there not enough liquor this and mixture that, with some enterprising firm's name following, on the market without the chemist encouraging the wholesale putting up of specialties? And yet every week sees converts to this method of doing business, the wholesale houses waxing fat, and the retailer, with decreasing sales and lessening profits, wonders how it has all come to pass. I do not, for one moment, believe that it is essential from an economical point of view to give this portion of our business to the wholesaler to do. My own experience teaches me otherwise, that there is ample scope for the business genius of the pharmacist in the manufacture of his own preparations, and where there is business genius there is financial benefit accruing therefrom. Ignoring the risk of repetition, I would say that the great factors at work in modern social life have much to do with the growth of the evils I have described, and account for the present relations existing between the wholesale and retail trades. I need not here allude to them. But the facts remain, a great change has come over our business, and that for the worse. This singular grasping on the part of the wholesale is contrasted with the woeful apathy on the part of the retail. Both are to be censured, both are making the future for business darker and less hopeful. To restore in some measure the relationship that existed between the wholesale and the retail, and to still further improve it, will, I venture to think, alleviate the present trying position and banish one of the greatest of those too numerous evils that assail the pharmaceutical craft to-day.

SELECTED PRACTICAL FORMULÆ.

Odourless Petroleum.

According to the *Revue Scientif.*, petroleum may be deodorised by shaking it first with 100 Gm. of chlorinated lime for every 4·5 litres, adding a little hydrochloric acid, then transferring the liquid to a vessel containing lime, and again shaking until all the chlorine is removed. After standing, the petroleum may be decanted.—*L'Union Pharm.*, **40**, 413.

Floor Varnish.

Shellac, 15; gum anime, 5; colophony. 7·5; alcohol (95 per cent.), 60; yellow ochre, 15; umber 1.—*Pharm. Post.* **32**, 416, after *Neueste Erf. und Erfahr.*

Remedies for Perspiring Feet.

(1) Balsam of Peru, 1; formic acid, 5; chloral hydrate, 5; absolute alcohol, 89. To be applied by means of a pad of wool. (2) Alumnol, 4; aristol, 4; starch, 15. To make a dusting powder. (3) Borax, 75; salicylic acid, 75; boric acid, 2; glycerin, 100; alcohol 100.—*Pharm. Post.*

Abee's Diuretic Tea Species.

The following is stated by H. Geyer to be the composition of this diuretic remedy: Squill, 2·34; juniper berries, 3·5; caraway, 2·4; fennel fruits, 2·48; parsley fruits, 5; elder flowers, 10·02. *Pharm. Central.*, **40**, 306.

Manganese Silver.

Copper, 67·25; manganese, 18·5; zinc, 13; aluminium, 1·25, are melted together. In appearance, the resulting alloy is equal to new silver, and it is more workable than that metal for casting. Its electrical resistance is four times greater than that of new silver.—*Pharm. Cent.*, **49**, 363, after *Journ. der Goldschmeid.*

Catheter Paste.

For lubricating catheters, Kraus recommends the use of a paste of the following composition:—Tragacanth, 2·5; glycerin, 10 phenol water (3 per cent.), 90. This paste facilitates the passage o the catheter, and is easily washed off in warm water.—*Oesterr. Zeits. für Pharm.*, **53**, 451.

Nickel-plating Bath.

Nickel sulphate, 1 kilo; neutral ammonium tartrate, 725 Gm.; and tannic acid, 5 Gm., are dissolved in 3 to 4 litres of boiling water, the solution filtered and made up to 20 litres with water. This bath may be used for all metals.—*Pharm. Centralh.*, **40**, 218.

Powders for the Teeth.

Camphor Dentifrice.—Camphor, 50 centigrammes; powdered soap, 1 Gm.; saccharin, 2·5 centigrammes; thymol, 5 centigrammes; calcium carbonate, 50 Gm.; oil of sassafras, 1 to 2 drops. Wintergreen oil or cassia oil may be substituted for the sassafras oil, if preferred. *Violet Tooth Powder.*—β-naphthol, 5 centigrammes; saccharin, 2·5 centigrammes; calcium carbonate, 1 Gm.; powdered soap, 50 Gm.; ionone and oil of cananga (mixed in the proportion, 15 : 1), 2 drops. *Astringent Tooth Powder.*—Myrrh, 1 Gm.; sodium chloride, 1 Gm.; powdered soap, 50 centigrammes; calcium carbonate, 50 Gm.; otto of rose, *q.s. Menthol Tooth Powder.*—Menthol, 10 centigrammes; β-naphthol, 5 centigrammes; saccharin, 2·5 centigrammes; calcium carbonate, 50 Gm.; powdered soap, 50 centigrammes; otto of rose, *q.s.*—*Bull. de Pharm. de Brux.*, **43**, 270, after *Odontologie.*

Cement for Decayed Teeth.

Mix zinc oxide with sufficient eugenol to make a firm paste to be used to fill the carious cavity.—*Bull. de Pharm. de Brux.*, **43**, 279, after *Odontologie.*

Formotannin Hair Wash.

Tannin, 5; formalin, 20; sulphuric acid, 5; spirit, *q.s.* The tannin is dissolved in the formalin, and the sulphuric acid added; the precipitate thus obtained is thrown on a filter and washed ti free from acid and dried. Five parts of the dried precipitate i dissolved in 100 parts alcohol (95 per cent.), and perfumed.—*American Druggist.*

Thymol Carbonate.

J. F. Pool prepares this body in the following manner: Carbonyl chloride, obtained by the oxidation of chloroform by means of potassium bichromate and sulphuric acid, after being washed and dried, is led through a solution of thymol in 20 per cent. caustic soda solution. The thymol carbonate separates out as a layer of a deep yellow, syrupy fluid, which thickens on exposure to cold, but does not crystallise. The preparation is insoluble in water, soluble in alcohol, ether, and chloroform, and of neutral reaction. It gives no thymol reactions.—*Oesterr. Zeits. für Pharm.*, **53**, 373, after *Nederl. Tijdschr. v. Pharm.*

QUALITATIVE EXAMINATION OF POWDERED VEGETABLE DRUGS.

With a view to rendering Professor Kraemer's notes on the qualitative examination of powdered vegetable drugs (*See ante*, pp. 183, 204, 222, and 245) more practically useful, a table of contents has been prepared (which may be used as an analytical key) together with an index to the subject-matter of the notes. In both cases the figures refer to the numbered paragraphs.

TABLE OF CONTENTS.

INDEX OF SUBSTANCES.

The figures refer to the numbered paragraphs in Professor Kraemer's paper. (See *ante*, pp. 183, 204, 222, and 245.)

ERRATA.

The following corrections refer to Professor Kraemer's notes which appeared in recent numbers of the *Pharmaceutical Journal* (See *ante*, pp. 183, 204, 222, 245). The figures refer to the numbered paragraphs, not to pages.

191. For "effected" read "affected."
302. For "358" read "359."
303. For "303" on second line of paragraph read "299."
349. For "358" read "359."
366. For "358" read "359."
463. For "285" read "286."
563. For "363" read "563."

PHARMACEUTICAL SOCIETY.

EVENING MEETING IN EDINBURGH.

The first evening meeting of the present session was held in the Society's Hall, 36, York Place, Edinburgh, on Wednesday, November 29. Mr. Peter Boa (Chairman of the North British Executive), presiding.

The Assistant-Secretary said it had been expected that the inaugural address would be delivered by Professor Thomson, of Aberdeen, but he had asked them to allow him to defer giving them an address till the opening of next session. His place had, therefore, been taken by the Chairman of the Executive, Mr. Boa.

The Chairman said he could assure those present that he very highly esteemed the privilege which had been afforded him of addressing them that night. Had it not been that, owing to circumstances which they had heard explained, the pleasure of listening to an address on a specific subject by a distinguished scientist had been postponed till next session, he should not have ventured to entertain the idea of doing what he was to do on the present occasion. It seemed to him a wise arrangement to get an outsider to deliver an inaugural address. In addressing those who are engaged in the same occupation, one was confronted by the difficulty of creating and sustaining an interest in what was said, that was if the subject selected was related, as in the fitness of things it ought to be, to the common calling. They could all readily imagine how easy it would be for a pharmacist to deliver an attractive and highly edifying address on the composition and manufacture of adhesive plaster to a Society of Bone Setters. He (the Chairman) might, probably with more pleasure to himself than satisfaction to his audience, have addressed them on "the delights of fly-fishing for trout," and the beneficial results of an occasional indulgence in this pastime on the health of a closely confined pharmacist. None of his predecessors however, have ventured to give an inaugural address on the healthful results of golfing, although some of them have been devotees of the game. They were all more or less controlled by conventional usages. He admitted their influence on himself, and in deference to their indications he should confine his remarks to matters relating to the calling in which they were all engaged. They might be better informed in regard to some of them than he. This, however, he might say, that if he succeeded in saying anything which gained their approval it would be a satisfaction to him; and he felt sure that should he be uniformly dull they would extend to him their kindly toleration.

Mr. Boa then proceeded to deliver the

Inaugural Address,

which is printed in full at page 523. In conclusion, he referred to some matters of more immediately local interest. He said those engaged in pharmacy in Edinburgh had always stood well by each other and he was glad to say that in recent years they had come together more than ever. A very stimulating factor was the meeting of the British Pharmaceutical Conference, which was held in Edinburgh in 1892. At that meeting every one made every other one's acquaintance and the social intercourse was so much enjoyed that a local trade association was formed with the object of "fixing"—to use a photographer's word—and continuing that general good fellowship. It was unnecessary to say how successful it had been in that respect. In its more serious aspects it had used its influence to obtain concessions and redress when trade interests have been threatened or damaged. If the Conference did as much good and left as pleasant memories in other towns when it met as it did in Edinburgh, he should say long life and prosperity to it. The Junior Association, which had existed now in continuous activity for over twenty years, was still vigorous, and had issued a syllabus which promised interesting communications on various subjects during the winter. He was glad to be able to say that promises of contributions to the evening meetings during the session had already been obtained. Several nights, however, were still without provision, and he hoped sufficient material would be received, shortly, to fill them all. He looked to the members to make the session worthy of comparison with any that had preceded it. The meetings were for the treatment of scientific subjects. Politics are not allowed except perhaps in moderation in the opening address. After the science, however, all manner of subjects could be discussed over the tea and coffee upstairs. Only those who attended knew how pleasant that after-talk was. It afforded an opportunity for social intercourse which was valuable in furthering community of interest. He bespoke a good attendance at the evening meetings. It was a great encouragement to a contributor to find a good audience. And, moreover, they did an injustice to their common politeness if they permitted a contributor to come forward while they remained away.

Mr. Ewing, in proposing a vote of thanks to Mr. Boa, said he would not enter on any criticism. He agreed with a good deal of what Mr. Boa had said. He agreed with what he said about long hours, and hoped the younger members, who had received his statement with so much enthusiasm, would bear that matter in mind when they entered into business on their own account; the future of pharmacy lay with them. With regard to the qualifying examination, he agreed with the view that it would be an advantage to have it divided; he would go further, and say he thought they should follow the example of the Universities, and when a man passed satisfactorily in one subject not call upon him to pass in the same subject again. The question of apprentices was a very pressing one at the present time. He believed that the great difficulty was long hours and the want of the Saturday afternoon holiday. He did not think the Preliminary examination would be such a hindrance; he believed the value of the qualification would increase, and that there would be fair remuneration for those who entered the calling and gave their minds to it.

Mr. Gilmour (Dunfermline), in seconding the vote of thanks, said that Mr. Boa had addressed them on a subject brimful of interest to every one of them. With regard to the Minor examination, he had always tried to impress upon young men that the calling of a chemist and druggist differed materially from that, say, of a draper. It was essential that they should cultivate habits of observation from the very beginning. Everything they handled had a history, and they should try to find out that history, and when the examination came everything would be easy. He sympathised very much with the reference to long hours. But the hours on week-days were just what they made them, and they could educate the public to any hours they chose to adopt. He quite agreed with the proposal to divide the Minor examination, and he would support any suggestion of that kind. Even doctors were on a better footing in this respect than chemists were, for they were not asked to go up a second time for a subject in which they had already passed, and were not open to the disadvantage of risking failure on the second occasion.

The vote of thanks was cordially awarded, and Mr. Boa expressed his thanks.

Donations Received.

The Assistant-Secretary then drew attention to specimens of betulin, pyro-betulin, and pyro-betulin anhydride, and its various applications to glass etching, photo. process blocks, and antiseptic surgical dressings, in illustration of processes devised by Mr. Wheeler (Ilfracombe). He also exhibited seeds from Jeddah, said to be used by natives as a remedy for eye complaints, sent by Mr. Murray, of Duncan, Flockhart, and Co. He also drew attention to books added to the library.

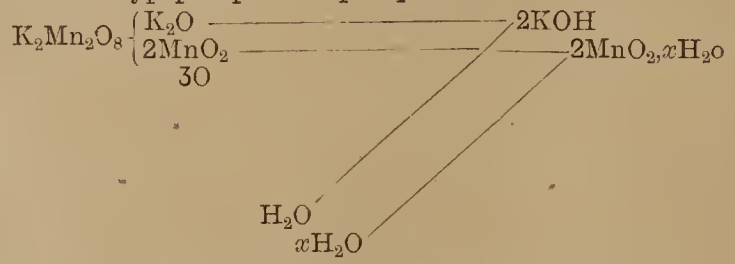
On the motion of the Chairman thanks were awarded to Mr. E. M. Holmes (Curator of the Pharmaceutical Society) for specimens sent, and to donors of books and other specimens.

The meeting then terminated.

THE STUDENTS' COLUMN.

EXPLANATORY NOTES ON THE B.P. 1898.

Sodii Hypophosphis.—The manufacture and constitution of this salt were dealt with in the last series—see *P. J.*, January 29, 1898, p. 100. Among the qualitative tests the reducing action is shown by its action upon solution of copper sulphate. The hypophosphite becomes phosphate by taking up oxygen from water, the hydrogen of which reduces the copper sulphate and partly combines with the copper to form a red insoluble copper hydride. This compound is unstable at the temperature of boiling water, and hence decomposes when the reaction mixture is boiled, the hydrogen being evolved as gas, while the copper remains in the form of a finely divided reddish precipitate almost indistinguishable in appearance from the hydride. The test with lead acetate, to detect the presence of more than traces of phosphite and phosphate, is based upon the insolubility of lead phosphite and phosphate in water. Traces of these impurities are almost inevitable in the commercial salt, since the hypophosphite is so readily oxidised, but most trade specimens give a very considerable precipitate with lead acetate. Potassium permanganate in both acid and alkaline solution oxidises sodium hypophosphite to phosphate. In the official test for purity 0·5 gramme of sodium hypophosphite is boiled with 25 C.c. of water and 1·15 grammes of potassium permanganate. The manganese then appears as a bulky brown precipitate of hydrated manganese dioxide, and the solution becomes alkaline from the formation of potassium hydroxide. Under these conditions each molecule of permanganate—taking the official formula $K_2Mn_2O_8$—yields *three* atoms of oxygen available for the oxidation of hypophosphite to phosphate.



Compare "Students' Page," *P.J.*, November 27, 1897, p. 472. Since each molecule of hypophosphite requires two atoms of oxygen, one mol. wt. $K_2Mn_2O_8$ (313·74) will be decolorised by one and a-half mol. wts. of $NaPH_2O_2$ (87·44 × 1·5 = 131·16). The weight of potassium permanganate in the official test, 1·15 grammes, should therefore be decolorised by

$$\frac{131{\cdot}16 \times 1{\cdot}15}{313{\cdot}74} \text{ grammes pure } NaH_2PO_2$$

$$= 4{\cdot}808 \text{ grammes.}$$

This amount in the 0·5 gramme of salt taken for analysis would correspond to a little over 96 per cent. purity. In addition to phosphite and phosphate, however, the salt so rapidly absorbs water that this standard of purity is seldom reached by commercial samples. The official formula relates to the anhydrous salt. When crystallised from water or alcohol it contains one molecule of water $NaPH_2O_2,H_2O$, and is still deliquescent. A test should therefore be introduced to limit the amount of absorbed water in addition to the other impurities.

Tinctures.—Tinctures may be shortly described as preparations obtained by treating crude drugs with alcohol so as to extract the constituents of the drug soluble in that menstruum. There are, however, among the official formulæ a number of tinctures which do not strictly conform to this definition. These exceptions include on the one hand:—

(1) Alcoholic solutions of definite chemical substances or proximate principles, which are for convenience placed among the tinctures. They include

Tincture of perchloride of iron.
" " chloroform and morphine.
" " iodine.
" " quinine.
" " " ammoniated.

(2) Tinctures made, not from the crude drugs themselves, but by the solution in alcohol of previously prepared extracts of the same drugs. This proceeding is adopted in order to secure more uniformity in composition than would be obtained by using the crude drug, or, in other cases, to obtain standardised tinctures by the dilution with alcohol of standardised extracts or other preparations. This group includes the following:—

Tincture of belladonna.
" " camphor, compound.
" " Indian hemp.
" " cinchona, compound.
" " nux vomica.
" " opium, ammoniated.
" " podophyllum.

The group of tinctures has been subjected to numerous important changes by the 1898 Pharmacopœia. Omitting the standardised tinctures, which will be dealt with separately, these changes may be thus summarised:—

Omissions.—These include—

Tincture of chloroform, compound.
" " ergot.
" " acetate of iron.
" " galls.
" " larch.
" " lobelia.
" " valerian.
" " green hellebore.
" " ginger, strong.

Of these tinctures several had fallen into disuse. *Ammoniated* tinctures of lobelia and valerian are still official, while the ergot is displaced by an ammoniated tincture (*vide infra*). Tincture of acetate of iron is not required, since there is a liquor of the same strength. The corresponding tincture of perchloride of iron is, however, not omitted, although there is a liquor ferri perchloridi, probably in deference to the popular demand for "tincture of iron" or "tincture of steel," which is sold by retail in large quantities.

Additions.—There are only three—

Tincture of ergot, ammoniated.
" " Virginian prune (wild cherry bark).
" " quillaia.

The ammoniated tincture of ergot replaces the plain tincture of the same drug, while the tincture of quillaia is intended to be used as an emulsifying agent.

The remaining tinctures have been nearly all altered, either in alcoholic strength or in the proportionate quantity of drug employed. The changes in alcoholic strength have been made for reasons which were discussed in the article on tinctures in the previous series (see Students' Page, *P.J.*, April 9, 1898). The changes in the proportionate quantity of drug are due mainly to the desire to bring the tinctures, so far as their doses are concerned, into two groups. The first comprises the tinctures from potent drugs which have now a dose of 5 to 15 minims, with the exception of tincture of iodine, while the second includes the tinctures of drugs which are comparatively non-toxic: these have a dose of ½—1 fluid drachm. To secure this result some tinctures have been weakened and others made stronger. Thus the tinctures which were made with 2½ ounces of drug to one pint have been mostly strengthened to 4 ounces to the pint, and their doses changed from ½—2 to ½—1 fluid drachm. At the same time, the tendency of these changes has been to arrange the strengths in groups of 1 to 4, 5, 10, 20 parts of alcohol, these proportions being more readily adaptable to the decimal system, on which the metric weights and measures are based, because 100 is divisible by 4, 5, 10, and 20 without fractional parts. The student should not omit to tabulate the tinctures, classifying them in various ways so as to bring out their salient features. The monographs have been considerably shortened in the present Pharmacopœia by giving in the Appendix (p. 440) the two general 2 processes by which most of the tinctures are prepared These differ from the corresponding processes given in the 1885 Pharmacopœia and represent a great advance in pharmaceutical manipulation.

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

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PROFESSIONAL AND TRADE INTERESTS.

To establish a respectable qualification for the practice of that portion of the medical art which is concerned with the preparation of medicine has been the object of the Pharmaceutical Society for more than half a century, and, though the attempt has been but partially successful, in some respects a very considerable advance has been made in the desired direction. That the action taken by the Society in that connection should, at the outset, have met with considerable opposition is not surprising, for the business of chemists and druggists was then of a very heterogeneous character, and though some of them had taken up the dispensing of medicine and the general practice of pharmacy as their principal occupation, the trade in drugs and chemicals formed the chief part of the business of many persons known as chemists and druggists. Moreover, the business was open to anyone without regard to competence for performing duties appertaining to the practice of pharmacy, and when legislative regulation became necessary in the public interest, it was opposed by a very large number of those engaged in business as chemists and druggists, who preferred to be considered as belonging to a trading community, and to be free from legislative interference. The continued prevalence of that preferential consideration of trade interests has to a great extent interfered with recognition of the fact that, "protection of those who carry on the business of chemists and druggists" can only be looked for on the ground that their business is of a professional character, and their fitness for conducting it in the interest of the public of a sufficiently high order. The influence of trade interests has operated to impede pharmaceutical progress: it has brought opposition to every attempt to improve education and to give the legitimate occupation of the pharmacist a wider definition: but by so doing it has rather injured than promoted the trade interests of chemists and druggists.

Particular reference to a variety of circumstances which have led to the trade view of the chemists' position would be superfluous on this occasion, as readers of the Journal are sufficiently familiar with them. The more important point to be considered is that chemists and druggists have been incorporated and recognised by the State on a professional basis, out of regard for what is held to be expedient in the public interest. From that point of view, the exercise of the business and the use of a title, implying statutory qualification, have been made subject to the conditions of examination as to fitness for satisfying public requirements and to the registration of persons certified to be competent for the discharge of their duties. However much therefore the business of many chemists and druggists may partake of the nature of ordinary trade, that circumstance cannot lessen their claim, as legally qualified persons, to be entitled to the exclusive use of their title, and to the exclusive exercise of that part of their business which has been made the subject of statutory limitation. The trade in drugs and preparations which are not included in the Poison Schedule of the Pharmacy Act, is as open to all persons as the trade in secret remedies and other professed medicinal preparations or packed proprietary articles, which may be described as grocers' goods. In regard to that trade the legally qualified chemist cannot and does not expect preferential consideration: if he has to carry on such business he must meet trade competition as he can. But the business of retailing, dispensing, and compounding poisons, which is the only fraction of pharmaceutical business that has been reserved to legally qualified persons, is outside the range of free trade, and is exclusively their province.

Disregard of that important and distinctive feature of the chemist and druggist's position has given rise to great misconception, and it requires to be pointed out at the present juncture, when the privileges of qualification are in danger of confiscation and the trade aspect of the business is being forced into undue prominence with that object. Legally qualified persons are themselves much to blame in this respect for not having attached greater value to their qualification as being of a professional nature. In Parliament the same oversight has been committed, and the sale of poison has been regarded only as a matter of trade, without considering the more important matter of dispensing, even as confined to scheduled poisons. In the House of Lords case again, only the sale of poison was considered, and the extraordinary contrast between the provisions of the two Bills introduced by the Lord Chancellor, in reference to pharmacy and medical practice, gave evidence of the chemist and druggist being regarded only as a trader. That fact was noticed at the time in the *Apotheker Zeitung*, as an illustration of the poor appreciation of pharmacy prevailing in England, and it was spoken of as showing, on the part of representatives of the nation, a want of understanding the matter which tends to degrade the qualified pharmacist to a position that would be destructive to pharmacy and detrimental to the public interest. Whether the present imminence of that contingency can be averted by some suitable compromise between trade interests aud professional interests, or even by a separation of them that would leave the sale of poisons, as a matter of trade, to police regulation, while securing to qualified pharmacists a more reasonable recognition of professional privileges, is a question that now demands serious attention from every point of view.

ANNOTATIONS.

AS A CONTRIBUTION to the views expressed in reference to "company pharmacy," the following abstract of a long letter on the subject may be of interest as stating an extreme opinion:—"'Ordinary Pharmacist' has touched the marrow of the question by his statement that nothing less than reversal of the House of Lords' decision can satisfy, or would be of any use to, registered chemists and druggists who look upon their business as one requiring professional qualification. I am convinced that they should take the position that the House of Lords' decision was entirely wrong and contrary to the manifest intention and purport of the Pharmacy Act. It therefore requires to be upset, since it has the effect of a legal precedent involving repeal of an Act of Parliament by judge-made law founded on error. My reasons are that—although a company can keep open shop, etc.—a company is not a qualified person—that a company cannot be a chemist and druggist within the meaning of the Pharmacy Act—that a company cannot sell poison, or dispense poison, or compound poison, or do any of the other acts to be done by a person entitled to keep open shop for those purposes to which the Act relates." In the face of those impossibilities I see no possible reason for allowing a company to keep open shop for doing what it is physically unable to do. Neither have I seen any reason why a person subject to that disability to perform any of the functions for which open shop is kept, should keep open shop at all, or that he should be permitted to do so if employing as a servant a person who is qualified to perform those functions. On what principle can the servant qualify the master?

NO CLAUSE IN A COMPANIES BILL can be expected to result in a settlement of all the difficulties that beset pharmacists, and it is worthy of consideration whether it might not be opportune for steps to be taken forthwith to draft a Pharmacy Bill embodying matters that appear suitable for inclusion in a Companies Bill. For, though a measure on the lines of the Companies Acts Amendment Bill, 1899, is expected to come before Parliament in 1900, it is far from certain that the clause referring to pharmacy will reappear. The numerous objections that have been offered to that clause, and the variety of the modifications suggested, may not inconceivably operate in the direction of inclining the promoters of the Bill to drop the thorny subject altogether. Chemists would then be left to fight for their own hand, and the only way open to them would be the promotion of a Pharmacy Acts Amendment Bill. Even if a clause dealing with pharmacy did appear in a Companies Bill, there is no particular reason why a clause dealing with companies should not appear simultaneously in a Pharmacy Bill. In fact, that would tend to deepen the impression that chemists are seriously resolved to put an end to the existing unsatisfactory state of affairs. Obviously, any Pharmacy Bill promoted now would need to deal with much more than the company difficulty. In addition to clauses placing the use of pharmaceutical titles and the practice of pharmacy on a satisfactory basis, it should contain proposals for modification of Section 16 of the 1868 Act, and any other portions of the existing Statutes, which have proved more or less unworkable or unsatisfactory in their operation.

THE MAIN POINT which would require to be brought prominently forward in a Pharmacy Bill is that none but registered chemists must be allowed to conduct, direct or control the retailing, dispensing, or compounding of poisons. In view of the position taken up by the Lord Chancellor, in regard to the dispensing of medicine, it might not be inopportune to attempt also to prevent any but registered persons from dispensing medical prescriptions, but there ought to be no two opinions about the dispensing of poisonous remedies. The proprietor of every open shop where poisons are retailed, dispensed, or compounded, should, of necessity, be a duly qualified individual; he should not be permitted to delegate any of his professional duties to other persons not similarly qualified, and in employing assistants or apprentices should superintend their work so that it may really count as his own. Those requirements represent the dominant and essential principle of the Pharmacy Acts, and "Observer," whose letter appears at page 458, asserts unmitigated nonsense when he contends that they do not. His letter is published as an extreme instance of the product of pseudo-philosophic mind run riot. He makes assertions which cannot be sustained by facts, and apparently betrays his absolute ignorance of what the 1868 Act really provides.

MENTAL OBFUSCATION appears sometimes to have been an inevitable consequence of studying the details of the Pharmacy Act, and "Observer" appears to have surpassed all other achievements in that direction by tying himself up into a knot about ownership and management. With profuse use of italics he endeavours to show that ownership of a business—for the exercise of which an individual qualification is required by Act of Parliament—is not the principle of that Act, and that qualified ownership is laid down in the Act not with the view to securing qualified ownership, but entirely with a view of securing something else—*i.e.*, qualified managership. This remarkable contention makes one dizzy, and it appears to require something of the faculty of second sight for its apprehension. The letter in which it is put forward also appears in its general tendency to be of such a nature as to excite astonishment that it should have been written by a pharmaceutical chemist, or even by a registered chemist and druggist. But the utterly befogged state of our correspondent's mind may be inferred from his question as to what is the principle of the Pharmacy Act, since "Observer" cannot be supposed to have overlooked the preamble of the Act.

THE POSITION OF PROFESSIONAL PHARMACISTS is to become absolutely impregnable, according to this erratic genius, when it is fully recognised that there is no necessity whatever—so far as the public safety is concerned—for the proprietor of any pharmacy to be legally qualified in accordance with the Pharmacy Acts. Anything more preposterous than that statement is utterly inconceivable by anyone able to grasp the facts of the case properly. Probably he is not the proprietor of a pharmacy or engaged in the practice of pharmacy at all, and would succeed better as an amateur lawyer, with a mission to read into Acts of Parliament what those who framed them never put in, and what nobody else could possibly extract therefrom. A full and fair reading of the 1868 Act is undoubtedly required before anyone can form an independent opinion as to what its dominant and essential principle is, but in considering that or the judicial interpretation of it something more is also required—freedom from bias and some knowledge of affairs, past and present. Whilst, therefore, "Observer's" lucubrations are permitted to see daylight in our pages, readers are warned that they do not carry the least weight, and the writer may be warned that, if he proceeds much further in his mistaken efforts to prove what does not exist, he may soon arrive at the point where the Pharmacy Act of 1868 and its intention will appear to him nothing but a myth. His efforts are well-intentioned, no doubt, but so are those of the squarers of circles, flat earth theorists, perpetual motionists, *et hoc genus omne*.

MR. GLYN-JONES rendered good service in defining the phrase "company pharmacy" at the end of his first paper (see page 473) and perhaps his pharmaceutical instinct naturally moved him on that occasion to give a first place to the "dispensing" of poisons. That is a very necessary point to bear in mind, because dispens-

ing is the particular duty of persons legally qualified under the Pharmacy Acts, the one to which their qualification relates and on account of which exclusive enjoyment of the privileges conferred by that Act is to be claimed by registered chemists and druggists. In the paper contributed by Mr. Glyn-Jones this week the same prominence is not given to dispensing, and the function of legally qualified persons is throughout spoken of merely as "the sale of poisons"—*i.e.*, as a matter of trade, and not in the sense that such function is of most importance, both to the public and to persons possessing a qualification that confers at least some degree of professional status. That distinction is now a matter of more vital importance in connection with the question as to "company pharmacy" than the mere sale of poison regarded as a trade transaction.

The Wholesale Druggist is shown by Mr. F. Curry (see p. 527) to be, at times, the reverse of a benefactor to chemists and druggists, and there is no doubt that he is thoroughly justified in directing attention to the evils of the packed goods trade. Everything is done nowadays to tempt retail chemists to perform the happy despatch, from a professional point of view, by encouraging them to do less and less of the duties which properly pertain to their position. The crude drugs are tested for him by the wholesale house, they are converted into galenicals for him, the galenicals in turn are packed in bottles or boxes of convenient size for retailing, wrapped, labelled, and everything done short of actually handing the goods over the retailer's counter, which the drug store, grocer, draper, or "universal provider" can do as well as the chemist. Qualified chemists who are so blind to the trend of events, so oblivious to everything but their own immediate convenience, as to be content to sink their professional status and throw themselves bodily into the arms of the wholesale dealer, cannot reasonably complain if they are thought lightly of. As to the position of the up-to-date wholesale firm which encourages that kind of business, the less said about it the better. It is doubtless hard to allow business to escape and easy to do as others do, but the views of the founders of certain old-established firms, if they could be formulated, would be of interest in this connection.

The Present Position of Pharmacy is summed up in an interesting fashion by Mr. Peter Boa (see p. 523), who discourses pleasantly on the difficulty of obtaining apprentices, the necessity of a compulsory curriculum, and the question of dividing the Minor Examination and various other topics of general interest to pharmacists. Emphasis is rightly laid on the value of the Minor qualification, and attention is usefully directed at the present time to the meanness which keeps so many registered chemists outside the ranks of the Pharmaceutical Society. The suggestion of the desirability that disciplinary powers should be vested in the Society is not new, but it is none the less worthy of repetition. It ought to be possible for any registered chemist found guilty of infamous conduct in a professional respect to be struck off the Register by the Council of the Society. Such a power would not be likely to be abused, but would, nevertheless, prove a very efficacious whip for evil-doers. Mr. Boa is of opinion, also, that the calling into existence of such disciplinary powers would tend towards the abolition of dispensing by medical men, presumably after counter prescribing, etc., had been put down with a strong hand. That may or may not be; in any case, the disciplinary powers ought to exist, and Mr. Boa is to be congratulated on again directing attention to the matter.

The Local Arrangements for the reception of visitors to the British Pharmaceutical Conference meeting in London next year are now beginning to assume definite form. The honorary secretaries of the Local Committee have already had a preliminary meeting, and have now issued a circular letter inviting the attendance, on Wednesday next, December 6, of local officers of the Pharmaceutical Society and others in and around London at a representative meeting of all who are interested in the Conference. The meeting will, by permission, be held in the Society's House, 17, Bloomsbury Square, at 3 o'clock on the afternoon in question, and as the business to be transacted is of importance to the success of the Conference, it is hoped that a satisfactory response to this invitation will be made. For the purpose of the meeting the London District has been considered to include all places within about twenty miles of the metropolis, and in some instances, where important towns are just outside that boundary, the limits have been made to deviate a little from the strict geometric rules appertaining to circles. Thus, St. Albans on the north, Reigate on the south, Windsor on the west, and Gravesend on the east, are, for Conference purposes, deemed to be metropolitan, and are given an opportunity of associating in the work of welcoming the provincial members of the pharmaceutical body to London in July next.

The Formation of Committees—a strong and influential General Committee and of a smaller Executive Committee—will be among the principal objects of the meeting on Wednesday next; and it is also expected that Mr. J. H. Mathews will be able to report that the Entertainment Fund, which was established at the preliminary meeting of the Local Committee on October 25, and of which Fund he was appointed Treasurer, is exhibiting a steady progressive growth. We are requested to state that the co-operation of any pharmacist in the "London District" who desires to see the Conference meeting of 1900 successful will be heartily appreciated. Contributions to the Entertainment Fund (which are limited to a maximum of two guineas from individuals and five guineas from firms) should be sent to Mr. J. H. Mathews, 68, Queen's Gardens, Hyde Park; suggestions and similar communications may be sent to the Hon. Secretaries of the Local Committee, 17, Bloomsbury Square, W.C.

The December Evening Meeting in London will be held at 17, Bloomsbury Square, on the second Tuesday in this month—that is to say, on the 12th instant, at 8 o'clock precisely. Professor J. Millar Thomson, F.R.S.—a member of the Board of Examiners for England and Wales—has been good enough to promise a lecture for that evening on a very interesting subject—viz.. "Some relations of water to other substances." The attractiveness of the lecture will be enhanced by experimental illustrations. No doubt most students associated with the Society will make an effort to be present; but the lecture will, both on account of the subject and the personality of the lecturer, attract many students of a larger growth, who, though they may have no longer before them the fear of a Board of Examiners, are mindful of the fact that the exigencies of life are sometimes more inexorable than the severest examiner, and that scraps of post-graduate knowledge have a marketable as well as an intrinsic value.

The Benevolent Fund Election takes place on December 12, and the voting papers have now been posted. Subscribers are asked to decide who are the four most deserving persons of six approved and most deserving candidates. The difficulty of doing this—and, indeed, the hardship entailed upon the candidates in being forced to submit to such competition—furnished Mr. Hampson with a text for some of his most eloquent denunciations of the voting system. The difficulty has, however, been pretty equitably solved by the electors in years gone by, and the present election possesses no special problems. A number of the general subscribers are personally acquainted with one or other of the candidates—a result which might be expected in a fund restricted to a certain class—and this renders the difficulties of election less pronounced and the hardships of candidature somewhat softened.

THE CONDITIONS AND INSTRUCTIONS FOR VOTING, printed on the voting paper, should receive careful attention. Many papers are spoiled each year because some subscribers do not trouble to read the red-inked and type-displayed directions. Unsigned and informal papers are a feature at every poll, but it is rather a reproach that the Society's Benevolent Fund election, decided by persons who are trained to accurate observation, should be so largely tinged with the conventional faults of the careless general public. Mention should also be made of the fact that persons subscribing to the Fund up to December 11 may vote at the next day's election—that is, if there be time to post a voting paper to them.

POTASH WATER, though not now official in the British Pharmacopœia, ought nevertheless to contain an appreciable quantity of potassium bicarbonate if its name is to be justified. Neglect of that precaution has led several chemists and other dealers in aërated waters into trouble at Swindon Petty Sessions, where quite a number of defendants were charged with selling carbonated water containing little or no potassium bicarbonate when potash water was asked for. Only nominal fines were imposed on the retailers charged, but manufacturers were more severely dealt with. Some of the defendants were proceeded against under the Sale of Food and Drugs Acts, others under the Merchandise Marks Act, but in all cases the magistrates made it clear that it was essential that the public should be able to get what was asked for, in making purchases. It has formerly been contended that when the man in the street asks for soda water, he wants plain carbonated water, free from sodium bicarbonate, but in some of the cases under consideration plain carbonated water was supplied when potash waters was asked for. If, therefore, the purchaser got what he really required, since things which are equal to the same thing are equal to one another, it would appear as if soda and potash waters were identical in the public mind. But though that impression may prevail in certain quarters, chemists and druggists should be at some pains to prove the contrary and, on the whole, it seems desirable that potash and soda waters should contain potassium and sodium bicarbonate respectively, in suitable proportions.

A WEIGHTS AND MEASURES REPORT recently issued by the Board of Trade shows that more than nine thousand standards of weight, capacity, etc., have been verified at the Standards Department during the twelve months terminating in August last. For the purpose of explaining the principles of the metric system in schools, the department has given orders for the preparation of a set of educational models of metric weights, measures, and weighing and measuring instruments, similar to those used in trade. The Board of Trade is also stated to be in communication ith some Government departments, with the view of ascertaining how far the metric system of weights and measures might be officially adopted in contracts. A number of local authorities, of which a list is given in the report, have now provided their inspectors with the metric standards legalised by the Order in Council, dated May 19, 1898.

THE CHEMISTS' DEFENCE ASSOCIATION, LIMITED, has now fairly commenced operations, and the reports of meetings held in different parts of the country agree in showing that the new scheme has been favourably received on the whole. Mr. Glyn-Jones s a plausible speaker, and his success in securing support for his latest venture—or is it his latest but one ?—seems to be only second to that which attended the establishment of the Proprietary Articles Trade Association. It is noteworthy that the defence of members of the new organisation in cases under the Pharmacy Acts is apparently to be limited to prosecutions by the police under Section 17 of the 1868 Act, since it is specially stated that the Association will in no case defend, or assist in the defence of, any of its members against proceedings taken by the Pharmaceutical Society for the enforcement of the Pharmacy Acts, nor is any member to have any claim—for compensation, costs, or otherwise—in relation to such proceedings. The limitation is a wise one, as members of the Pharmaceutical Society could hardly have been asked, with any show of reason, to pay for defending themselves against themselves.

THE MASTER OF THE SPECTACLE MAKERS' COMPANY, Sir Reginald Hanson, M.P., in an address at the Northampton Institute to number of candidates who had presented themselves for examination for optical diplomas, is reported to have said that there was no doubt the technical instruction imparted under the ægis of the Company would have a very marked effect upon the style and conduct of the optical trade. There would, he hoped, be an improvement in the methods employed, as it was very necessary that the optician should be qualified to exercise skill and discretion in his business. It was important also, he continued, that practical opticians should be proficient in the mechanical requirements of their calling, while it was even more essential in the interests of the public that they should be thoroughly competent to distinguish between those cases in which glasses could be supplied by them and those which required the skill of an oculist. Finally, it was insisted that the optician should in no sense take the place of the ophthalmic surgeon. The moment he found the defects of an eye were incapable of being remedied with the aid of the appliances with which he was conversant, it was his bounden duty to seek surgical advice.

BORIC ACID IN MILK, according to Dr. Alfred Hill, medical officer of health for Birmingham, has caused the death of a kitten. He has told the Committee on Food Preservatives that the kitten got lighter and lighter when fed on the doctored milk, and died in about five weeks, leaving no doubt in the experimenter's mind as to the physiological effects of the drug. Formaldehyde, which is taking the place of boric acid as a preservative, was described as a still more potent drug, injurious to health because it hardened albuminous matters and rendered them more difficult of digestion. At the same time, Dr. Hill said it was useless to prosecute persons for selling food containing preservatives, as medical men would come forward and say they were not injurious. Thus do the authorities differ, whilst the public runs the gauntlet of the various dangers to life and, somehow or other, survives the ordeal, seeming little if any, the worse for being exerimented upon by food preservers.

THE FEDERATION SUGGESTIONS submitted for discussion by local pharmaceutical associations, and printed in the *Pharmaceutical Journal* a fortnight ago (see *ante*, p. 488), have attracted a very large amount of attention throughout the country. As a result there has been a flood of reports of meetings at which the company pharmacy problem has been discussed and, though extreme pressure on space has compelled us to condense the reports considerably, the pages of this week's Journal will be found to reflect very accurately the state of feeling in pharmaceutical circles. That state, it is satisfactory to note, is much less mixed than there was reason to suspect, and the apparent apathy of the chemists and druggists of Great Britain is now seen to be probably due to the fact that everyone has been contentedly relying upon the Council of the Pharmaceutical Society undertaking, as a matter of course, to defend his title and practice. It is, however, just as well that such a silently prevailing feeling should find expression, and there is little reason, therefore, to begrudge the large amount of extra space which it has been foun necessary to devote to political matters in this week's issue.

MIDLAND PHARMACEUTICAL ASSOCIATION.

Mr. W. S. Glyn-Jones, Secretary of the P.A.T.A., attended a meeting of this Association, held at the Great Western Hotel, Birmingham, on the 23rd ult., and delivered an address dealing with the

CHEMISTS' DEFENCE ASSOCIATION,

in terms somewhat similar to those reported in last week's *Pharmaceutical Journal* (see p. 516). Mr. JEFFREY POOLE, President, occupied the chair, and there was a large attendance of members.

In the course of the discussion, Mr. W. JONES said that as a member of the Executive Committee of the old Trade Association he was pleased to see it resuscitated on the lines proposed. It was quite time that some association of the kind was brought into existence, and, as far as he could judge, the proposals now brought forward were on business lines. It was questionable, however, whether a subscription of 10s. would be sufficient. As regarded the old association, it was found absolutely impossible to do for 5s. all that had been promised, and this it was that led to the wreck. It was a great misfortune that the association should have come to an end, for it was doing a splendid work. Those who had drawn up the present proposals had, fortunately, provided against an abuse which prevailed to a large extent under the former *régime*. It was a custom for a man, directly he received a visit from an inspector, to rush to the Association with his subscription, so as to be able to claim its assistance. Rule XIV. effectually provided against this, and laid it down that none could obtain any benefit who had not been members for three months and paid their subscriptions. The way it was proposed to deal with cases—viz., to send them to the Secretary, who would at once forward them to the solicitor—was far more simple than the plan pursued in the old days. Then they had what was known as a Law and Parliamentary Committee, consisting of Mr. Arblaster, Mr. Barclay, and himself, and they were called together as frequently as six times some days. Such a plan would, of course, be absolutely impossible in London. He extended his support to the Association, and was glad that it had been formed.

Mr. A. SOUTHALL also supported the Association, and said he was glad to find that those responsible for it had avoided the pitfalls which caused disaster to the old association, which did a good work in frightening the officers under the Food and Drugs Act, and thus lessened considerably the number of prosecutions. In the same way the new Association would prove a blessing, and should be universally supported for this reason. Every effort should be directed to making it a permanent organisation, and it should be supported by at least half the chemists of the country.

Answering Mr. F. A. Spear, who put a question as to the number of members who belonged to the old association, Mr. W. JONES said there were 5,000. With the 10s. subscription in vogue at the outset, the work went on smoothly enough, but then it was sought to enlarge the area, and a reduction to 5s. was decided upon. The work then increased at an enormous rate, and more than swallowed up all the receipts.

A question was put as to whether the Association would defend in cases of tooth extraction or when a man was wilfully in the wrong?

Mr. SPEAR inquired whether it was proposed to employ an analytical chemist to conduct analyses of samples for the benefit of members?

Mr. F. H. ALCOCK said he saw many reasons for such an Association. He had suggested something of the kind some years ago to Mr. Hayden, who was then secretary of the Trade Association. Mr. Hayden, however, gave up the idea of having it in association form, and conducted it as a sort of individual enterprise. The idea was that an analyst, a medical man, a lawyer, and himself could form a committee which could make itself extremely useful to the pharmacist. In addition to defending the retailer against the Food and Drugs inspectors and others, who constantly worried them, such a committee could have tested any preparation about which the pharmacist was in doubt. Although Mr. Hayden did not look at the matter in the same light, he (the speaker) was nevertheless convinced that such a body would have been of the greatest assistance to the retail pharmacist, who could have appealed to it quite apart from being frightened into subscribing.

Mr. GLYN-JONES said he was pleased to find that the scheme met with the approval of the Midland Association. On the question of advice, which had proved such a difficult matter in the case of the old association, they had endeavoured to make the new organisation work mechanically. Applicants for advice would write to the Secretary, who would transmit the application to the solicitor, and on receipt of the solicitor's reply the Secretary would forward it on to the applicant. With regard to the stamping of medicines, Mr. Glyn-Jones said he was driven to the conclusion that there were a number of things stamped to-day which need not be stamped if the matter was fought out with Somerset House. It might be worth while for the new Association to fight some of these doubtful cases. He could give no pledge as to the provision of advice about trade mark registration, but it was a matter which the Association might be disposed to take up. They could not be expected to fight cases in which trade marks were concerned, but they could at any rate give members advice in the first instance. An essential point of difference between the old association and the present was that the latter, in addition to protecting members against prosecutions, was prepared practically to insure them against risks through accidents occurring through dispensing or in retailing medicines or drugs. It was quite another matter whether they could be expected to defend an action brought for the alleged unskilful extraction of a tooth. Under the rules he should not think this was provided for. All they were prepared to do was to take the risk of actions resulting from mistakes in their own proper trade of dispensing or retailing medicines or drugs. Rule XIV. had been inserted precisely with the object mentioned by Mr. Jones. They wished to avoid against the chemist standing aloof until he was in trouble, and then rushing to the Association with 10s. 6d. in order to secure advice and assistance, worth perhaps £10. The fact should not be overlooked that the Association did not undertake to pay any fine or costs. It only undertook to provide legal assistance for the defence, and it would either send its own solicitor or, if the member preferred, give a sum not exceeding £10 to enable him to provide his own defence. In the old association it was necessary really to decide whether a man was guilty or not before the conclusion was come to as to whether he should be defended. Every man was entitled to a defence, and the Association had no right to say he had been guilty of fraud until everything had been said that could be said in his favour. When a man was found guilty of wilful wrong-doing the Committee had power to refuse to accept any further subscriptions from him. The analysis of goods purchased from wholesale houses was a matter that might well receive attention. It was also hoped that some satisfactory arrangement might be made by which members would be enabled to effect plate-glass insurance at a reduction on the usual rates, and he saw nothing to prevent a similar arrangement being made in the case of fire insurance.

The PRESIDENT said he thought the scheme should appeal to Birmingham, where of late they had been troubled by the authorities in a large number of very trivial cases. Samples had been taken of drugs and tinctures that were used only on very rare occasions. He proposed the following:—

That having heard an explanation of the proposed scheme, this meeting of chemists is of opinion that such an institution is desirable, and merits the support of the members of this Association and of chemists generally.

Mr. PERRY seconded the motion, which was agreed to unanimously.

COMPANY PHARMACY.

The PRESIDENT next invited members to consider the five methods of action suggested by the Federation of Local Pharmaceutical Associations in connection with the company pharmacy problem. (See *ante* 488.)

Mr. GLYN-JONES asked that any suggestions made should be on practical lines, and such as a responsible minister might be asked to legislate upon. It was useless registering a pious opinion about their rights and wrongs; what they were asked to do was to say what the Society should do at this juncture with reference to the question of company pharmacy. It was important to remember that, somehow or another, the Government had come to the conclusion that the time had come for amending the law. For years the Pharmaceutical Society had tried to get something inserted into their own Act to remedy the evil of company pharmacy, but now, in a Bill dealing with companies generally, the Government proposed a clause which affected chemists in particular. It was clear that what the framer of the clause had chiefly in mind was the protection of the public, and little attempt had been made to give pharmacists what they considered to be their rights. If he thought for a moment that they could ask the Government to make it illegal for any company to carry on the business of chemist and druggist or keep open shop for the sale of poisons, he would do so at once, but there was not the slightest chance that such a request would be listened to. Whether they liked it or not, the public had recognised company pharmacy, and the Government had recognised it, and was prepared to deal with it. They were, however, going

to deal with it in a way that was not satisfactory to pharmacists, and it was essential that they should make their views known. To his mind, the suggestion to protect chemists titles and make it illegal for companies of unregistered persons to keep open shop for selling poisons, as in the case of individuals, was out of the question. If by a company of unregistered persons they meant a company which had in it one shareholder who was not qualified, then he did not think they could succeed. He did, however, think they had a right to ask that no company should use their title. He did not see how a corporate entity could be a chemist, or that it could call itself such, any more than it could take the title of B.A., for instance. But when it came to the question of keeping open shop it was twenty years too late to say that companies should not do it. Those responsible for the conduct of the Society should have done this immediately after the judgment given against them in the House of Lords in 1881. It was too late now, after money had been invested in the businesses, to say that judgment must be reversed. It was not too late, however, to ask that companies should be placed upon all fours with the individual, and that their businesses should be under the control of qualified assistants. They would have a very weak case if they went to the Government and said no one should share in a chemist's business who was not qualified, because it would be difficult to show where the danger to the public came in. He did not think they ought to admit the right of any man to act upon a board of directors of any company keeping open shop for the sale of poisons unless he was qualified. If they did they gave away one of the main principles of the Pharmacy Act. The suggestion that they should apply for protection of titles only was one he did not think they ought to accept for a moment. Such a request would not be listened to for a moment, because the Government were not interested in their titles so much as they were interested in the public safety. He could not accept the suggestion that the managing director only need be qualified, and the suggestion that a company should be allowed to carry on business with a qualified manager or assistant ought not to be considered for a moment. They had a right to say that the man at the helm of a business kept open for the sale of poisons should be qualified, that he should have sole control, and that if the public chose to invest money in pharmacy they must be prepared to do it knowing that the business must be controlled by qualified men. It would be an easy matter for big concerns, such as the Army and Navy Stores, to form a subsidiary company for the drug department, and put it in the hands of qualified men. If thoroughly united he was of opinion they might get the clause withdrawn, for the Government did not seem to be sufficiently in earnest about it to face a lot of opposition. But they wanted the clause improved rather than thrown out, and to his mind they would be making a mistake not to seize the present opportunity of securing a favourable change.

Mr. C. THOMPSON thought it was manifestly unfair, after they had had all the trouble of going through the examinations, that seven men collectively should be allowed to do what they could not do individually. In his opinion the Council was not sufficiently close in touch with those in charge of the Bill, and he suggested that local secretaries and pharmaceutical associations up and down the country might do good work by laying their view of the matter before their various members of Parliament. His own opinion was that they should stick to their Pharmacy Act for all it was worth.

Mr. W. SOUTHALL thought the large firms would get out of the difficulty by appointing dummy directors.

The PRESIDENT said he was a convert to Mr. Glyn-Jones's ideas with regard to qualified directors. Now that the Government had taken the matter in hand, if pharmacists did not make their influence felt, they would have company pharmacy thrust upon them in a form even more unsatisfactory than if the management was left in the hands of qualified assistants.

Mr. PERRY announced himself as one who did not think it hopeless to expect that companies could be excluded from the practice of pharmacy. In his opinion some attempt should be made to protect their position as practising pharmacists, and to prevent any unqualified collective assemblies from carrying on the business.

Mr. A. SOUTHALL said they had argued in that way for the last twenty years without much effect. The "widows' clause" in their own Pharmacy Act was an awkward fact against them. Under that unqualified executors had power to carry on a business. There was little hope of being able to close the companies altogether, and efforts should be directed to regulating them. They should insist upon a qualified and financially responsible director, as well as a qualified assistant to do the dispensing. They could not expect a great deal more than that.

Mr. GLYN-JONES, replying to the point raised about dummy directors, said it was impossible to devise any legislation which could not be got round.

Mr. C. THOMPSON, referring to the suggestions sent to the Lord Chancellor, said they might as well have been pitched into the waste-paper basket for all the use his Lordship seemed to have made of them.

No resolution was come to.

The PRESIDENT proposed, and Mr. PERRY seconded, a vote of thanks to Mr. Glyn-Jones and, that having been accorded, the meeting ended.

CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held at 73, Newman Street London, W., on Thursday, November 23, Mr. H. HYMANS, Vice-President, occupying the chair in the absence of the President. The minutes of the previous meeting having been read and confirmed, five gentlemen were nominated for membership.

Mr. A. LATREILLE then read a paper on

THE RELATION OF THE WHOLESALE TO THE RETAIL TRADE,

contributed by Mr. F. CURRY, who was unable to attend. The paper is printed at page 527.

The CHAIRMAN said they had listened with mingled feelings to Mr. Curry's interesting paper. The author had mentioned the personal character of the chemist' business. To his mind that struck the key-note of the whole matter. In no other class of business did the personal element enter so largely as in the business of a chemist. The success or failure of a chemist's business in a great measure depended on his personal influence with customers. With regard to the encroachment of the wholesale on the domains of the retail trade in respect to the preparation of tinctures, extracts, etc., he thought that the retail chemist was largely to blame. For some years past competition had been so keen and profits had decreased to such an extent that when some onterprising wholesale firm demonstrated that it could supply galenical preparations put up ready for handing to the customer at a less price than the chemist could make his own preparations, the retail trade was only too ready to make the extra profit. Other wholesale firms, owing to competition in other directions, soon took up the business, until at the present time there were very few retail chemists who standardised their own preparations, the majority depending almost entirely upon the wholesale house. It was difficult to suggest a remedy for the present state of things. He (the speaker) had been on the road himself, and he found that if a chemist could see 2½ per cent., or less, difference between one firm's prices and those of another he would change his wholesale house without hesitation. He did not seem to consider the quality of the articles; simply the price. It appeared to him that the average chemist gave up the professional side of his business and went in for the purely commercial, pushing proprietary goods to the neglect of his own personal business. The chemist seemed to foster that kind of trade, hence he contended that it was not the wholesale firms who were to blame for the present state of things, but the fault lay with the chemists themselves, in helping to keep up the demand for proprietary and factory manufactured preparations.

Mr. T. MORLEY TAYLOR, thought the chairman had given a very excellent and right explanation of the subject under discussion. All the evils that the retail trade suffered from were undoubtedly the fault of its own members. There would have been no stores, no company pharmacy, no anything detrimental to the interests of pharmacists generally, if the individual qualified chemist had been true to himself. It was a peculiar position that the retail chemist held. He held a position towards his customers very different from the position the wholesale firm holds towards the chemist. The chemist's customers have no knowledge of what they are buying, whereas the chemist has—or ought to have—a knowledge of the goods supplied by the wholesale house. Retailers naturally fostered trade in the direction in which it paid them to do so, and it rests with retail chemists to destroy or uphold their trade as at present carried on. The way chemists stocked packed goods was certainly one cause of the present state of things. But the public was only willing to give a very low price for goods, consequently they were served with articles of low quality. Wherever possible however, the chemist ought to foster the demand for first-class stock, and ought to keep it.

A vote of thanks was accorded to Mr. Curry, and the meeting then adjourned.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

At a meeting of the North-East Lancashire Chemists' Association, held at the White Bull Hotel, Blackburn, on Tuesday, Nov. 28, an address was given by Dr. Cunliffe, of Blackburn, on

Druggists and Drug Distribution.

Dr. Cunliffe said: I do not at all feel certain whether the title of my address this evening is sufficiently broad to embrace all the points I am intending to bring before you, or sufficiently narrow to eliminate all questions not relevant to the subject. It may be asked at the present time why medical men in general or myself in particular should take the slightest interest in the present position of pharmaceutical politics. The answer is one particularly easy to give, for the whole position of affairs at the present time, as affecting chemists, has a great and material bearing upon medical politics. The question of the protection of the pharmaceutical title, great as it necessarily is, and bound up in the general question of defence of all titles, owing to the great differences that exist in the nature of your employment and ours—differences from a commercial point of view—render it almost a secondary question. The Lord Chancellor has pointed out that great commercial differences exist between medicine and pharmacy, sufficient to make it necessary to legislate for these interests from two different standpoints. This opinion is, of course, purely personal to the Lord Chancellor himself. I—and I feel confident that I may include you also—am not prepared to accept that such material differences do exist, or, if they do exist, should be allowed to do so in the interests of the public. Medical politics are at the present time necessarily wide in their bearings, and I think the profession can claim, without being in the least egotistical, that the objects aimed at are primarily intended for the benefit of the public. The only portion of this subject which at all interests us to-night is that relative to two points—first, the distribution of drugs amongst the public for its own benefit and safety; and secondly, the right the public undoubtedly possess to be able to recognise readily, and with ease and certainty, the legally qualified and competent person. Now, gentlemen, the day has long gone by when we could with the slightest advantage to ourselves discuss the propriety of

Free Trade in Deadly Poisonous Substances.

The Pharmacy Act of 1868 and other subsequent Acts are ample evidence of the continued recognition by Government that distribution of these powerful substances in small quantities amongst the public must be subject to stringent regulations. The presence in the Statutes of such Acts as "The Sale of Food and Drugs Act," with its subsequent alterations, the existence at the present time of a Commission of Enquiry into the adulteration of foods, conclusively shows us that either these Acts have been inadequately framed, that commercial morality has sunk to such a low ebb, or that the science of business has risen to such an exact point, that these Acts are unable to afford what the Government considered to be necessary—namely, protection to the public against injurious and unnecessary adulterations. We are thus enabled to see how in this free trade country of ours the principles of free trade are not allowed to act to the injury of the health of the community. This is the condition of affairs that exists in regard to the healthy as well as the sick; but drugs are intended for administration to only the sick and ailing, and if we consider necessary such a comprehensive scheme of protection for the healthy, how much more stringent ought our regulations to be when they have to be applied to the distribution of the necessaries for the sick and ailing! I hardly need point out to you the necessity for adequate protection. Glaring instances on the other side are only too frequent. We find that the public are supplied with highly-spiced farinaceous compounds labelled as "mustard" and totally incapable of producing rubefacient action! As far as its use as a condiment is concerned, this adulteration is not serious; but when we consider how often it is used for medical purposes, and its great value in this respect if pure, adulteration becomes a serious matter. Chemists ought to be in a position that anyone purchasing this article from them could rely on its

Absolute Purity.

We find preparations of camphorated oil largely deficient in camphor, and in a number of cases made from mineral oil! In this case we have a really serious issue. There ought to be no doubt as to the quantity of camphor in the preparation. The substitution of mineral renders it useless for the purpose, and we must bear in mind that this oil is often employed in cases of "life or death." When we find seidlitz powders varying altogether from the proper composition, belladonna plasters not made according to our pharmacopœial standard, and other instances which it is not necessary to specify, we must conclude that either our scheme of protection has broken down, or that commercial competition has rendered it impossible to maintain a proper standard of quality. This condition of affairs is not only inconvenient, but very often, in serious cases of illness, it is attended with no inconsiderable amount of danger. We have a position of affairs which ought not to be tolerated longer than necessary, and it is a position which in its regulation comes most decidedly within the realms of medical politics. But the protection of the public and its drug supply, from a medical man's point of view, ought to be carried much further than the mere restriction of the scheduled poisons to qualified individuals and freedom of adulteration of ordinary drugs. Very few people, with the exception of medical men and chemists, have the slightest conception of the enormous present-day traffic in emmenagogues used simply as ecbolics. It is impossible, of course, for anyone to defend this abominable distribution. Its utter suppression is the only course which ought to be advocated. At the present time it is impossible to suppress it. It would be dangerous to attempt to regulate it, and knowing, as we all do, that steps will have to be taken to meet this growing evil, we must recognise that there is a legitimate demand for these drugs as medicinal agents, and their distribution can only be thoroughly protected when confined to a body of distributors whose numbers are sufficiently small to meet the requirements, and whose individual responsibility sufficiently great to bring them easily under control. Again,

The Protection of the Public

at the present time is a different thing altogether to what it was in 1868. The Education Acts have had a material influence upon the public at large, and, though we must admit that the education of the community is not what it might be and what it most probably will be in another thirty years, any measure of protection which we may consider at the present time must be based to a large extent upon future requirements. During the last thirty years education has had one very important effect so far as drugs are concerned. People are too apt to believe as true what they read in print. Our newspapers are far too full of advertisements of quack nostrums, and, regrettable as it undoubtedly is, religious papers are amongst the worst offenders, for many who would ignore an advertisement in a "daily" would credit the same in a religious paper. This peculiarity has been utilised to the fullest extent by advertisers of these quack remedies, and this state of affairs has rendered possible the conduct of large businesses solely concerned with drug distribution. Were this trade solely confined to the harmless drugs, aperient pills, etc., perhaps no considerable amount of harm to the public at large would result; but with this great created demand for drugs there has been steadily growing alongside the production of drugs of greater therapeutic power. These are now also being distributed regardless of their ultimate effect. Antipyrine, antifebrin, phenacetine, sulphonal, and others are being recklessly distributed; the public are being induced, by glaring advertisements, to consume them in large quantities. Fatal cases have already occurred, and yet there is no protection accorded against these powerful agents, distributed almost universally, and which are so injurious for regular administration amongst neurotic people. So much for the necessity of the protection of the public and the right of medical men to be heard on the subject. Our next consideration must be

How can the Public be best Protected.

As the law at present stands, a company can carry on the business of a chemist and druggist, and can use their titles. As far as the titles themselves are concerned, there can be no doubt that no one, individually or collectively, has the right to use a title earned by qualification, unless he himself has earned that qualification. Unfortunately for you, the protection of the public is not limited to its foods and drugs. It extends also to its accumulated capital, and herein lies the great difficulty that has to be faced. The company laws at present in force and the Amendment Bill at present under consideration have for their central idea the protection of that capital which the public can utilise either in carrying on commercial operations or for purposes of speculation. This ought to be the scope of the Company Acts, and it is rather to be regretted that an individual qualification, and all the personal considerations it brings along with it, should have to be settled under an Act which only deals with, practically

speaking, accumulated savings. It is owing, however, to company law that your present embarrassed position has arisen; consequently, you are entitled to ask that a company Act should rectify that position. You are entitled to ask that a company Act should protect your title, whether such Act controls the practice or not. Do not misunderstand my remarks upon this subject. These points you are entitled to ask for yourselves, but there are further points that would have to be considered in the interests of the public. We have to protect adequately the distribution of drugs, and, according to a contributor to your own official organ, there are a number of considerations, not the least of which is

The Drawing Up of a Clause.

Will you allow me to deal with these facts in detail? First, "it is 1899, not 1867." Under that head we ought to bear in mind that the habit of taking drugs has increased; that the public read more, but still are as easily gulled; and that the character of present-day drugs is far more potent, and most probably will become still more so. Secondly, "the clause must be one that the Government will adopt." The Government will adopt any clause which can be shown to them to be necessary in the best interests of the public. Thirdly, "we ought not to impose a condition upon a company which is not imposed upon an individual." This is perfectly true. "Parliament will sanction nothing which savours of trades unionism." The question of trades unionism is foreign to the present position. Parliament has already instituted the qualification of a chemist and druggist as a public safeguard. These facts, along with the question of a very-often-required loan to commence business with, are what we have to bear in mind. Other points might have been added to them, but we will take them as they are, and ask ourselves on what lines ought this clause to be framed. Ought it to be a recognition of companies with a qualified assistant? Ought it to be a recognition of a company of qualified individuals? Or ought it to be an absolute refusal to recognise companies in any shape or form? The difficulties that attend the first two positions are practically insurmountable. A company of qualified individuals could only exist during their lifetime. At their death their lawful heirs would be entitled to their heritage, and once Parliament had granted the rights of a company it would be impossible for them to still occupy that unsatisfactory position.

The Third Position

is the only one chemists can take up. It is the only one that they ought to be allowed to consider, for why should chemists be the only persons dependent upon individual qualification who have their interests limited by a company liability law? The practice of pharmacy does not require a great amount of capital for its exercise. There is no necessity for the limited liability laws to be taken advantage of by chemists for their pharmaceutical work, and if that position can be made clear, and chemists be induced to abstain from the many privileges which the limited liability law may give, they could with the greater force command opposition to limited liability companies. I have already pointed out that the capital employed by companies is the savings of the public, and it is hardly fair that the necessity for public protection should call into existence a body of pharmacists, and that then the public saving should be employed in opposition to these pharmacists. Further, let us consider the amount of protection involved in the qualified assistantship. It is in no way real. If an accident occurs the company could dismiss their servant, obtain the services of another, and carry on its work with very little injury. With the chemist an accident spells ruin, or, at all events, great loss. In conclusion, how can the public be best protected? Is it by increasing unnecessarily the number of distributors of drugs over whom you have to maintain a perfect control? Common sense at once shows that the smaller the number the easier controlled they will be. Is it by allowing capital and business considerations to so keenly compete with the chemist and druggist that existence cannot be maintained without sophistication of his wares? Is it by these means you are going to maintain the freedom of your drugs from adulteration? The whole situation is absurd. I hope you will now see why I have come to the conclusion that the only way of efficiently safeguarding drug distribution is by limiting it, in whole or in part, to chemists and druggists, so that you can the easiest maintain the purity of the drug and protect the public against unwittingly consuming articles deleterious to itself.

Councillor Shorrock (Darwen) proposed a vote of thanks to Dr. Cunliffe for his excellent paper. He said the support of the public would certainly be accorded to the views put forth by Dr. Cunliffe. It was a difficult matter to get Acts of Parliament to suit their purpose exactly, but all chemists would agree with the lines laid down in the paper.

Mr. Wells, in seconding the proposition, said he hoped the paper would be widely read by the public and taken to heart by chemists, and that something good would come of it for chemists at large.

The resolution having been carried with acclamation,

Dr. Cunliffe, in reply, said he would like to draw attention to one point he omitted from his address. Under the Adulteration of Food and Drugs Act lately they had seen it stated on the highest authority that the fines at present inflicted were totally inadequate when employed against companies with a large amount of capital. To his mind it seemed that if they were going to extend the power of distributing drugs amongst large companies one of two things would have to occur. They would either have to increase the fines, when they would unduly press upon chemists; or they would, practically speaking, have to impose fines upon chemists, which would be a material thing to them, but not the slightest punishment to large companies. His sympathies were with the chemists entirely with regard to their struggle, because he thought it was a struggle that had been forced upon them, and one in which they deserved the sympathy of every right-minded person.

The Secretary stated that he had received a circular from the Federation asking the Association to consider some half-dozen proposals which they said were before the country. None of those proposals fully met the views of the Executive, and they therefore suggested that a resolution on the subject should be passed.

Mr. Holt proposed—

That the Secretary be instructed to write to the Federation that in the opinion of the Association no policy should be entertained other than that brought forward by the Law and Parliamentary Committee.

Mr. Lomax (Darwen) seconded the propositiou. He thought the policy suggested was the best of the four suggested. Everyone was agreed, except the companies, that the title of chemist should be restricted to those qualified by examination. With reference to the other part, it was made clear that the intention of the Legislature in 1868 was that the practice of pharmacy should be given to those qualified by examination, and to them only. The position of the Lord Chancellor in the matter seemed to him to be ambiguous and peculiar, but he supposed it represented the law at present, and they must put up with it. But they ought to send their protest to the Federation, and eventually to the Pharmaceutical Society. He was not in opposition to the Federation—indeed, he rather thought that body was at least trying to do something to benefit chemists. Mr. Smith, of Liverpool, had shown some energy, and he thought they would see more done this year than ever before. He was surprised at the action of ten men on the Pharmaceutical Council, but he could only think there must have been some personal interests at stake from a company point of view. It was to be hoped those gentlemen would see the matter in its widest sense, and forego their interests in companies for the benefit of all concerned. He thought they were only fighting for what was just and right.

The resolution was carried unanimously.

FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting of the Association was held in Lamb's Hotel, Dundee, on Wednesday, November 22. Mr. C. Kerr presided. The following were present:—A. B. Anderson, John Anderson, Bailie Doig, John Doig, Ferrier, Gray, Ross, James Russell, and J. W. Russell, Dundee; Jack, Naysmith, Robertson, and White, Arbroath; Skinner, Broughtyferry; McFarlane, Forfar; Buchan, Friockheim; Ford, Kirriemuir; Peebles and Thomson, Lochee; Davidson, Montrose; Harley, Perth; Kermath, St. Andrews; Fernie, Newport.

Mr. Kerr said: The chief business of this meeting is to take into consideration the Companies Acts Amendment Bill, which is to regulate limited companies. As you are aware, one section of the Bill proposes to make it illegal for a company to carry on the profession or business of physicians, dentists, and midwives, but leaves out chemists. Now, when we consider that the present-day pharmacist has to pass such a high-class examination before he is registered, and becomes by law the only person allowed to handle poisons, we think it unfair that chemists should not have the same protection as medical men and midwives. I have no doubt we are all at one on that point. I come now to Section 2 of the Companies Bill, which proposes, in brief, that any company may carry

on the business and use the titles of chemists if they employ a qualified chemist. As you will have seen from the last meeting of the Pharmaceutical Council, there were two sides taken on the question of amending this clause, and the object of our meeting should be to help the divided Council to come to a decision. There is one point on which the Council are in unanimity of opinion—namely, the protection of our titles, which imply qualification. I am sure you will agree with them in this, and if this were all that is required to protect our interests there need be no discussion. But I think we should claim more.

The Present Pharmacy Act

declares that no person shall keep open shop unless qualified by examination and registration. Now, we know there are many companies who are doing large businesses in pharmacy who are not on the register. Then I say the law is evaded, and has been evaded too long. We do not forget that this question was fought by the Society years ago, in the case of the London and Provincial Stores. In this case the judge gave a wrong decision as to the real intention of the Pharmacy Act when passed into law. There is not a shadow of doubt but that the framers of the Act meant the proprietor of the shop to be the qualified man, and if the Council of the day had done it duty, it would not have rested on that wrong decision. But they were not supported at that time by the chemists of the country as they should have been, and the membership of the Society being comparatively small to the whole body of chemists, we can understand the Council's diffidence in not risking more law expenses; but it was a great pity the whole body of chemists were not stirred to see the danger that threatened, and has followed, from that decision. Now there is evidently a stirring up of dry bones such as never was before. One vast improvement in the affairs of the Council is the discussion in open meeting of the Council of matters in which we have a vital interest. Whether the Council will be able to get a satisfactory clause inserted in the Companies Bill is doubtful. Failing that, then, the chemists of the country must ask for a new and independent Pharmacy Bill; and I have no fear, if rightly gone about, we would succeed in passing a new Bill. We in Dundee have got the promise of Parliamentary support in this should our Bill not clash with public interests. Now, it would not be difficult to show that the public interest will be better served in getting their supplies of medicine from qualified and responsible proprietors than by limited companies of non-qualified directors and shareholders, whose chief concern is to get big dividends. And these dividends are mostly got by selling the cheapest rubbish that can be picked up at the drug sales. Unfortunately, the public cannot judge quality in drugs as in other goods, so the chemist who wants to build up his business on fair, honest lines has a hard struggle. But to come back to the business on hand. I cannot think that the Law and Parliamentary Committee will be able to get

A Clause in a Companies Bill

that will meet all our wants. However, we are asked by the Federation to consider the question, and come to a decision that will help the Council. What we have to do is to form a resolution that will be approved by this meeting. You know a majority of the Council did not approve of the clause drafted by their Committee, and they have been requested to reconsider it. But that should have no bearing on our decision. Here we must think and act for ourselves. The Pharmaceutical Council would, I think, have accepted the Committee's clause with the addition of three words which I now propose we should add to that clause as follows:—

> No company of unregistered persons shall carry on the business or assume the titles of chemists implying registration under the Pharmacy Acts, and if any company of unregistered persons contravenes this enactment it shall be liable to the same penalties as those enacted in the case of individuals under the Pharmacy Act.

That, I think, should satisfy the majority. Companies, limited or otherwise, of qualified and registered directors (and there are such) could never be interfered with as the law stands, but bogus companies, such as "Shoes, Limited," will not be put down till we can enforce the idea of the original framers of the Pharmacy Act, "the qualified proprietor."

Bailie Doig opened the discussion which followed. He said that if qualified chemists cared to form a limited liability company no possible objection could be taken to it, but we must insist upon qualification in all members of the company, otherwise the whole foundation of the Pharmacy Act was undermined. For himself, he would prefer a new and independent Pharmacy Bill, as the tendency under the present arrangement was not fair to the chemist and discouraging to our young men. He proposed the following addition be made to the resolution:—

> Failing the insertion of this clause, the Pharmaceutical Society should do its utmost to block the Government Bill.

Mr. Buchan said that if the resolution meant that, say, seven or fewer directors might control fifty or one hundred shops—that could not be considered a satisfactory state of matters.

Mr. Jack said the problem was a difficult one, and the fight would be a hard one, owing to the wealth of the stores.

Mr. John Anderson said he thought the dignified position for chemists to take up was to refuse to admit that bogus companies had any standing whatever as chemists, to insist upon more energetic defence of our rights by the Pharmaceutical Society, not only in the case of these bogus companies, but also in cases where there was no pretence of a company, but a single proprietor of no qualification who simply opened a pharmacy and put in a qualified man. They wanted the Pharmacy Act carried out in its integrity and not adapted to suit the unqualified outsider.

Mr. Ferrier was disposed to move as an amendment that this meeting adopt the clause which was considered at the last meeting of the Pharmaceutical Council beginning "No company." He said the conflict was between qualified chemists and companies, and unless strong measures are taken, and that quickly, the chemist pure and simple will become extinct. If you allow a company to carry on dispensing with a qualified chemist, how can you prevent the company assuming the title?

Mr. Ford hoped the Council would take action promptly, as it would be a good thing to discover what our strength really was.

Mr. Kermath approved of stirring up the Council to take action. They could rely upon the Council getting the best legal advice. We, on our part, will see that our representatives in Parliament are properly informed of the issue.

After some further conversation the resolution proposed by the Chairman was unanimously agreed to, with the addition proposed by Bailie Doig.

The Poison Schedule.

Mr. Ferrier moved the following resolution:—

> This Association considers the time has now come when there should be an addition made to the Poison Schedule.

He said this was a question of great importance, not only to the public, but to chemists as well, and they ought to draw the attention of the Pharmaceutical Council to it. In that, as in some other matters, Ireland is ahead of this country, as, in addition to carbolic acid, their list includes all oxalates. Then, in Australia the list of scheduled poisons is quite a long one.

Mr. Ford thought they might be benefited by a stricter application of the powers they already had. He knew ironmongers still sold arsenic.

Mr. Kermath said the arsenic sales might be wholesale transactions, but even if so they ought to be controlled.

Several speakers referred to the delay in scheduling carbolic acid, and hoped the Committee of the Association would see that the matter was not dropped. Mr. Kerr said Sir J. Leng was prepared to put further questions in the House of Commons if necessary. Resolution agreed to.

Dispensing in Hospitals and Surgeries.

Mr. J. W. Russell moved that the Pharmaceutical Council should be asked to take the necessary steps to get dispensing in hospitals and doctors' surgeries put under the regulations of the Pharmacy Acts. He said, however it might be in other parts of the country, there was an increasing number of doctors in Dundee going in for dispensing their own prescriptions, and he was afraid that in some cases at least the dispensers employed did not hold the legal qualification which those in charge of a dispensary should have.

Mr. Kermath thought this question would require to be handled carefully. Nothing should be said to cause unnecessary irritation.

Mr. Jack said it was a question of the public safety. It was altogether wrong that one man should be prescriber and dispenser and also furnish the death certificate. Recent events had brought the seriousness of this prominently before them. The resolution was agreed to.

Mr. Donaldson (Montrose) said in view of their next annual meeting, he had much pleasure in inviting the Association to meet in Montrose. He believed they could count on a hearty reception, and their visit might arouse a little more interest in the Association among the chemists there.

Mr. Kerr thanked Mr. Davidson for the invitation, which they would accept with pleasure.

This concluded the business, and Mr. Kermath proposed a vote of thanks to Mr. Kerr for presiding.

DERBY AND DISTRICT CHEMISTS' ASSOCIATION.

In response to a circular received from the Federation of Local Pharmaceutical Associations a meeting was held at Smith's Restaurant, Victoria Street, Derby, on Tuesday, November 21, Mr. COPE (President) in the chair. Messrs. Southern and Birkinshaw (Belper), Stevenson, Hefford, Warrington, Hart, Readman, Emitt, and Dawson (Hon. Secretary) were also present.

Three new members were elected—Messrs. Moss, Booth, and Clarke.

The CHAIRMAN, in his opening remarks, reviewed the state of company pharmacy as it now exists, and explained the efforts of the Pharmaceutical Society to remedy the evil. He pointed out that there were two distinct sides to the question—one of which was to abolish company pharmacy altogether, and the other to permit its existence under more stringent regulations. He did not think there was any hope of sweeping the companies away altogether.

The clause as formulated by the Parliamentary Committee of the Pharmaceutical Society was taken as a basis for discussion, the question of titles being first considered.

Mr. HART proposed the following resolution:—

That it shall be unlawful for any company to assume or use the title o pharmaceutical chemist, chemist or druggist, or any other designation implying registration under the Pharmacy Acts.

Seconded by Mr. WARRINGTON, and carried unanimously.

Considerable difference of opinion was expressed as to the best means of successfully regulating a pharmaceutical company. Some members favoured the idea that the board of directors of a company should consist of not less than a fixed number of qualified chemists, others that the managing director should be qualified, and that his name should be used in connection with the business.

The following resolution, however, seemed to meet the views of the members better than any. Proposed by Mr. COPE, seconded by Mr. HART, and adopted:—

It shall be lawful for chemists to avail themselves of the Companies Act, provided always that the directors and managers responsible for the conduct of a company's business are legally qualified persons, and such persons may use their title of qualification for the benefit of such company, so long only as it is used in connection with their own names.

GREAT YARMOUTH CHEMISTS' ASSOCIATION.

A special general meeting of the above Association was held at the Angel Hotel on Thursday, November 23, at 8 p.m., (1) to consider the circular of the Federation of Local Pharmaceutical Associations dealing with company pharmacy; (2) to hear an explanation of the newly-formed "Chemists' Defence Association." The President, Mr. W. S. POLL, occupied the chair, and there was an excellent attendance. After considerable discussion it was unanimously decided:—

That chemists' titles ought to be protected; that all the directors of a company should be qualified; and that this expression of opinion should be forwarded to the Federation of Local Pharmaceutical Associations.

Mr. JOHNSTON, assistant secretary of the P.A.T.A., then explained the scheme of the Chemists' Defence Association and, judging from the number of questions asked, the scheme excited a great amount of interest amongst the members. It was decided to discuss the matter fully at the December meeting. A hearty vote of thanks was passed to Mr. Johnston at the conclusion of the meeting.

MEETING OF BLACKPOOL CHEMISTS.

A meeting of Blackpool and South Shore chemists was held on November 20 at the Palatine Hotel, Blackpool, Councillor JOHN LAURIE, M.P.S., who is also a Vice-President of the Blackpool Tradesmen's Association, presiding. Amongst other business, the attention of those present was directed to the proposals for legislation in connection with

THE COMPANY PHARMACY PROBLEM.

Mr. C. H. TURVER, the Local Secretary for Blackpool, read a letter from the Federation of Local Pharmaceutical Associations suggesting the terms of alternative resolutions for consideration.

The CHAIRMAN, in opening the discussion, said that anything short of making it illegal for a number of members to do what is at present grossly illegal for an individual would leave matters not better than they are at present. He strongly urged the adoption of the first clause in the suggestions sent by the Federation—that the sale and keeping of open shops for the sale of poisons, and titles implying registration under the Pharmacy Acts, should be entirely restricted to qualified men. That this was not the case at present was a great anomaly, and that anything short of this measure would do no good. He did not believe in compromise in this matter. The statement that chemists would not get all they asked for was an argument for asking plenty, not the reverse. It would be time to submit to a lower standard when they were obliged to. He believed that if the difficulty in proving the legal qualification of men in charge of stores owned by limited liability companies could be brought clearly home to members of Parliament they would see the only reasonable course would be to make the proprietor or proprietors consist only of qualified men. There exists more real need for the handling of poisons and general practice of pharmacy to be in the hands of duly educated and registered persons than that of midwives or medicine. An error in diagnosis by a doctor's assistant might be rectified by his principal the next day, but what hope was there for a patient who got an overdose of a poisonous drug? At present, limited liability companies who had no qualification whatever, evaded the law by engaging so-called qualified men, but how many of the public know either the name or qualification of the majority of these men? What was there to prevent an unqualified John Jones, of Oldham, one day, posing as Tom Brown, M.P.S., of Blackpool the next? Many of these men were here to-day and gone to-morrow. The practical difficulties in the way of verifying effectively the qualification of managers and assistants in large limited liability companies owning several, perhaps hundreds of, shops were insuperable. This difficulty vanished when a qualified man or men were direct proprietors of their businesses. Such men were directly responsible for them and their proper control. They were public men who could easily be registered and their movements checked in a way no servant of a company could be.

Mr. SANKEY thought it was not likely that the Council could induce Parliament to make such a drastic alteration as this proposal would involve. It was no uncommon thing for chemists to trade under other names. Medical men never did this; however valuable a practice had become under a famous name they always practised under their own: at the same time he hoped the Council would get as much as possible.

Mr. TURVER was prepared to allow companies to practise if the directors were all qualified, but, after hearing the discussion, thought it better to ask for the clause mentioned. Parliament was very unwilling to create or bolster up anything in the shape of a monopoly, but he thought scarcely sufficient stress had been laid on the fact that the present state of affairs was one of grave danger to the public, quite irrespective of any injustice to the pharmacist. In the interest of the public alone every care should be taken that the handling of potent medicaments be confined to men duly qualified in every way for the important work they have to do. At present there are establishments where no one knows what the qualifications of the persons responsible are.

A warm discussion followed, in which Messrs. Billington, Jackson, Ashton, Johnson, and others took part, and it was stated that the objection was not so much to company trading *per se*, but to a number of persons being able to do what was illegal in an individual.

The following resolution was then proposed by Mr. J. JACKSON, seconded by Mr. ASHTON, and carried unanimously:—

That it is the opinion of this meeting that it should be made illegal for unregistered persons to sell or keep open shop for the sale of poisons or assume any title implying registration under the Pharmacy Act, 1868, whether registered as limited liability companies or otherwise.

The question as to forming a local association was brought forward, but postponed until January next, when it is intended to hold a dinner, at which the question could be discussed. A vote of thanks to the Chairman concluded the proceedings.

PRESTON CHEMISTS' ASSOCIATION.

A special meeting was held at the "White Horse" Hotel, Preston, on Thursday, November 23, when Mr. C. A. ARKLE presided over a representative gathering. The HON. SECRETARY, Mr. F. A. Williamson, reported the receipt of a communication from the Executive Committee of the Federation of Local Pharmaceutical Associations, asking the opinion of the chemists of Preston and district upon certain suggestions (see *ante*, p. 488).

The CHAIRMAN did not think any of the suggestions met the views of the Association entirely. At the best they only went

half way. Having passed examinations and having known what they must expect from the Pharmacy Act, chemists must have some definite ground to go upon. He favoured a resolution that they would defend their titles to the utmost, titles which gave to them the right to be called chemists and druggists, with all the privileges attaching thereto. Nothing short of that ought to be done. It had been set up by some that they had been defeated upon this very issue. As a matter of fact, the point had never been raised in a court of law, and he most emphatically suggested that the Council be empowered to proceed at once to introduce a Bill of its own in the House of Commons, irrespective of other parties. The Pharmacy Act was passed in the interests of the public but—he appealed to any fair-minded man—how could the safety of the public be guarded by drug stores under the control of a directorate, not one of whom might be qualified? Because seven men banded together they could call themselves chemists and druggists, and with the title take all the privileges it conveyed. It was for this reason the Council should seek to protect their titles and privileges. To apply for protection of titles only would be very bad policy, and to his mind he could not see how they could separate the two, having regard to the Pharmacy Act. A test case should be taken to the Law Courts on this issue alone, and if necessary it should be carried to the House of Lords. As to the Law and Parliamentary Committee's clause, he was entirely in favour of it, and was astonished at the attitude adopted by some of the recently elected members of the Council. They seemed to have turned round completely into company-mongering, and he would welcome the return of Mr. Michael Carteighe to the chair. He was the only strong man who had occupied that position during recent years.

After a brief discussion,

Mr. Williamson said it was impossible to get over the fact that in the Pharmacy Act the preamble set forth that it is expedient for the safety of the public that individuals dealing in drugs should be educated and registered. They could not educate and register a company. He moved the adoption of the Law and Parliamentary Committee's clause as a resolution.

Mr. Stuart, in seconding, said he was of opinion that it was the duty of the Preston chemists to support the Council, but even that body did not come up to their standard. It was true the proposition did, and if it received the support it merited in different parts of the country they would know what to do with the other ten members of the Council next May

Mr. Gifford (Blackburn) said it afforded him great pleasure to support the motion. Some chemists seemed to fancy that the Companies Bill would result in a settlement of all their difficulties; nothing of the kind. What they could do was to assert the professional character of their calling so far as present Acts of Parliament went, or, on the other hand, they could stamp the chemist's calling as a trade. That was the question for pharmacists of the present time to face, and he would ask the examined chemists of the country to accept their responsibility. Mr. Hills, their respected ex-President, speaking at the Council meeting of the Pharmaceutical Society, asked whether chemists were going to put themselves in an untenable position, or were they going to that they had been recognised as a body which should be included in the Companies Acts Amendment Bill, and to try as practical men to help the Government to do something in their own interests and in the interests of the public? Now, which was the "untenable position"—the straight, plain, English, upright policy, or the wriggling, turning position? Let chemists try and look at the consequences of their different methods in the light of history. What was the reason that pharmacy had positively degraded since examination and qualification became compulsory? What had been the cause of the humiliating position occupied by chemists to-day? In his opinion what stood out above everything else was the fatal omission to keep the underlying principles right. Everything else had been done but that. They had stiffer examinations, and talked of a curriculum. But while occupying their minds with those things the foundation had been neglected. It was amazing that the ridiculous decision of the House of Lords was not tackled at once and fought to the last. Let it be made clear that the apostles of abandonment of principle could not support their position; on the other hand, without principle they as chemists were a body without a soul; with nothing to hold on to. The Lord Chancellor was the one man who had helped them more than anybody else. That blessed sentence of his in which he said that company pharmacy and personal qualification did not cohere was worth anything. Did it not say in plain English, "Have we to consider personal qualification or company pharmacy?" And that was the issue before British and Irish pharmacists to-day. They were determined to have what they had earned—the title and practice of pharmacy—so far as the Acts of Parliament went. That there was every reason to think justice would be done was evident by the readiness of members of Parliament to support them when the case was put properly before them—as at Plymouth, for example. It was urged that by their conduct they might miss an opportunity, and cause the clause to be simply dropped. He did not think so. But what then? It was simply deferred. They had not admitted the principle of the Lord Chancellor's clause, and that was the all-important matter. Once give it up, and they were beyond redemption. Whenever the case of the chemists was laid bare even the man in the street would allow their claim to be a just one. Mr. Hills said he was speaking some time ago to an eminent member of the House of Commons—a Queen's Counsel—on this very point, and he said, in considering any matter of this kind, the members of the House of Commons would have two points before them, and be swayed by two considerations. He should like to remind Mr. Hills that it was an axiom that in the establishment of a precedent legal advice was of no value whatever. They must judge for themselves the possibilities, and act accordingly. The fact needed to be driven into the minds of all chemists that the Pharmaceutical Society was a typical democratic institution, admirably adapted for voicing the interests of the profession as well as safeguarding the public. It was the bounden duty of every chemist to be a member of the Society, for the chemist in the back street should remember it was he, and not the chemist in Mayfair, that the Legislature desired to understand, and if the bulk of the chemists chose they could make the Pharmaceutical Society absolutely irresistible in any claim for just treatment.

The Chairman said he entirely agreed with the proposed resolution, for to separate the titles from the privileges which they now enjoyed under the Pharmacy Act would mean sacrificing their rights. He was dead against making any arrangements with companies or pandering to them in any way. There was certainly a large amount of trade to be done by companies, and let them stick to it. At present, companies were poaching on chemists' preserves, and, as such, had no right to be there, and, in his opinion, ought to be made to disgorge what they had obtained. The introduction of side issues was a mistake. One thing only chemists desired—viz., the protection accorded to them under the Act. The Parliamentary Committee ought to be most strongly supported. It was impossible to follow in their entirety the Federation's suggestions, because they did not meet the full wishes of the chemists. For the last fourteen or fifteen years they had been neglected. There had never been a test case, for they always seemed afraid to carry a case to the far end. They must urge upon the Council to include in Clause 3 of the Companies Bill chemists and druggists and pharmaceutical chemists, and if they did not succeed in that, then it was their duty to oppose it tooth and nail.

The motion was then put, and the resolution was unanimously agreed to.

WOLVERHAMPTON PHARMACEUTICAL ASSOCIATION.

At the Star and Garter Hotel, Wolverhampton, on Monday night last, the local chemists and druggists met for the purpose of considering Bills before Parliament. The chief question down for discussion was the question of

Company Pharmacy.

The meeting was convened by Mr. Gibson, local secretary of the Pharmaceutical Society, who was unanimously voted to the chair, and there were also present Messrs. Stanway, T. Read, Leonard J. Read, Fleeming, Phillips, Coleman, Wilcox, Burnett, Cullwick, Martlew, Lowe, Beardmore, Godsell, Johnson (London), Perry, Thompson, and others. Letters of apology were received from Messrs. Hamp and Bowdler.

The Chairman stated that he had called the meeting in compliance with a circular received from the Federation of Local Pharmaceutical Associations (see *ante* 488). The five suggestions contained therein had received more or less support throughout the country, and he should have pleasure in asking Mr. Thompson, of Birmingham, who was a member of the Executive Council of the Federation, to address the meeting.

Mr. Thompson said the great point of the Federation was not to formulate any policy, but to consider collectively the policies of the various associations, and submit them to the proper channels.

Speaking as an ordinary chemist, he observed that he belonged to the party which believed in no surrender. They had a perfect right to take the Pharmacy Act of 1868 and stick to it in order to protect their titles. He considered it should be impossible for seven unqualified men to carry on the business of chemists and druggists. If one unqualified man could not do so he saw no reason why seven unqualified men should be able to do so.

The CHAIRMAN said the suggestions embraced in the circular had been brought forward in connection with the Companies Bill which was brought into Parliament at the beginning of the Session, and would in all probability be brought forward again. That Bill excluded chemists from the privileges extended to members of the medical profession, midwives, and dentists, and they as registered chemists felt that this was grossly unfair.

Mr. T. READ, who was the only person present representing a company, said he supposed it would make no difference to him if his firm could not use the title of chemists. He thought the meeting would have to consider how the question stood in the country generally. They wanted as chemists to conciliate reasonable opposition, but he was of the opinion that previous legislative attempts had failed because there was very little opposition in some cases. If the trade went to Parliament and asked for too much, it would seriously hinder their prospects of success. What required stipulating, it seemed to him, was that at least the main partner or the managing director of a company should be a qualified man. In that case the public would have a fair guarantee of safety. In many cases of necessity directors were often taken into a company, and it sometimes arose that a concern wanted a man with the necessary capital, although he might not have the necessary qualification. If, however, his duties were confined to the counting house, and were in no way concerned in the dispensing of medicines, he did not see how the public would be prejudiced. That would not be an abuse of the Companies Act, and certainly would not be any infringement of the Pharmacy Act. If they wanted to prevent these bogus companies he thought they would be right in insisting that the managing director himself should be qualified. He did not think they had a right to disfranchise a man as a chemist because, for business purposes, or family reasons, he chose to make his concern into a limited company. He himself had certainly not forfeited his right or standing because as a chemist he had decided to co-operate with other persons in the business. He thought the chemist and druggist qualification was a personal one, and he was of opinion that they got the personal element by the managing proprietor being a chemist. If a man advanced money to a friend, assuming that he was floating a company, the friend would certainly desire to take some part in the business. Now, if they imposed restrictions such as had been suggested, would it not be grossly unfair to that friend, if a managing director was a qualified man? The public would be just as well protected. That, it seemed to him, met the spirit of the Act.

Mr. JOHNSON, of London, spoke at some length on the suggestion that all the directors of companies should be qualified. He said the protection of the public was the primary object of the Pharmacy Act, and if the companies were governed by qualified directors, and the technical work of the establishment conducted by a qualified assistant, then the public would get all the protection they could. Under the Companies Act directors had vested in them complete power as to the ordering of the business, and to him it seemed logical that they should be qualified. It was not necessary to have seven directors; three, he believed, would be sufficient, but he thought that they should be qualified both financially and under the Pharmacy Act. They wanted to get satisfactory amendments to the Companies Act, and to do this Parliament must be approached in a reasonable manner. It was certain that at the end of the nineteenth century Parliament was against granting fresh monopolies, or extending present ones. He hoped they would insist upon companies trading in poisons not being allowed to use the titles of chemists and druggists.

Mr. PHILLIPS subsequently moved that the following suggestion be adopted as a resolution :—

> To protect chemists' titles, and make it illegal for unregistered persons to keep open shop for the sale of poisons as in the case of individuals.

The companies, he said, should not be recognised, but regarded as interlopers, who monopolised their business against the spirit of the Pharmacy Act. He expressed the opinion that the safety of the public would be best assured by every chemist's shop being under the direction of a fully qualified proprietor.

The motion was seconded by Mr. GODSELL, and after further discussion, the resolution was carried.

FORMATION OF A LOCAL ASSOCIATION.

Mr. COLEMAN then moved that a local association of chemists be formed.

Mr. BEARDMORE seconded, and the motion was carried *nem. con.*, a committee consisting of Messrs. Gibson, Phillips, and Coleman being formed to make the necessary arrangements.

THE CHEMISTS' DEFENCE FUND.

Mr. JOHNSON then explained to the meeting the principles of the Chemists' Defence Association.

The scheme was received with approbation, and Mr. BEARDMORE moved :—

> That this meeting of Wolverhampton chemists, having considered the objects and constitution of the Chemists' Defence Association, expresses its approval of the same, and regards the Association as a boon to the trade.

This was seconded and carried, and a hearty vote of thanks to the Chairman for presiding brought the meeting to a close.

HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION.

A special meeting of this Association was held on Wednesday, November 22, the PRESIDENT (Mr. G. M. Cobb), in the chair. The object of the meeting was to consider the proposal for a

CHEMISTS' DEFENCE FUND,

the principal speaker being Mr. W. S. Glyn-Jones (see *ante*, 506 and 516). A lengthy discussion ensued, and it was finally resolved, on the motion of Mr. HEBDEN, seconded by the PRESIDENT, to unanimously support the scheme.

THE COMPANY PHARMACY PROBLEM

was then introduced by the SECRETARY reading a circular from the Federation of Local Pharmaceutical Associations, asking for the views of the members (see *ante*, 488).

Mr. GLYN-JONES, on the invitation of the President, stated his views of the matter, and urged that inasmuch as twenty years had been allowed to elapse since the decision of the House of Lords, during which time companies have carried on the business of chemists and druggists, chemists could not now go in for a clause making it illegal for any company to keep open shop for the sale of poisons. A qualified directorate and qualified assistants were all that could reasonably be expected from the Government.

Mr. Hebden was somewhat of the same opinion.

The PRESIDENT then moved and Mr. W. R. FIELDING seconded,

> That we support the Federation suggestions 1 and 3—namely, to protect chemists' titles, and make it illegal for unregistered persons to keep open shop, and that all the directors of a company shall be qualified.

The motion was carried and a vote of thanks was accorded to Mr. Glyn-Jones.

BIRKENHEAD PHARMACEUTICAL ASSOCIATION.

At a meeting of Birkenhead chemists, held on November 28, at the suggestion of the Federation of Local Pharmaceutical Associations, to consider the various clauses which have been suggested as most desirable to be submitted for embodiment in the Companies Bill, Mr. Ellithorne was voted to the chair.

Mr. JOHN SMITH, of Liverpool, addressed the meeting and, after hearing various arguments on both sides, it was unanimously decided that the clause most worthy of support was :—

> To protect chemists' titles, and make it illegal for companies of unregistered persons to keep open shop for selling poisons as in the case of individuals.

The feeling of the meeting was that this was what registered men should insist on as their moral right. Of a number of gentlemen who were unable to be present, but sent in their views, the majority were of the same opinion.

At the same time it was proposed that a local association of chemists be formed, not so much with the idea of holding meetings regularly, as being a united body able to speak and take action when necessary. This was agreed to, Mr. H. B. MORGAN, local secretary of the Pharmaceutical Society, agreeing to act as secretary *pro. tem.*

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.

At a general meeting of this Association held on November 28, the following resolution was passed:—

It should be necessary that the directors or the actual managing director of any limited company carrying on the business of a chemist and druggist shall be qualified under the Pharmacy Act, 1868; and each shop belonging to such a company should be under the direct control of a qualified assistant, whose name shall be prominently published as responsible for the conduct of such shop.

WREXHAM AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting was held on Wednesday, November 22, when it was resolved to join the Federation of Local Pharmaceutical Associations. On the question of company pharmacy it was unanimously resolved:—

That whereas individuals since 1868 are required to serve apprenticeships and to pass examinations before being allowed to use titles, to keep open shop, dispense medicines, and sell poisons, nothing short of deception to all such individuals qualified under the Pharmacy Act of 1858 is apparent when the separate directors of a company are exempted.

It was also resolved:—

That whereas no prosecution of an unqualified director of a company has ever been made, it be recommended to the Pharmaceutical Council to at once institute proceedings against offenders.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL ASSOCIATION.

A meeting was held on Wednesday, November 29, at the Rutland Institute, to consider a number of suggestions from the Federation of Local Pharmaceutical Associations on the question of legislation in regard to company pharmacy. The chair was taken by the President, Mr. G. Squire, who opened the discussion, and it was unanimously resolved:—

That in the opinion of the Sheffield Pharmaceutical and Chemical Society it is absolutely necessary in the interests of the public that the Pharmaceutical Council should draft a clause for insertion in the Companies Bill embodying the protection of chemists' titles, and making it illegal for companies of unregistered persons to keep open shop for the sale of poisons as in the case of individuals.

After some further discussion, it was also unanimously decided that the following resolution should be sent to the Council of the Pharmaceutical Society:—

That inasmuch as a company cannot be examined and registered in accordance with the provisions of the Pharmacy Act, it should be unlawful for any company or other corporate body, as such, to assume or use any title implying registration under those Acts; that all companies or other corporate bodies should be liable to penalties for doing what would be an offence under Section 15 of the Pharmacy Act, 1868, if done by an individual, and that it is not desirable in the public interest that any individual who is not registered under the Pharmacy Acts should be permitted to exercise any control over the retailing, dispensing or compounding of poisons.

LETTERS TO THE EDITOR.

The Preservation of Pharmacentical Titles.

Sir,—As some of our members seem inclined to disparage the preservation of our titles, as compared with that of the practice of pharmacy, may I point out that titles are highly valued by those who have recently obtained them. They are our standards of proof of professional capacity. A pharmaceutical chemist's establishment was the place where the public were led to believe that a prescription could be most carefully dispensed. Is the title "Pharmaceutical Chemist," as well as that of "Chemist and Druggist," to be sacrificed to unqualified persons in the form of a company? I trust some stand will be made against these agressions of this modern Moloch of Free Trade. Titles have never been ceded by us to companies, although we have had to acquiesce in the House of Lords judgment in the London and Provincial Supply Association case, as regards practice, but they are now being used by limited liability companies, and latterly with great boldness, especially the title pharmaceutical chemist. It is only during the present year the Lord Chancellor in his two Bills affecting pharmacy introduces the words "use the description of a Pharmaceutical Chemist or Chemist and Druggist," as I notice in the amendment proposed by him to the 1898 Pharmacy Act (*P.J.*, July 23, 1899, p. 96d) these words "use the description of" are conspicuously absent, the other wording of his amendment suggested to be introduced into that Act is in other respects similar to his recent clause in the Companies Bill. The addition of the words claiming our titles in the Companies Bill of last session is significant; *an enemy hath done this since*, who wants to claim what is not his. Titles are truly personal—obtained by qualification, examination, and registration—the terms drug store, medical hall, etc., are not. We ought, therefore, to certainly preserve our professional birthright; with this and the Wheeldon case judgment, protecting the man actually practising pharmacy, we should be able to defy companies, but I for one should object strongly to losing the prestige of my title, obtained by much study and sacrifice of time and money.

A. F. Goode,
London, November 29, 1899. *Pharmaceutical Chemist.*

The Company Pharmacy Problem.

Sir,—It is not fair to expect the Government to draw up an Act in a free country like Great Britain that will restrict free trade in drugs, and I do not think any Act can be passed which will prevent companies from carrying on business. Under present conditions chemists are even *worse* in their habits of carrying on business than companies, and matters will not be improved by an Act restricting the carrying on of a drug business excepting by a qualified man. The profits of a company are quite equal, if not greater, on every article sold than the cream of the retail drug trade, simply because *they buy*. I am not a holder of shares, nor in any way connected with a drug company, but I like fair play, and if a body of chemists could not form a society and draw up a simple but concise Act for the interests of the trade, it is a pity that they ever undertook a duty which was beyond their capacity. The Pharmaceutical Society should *not* exist, it will be always too weak to do any good; but if the Charter was handed back to the Government, then the latter would be compelled to control, and select capable men from the ranks to carry out the wishes of Parliament. I do not write to annoy, as I have been a regular subscriber to the Society for over twenty-three years, and I can clearly see that not the slightest improvement has taken place, and never will, under present conditions. The trade is becoming more demoralised, more disreputable, and more unreliable; therefore, if those in the trade are in earnest, let Government control us, and recollect companies *will prosper always*, but dispensing will be done on German lines, and hospitals and infirmaries will be severely dealt with for outdoor distribution.

Gloucester, November 25, 1899. E. G. Hughes.

Sir,—In response to your suggestion in Annotations of 18th inst., *re* company pharmacy, I agree with R. L. Gifford, and protest against any policy of abandonment of principle, and would also endorse what J. H. Andrew says in this week's Journal with regard to the Annotation of November 18, "The position taken up." I do not think any registered chemist, with any grit in him, should be content with less.

South Woolwich, November 25, 1899. Neil C. Sinclair.

The Society's Examinations.

Sir,—Although personally unknown to Mr. Gilmour, I cannot let his able address (see *ante*, p. 461) pass without expressing sincere approval and commending to the attention of the Council of the Society the following passages in that address:—

As regards the Minor itself, it was defective alike in form and process.

As it stood, the Minor was about the most primitive and antiquated examinational mechanism in the country.

Touching the scope, it was neither properly scientific nor adequately technical.

Those passages stand vividly forth on account of their truthfulness. Just a few weeks ago a young gentleman, having the Society's "hall mark," came to me to ask what substance they put in the battery of an electric bell. He had no idea what a Leclanche or bichromate cell was. Compare this with the present day third-year-science schoolboy. The Minor is not thorough enough, it never will be so long as they examine the candidate in all his subjects in two days. Mr. Gilmour does not give us his opinion on the Major Examination, for which I am rather sorry. The standard of questions set at this examination is anything but what it should be, if we are to keep the prestige (and whatever else we lose we cannot afford to lose this), our examinations give us. The Major is an honorary examination; it means bread and butter to no man. Take the physics as an example. These are Nos. 3, 4 and 6, in last October examination papers, 50 per cent. of what the candidate is expected

to do. I ask those who set these questions—Is it possible to set easier ones in the subject? They are not up to the standard of a London Matriculation or Senior Cambridge local paper. The Society must bear in mind that it is not as we view our examinations, it is as others view them. When we are entering upon a new era in our preliminary education, it behoves the Society not to leave for another five or ten years that which should be attended to at once. These remarks are not made in any antagonistic spirit towards the Society, but rather as a friendly criticism.

November 21, 1899. EDUCATIONALIST (8/27).

What is the Principle of the Pharmacy Act?

Sir,—You say the President's declaration "that the members of the Council are agreed upon two great points, viz., to protect the titles and uphold the principles of the Pharmacy Act, 1868," should secure the adherence of all registered persons, and I earnestly hope it will. You further say "The plain English of that is qualification of individual proprietors." But is not the whole difficulty created by and centred in a difficulty as to what the principle of the 1868 Act really is? The Society contended that the principle of the Act was *qualified ownership*, but the House of Lords emphatically declared that it contained no such principle, and that the object and policy of the Act did not require that it should. Whether we like it or not, therefore, we are compelled to accept it as settled law that *qualified ownership* is not the principle of the Act. This goes to the very root of the matter. A full and fair reading of the Act will show quite clearly that the view that *qualified ownership* is the dominant and essential principle of the Act *is a fallacy*. Undoubtedly in the mind of the framers, and it may be even actually in the Act itself, the principle of qualified ownership is to be found. But it is all important to observe that qualified ownership *per se* has no practical value at all. The owner of a London pharmacy may reside in New York or Timbuctoo, or may be incapacitated for business by age or infirmity. What is the value of qualified ownership in such cases? Obviously so far as the purpose of the Act—the public safety—is concerned it is of no value whatsoever. It would be easy to multiply illustrations of the fact that qualified ownership *per se* has no value, and is of subordinate importance. In short, qualified ownership is laid down in the Act entirely with a view to securing *qualified management*. The latter is the *essential* and *fundamental* and *predominant* principle of the Act, and when that is *adequately secured*, everything else is of secondary importance. The absolute demonstration of this view lies in the fact that the Act itself provides for *qualified management* apart from qualified ownership. The real truth is, as Mr. Glyn-Jones indicates, you cannot prevent unqualified ownership by legislation, for it is impossible to prove who is the actual owner. But you can stop unqualified management, and you can secure *qualified management*. There are several excellent precedents in British legislation in this connection. Is it not therefore of most pressing importance to consider whether this is not the great principle to aim at? When it is thoroughly accomplished I am persuaded the position of professional pharmacists will be absolutely impregnable. In pursuing this line we should be acting on what the House of Lords has declared to be the only essential principle of the Pharmacy Act, 1868, and the principle which, I firmly believe, common sense and a plain English rendering of the Act clearly bring out as its essential feature.

November 25, 1899. OBSERVER (10/23).

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Botanical (C. C.—36/33).—*Veronica buxbaumii.*

Lowson's 'Botany' (S. H.—9/28).—The book was reviewed in the *Pharmaceutical Journal* of January 21 last.

Removal of Tree (J. W. S.—10/15).—You should ascertain, by application to the County Council, what it will be necessary for you to do in the matter.

Toilet Jelly (H. H. M.—36/30).—Have you tried the effect of increasing the proportion of glycerin and spirit? You do not say what is the perfume you use.

Tincture of Lithanthracis (H. W. M.—36/24).—We do not know what it is composed of. It is probably a proprietary preparation.

Dispenserships (T. H. P. C.—36/29).—The Minor qualification is sufficient for any such position as you mention. We believe a medical examination is insisted upon.

Liquor Taraxaci (E. A. T.—36/23).—Succus taraxaci is invariably given where liquor taraxaci is prescribed. Strictly speaking, however, liquor taraxaci is a synonym for extract taraxaci liquidum, and is so given in Gray's 'Supplement.'

Sale of Benzene, etc. (A. M.—36/21).—The provisions of the Petroleum Acts, under which the sale, etc., of benzene, etc., is regulated, apply to Scotland equally with the rest of the United Kingdom.

Testing Olive Oil (S. M.—36/18).—If the oil gives no blackening by Conroy's test, properly applied, it will be free from cotton seed oil. Have you tested your ether? Possibly it is not quite pure. If not, it may give rise to the reaction. Try a blank experiment.

Shaving Paste Recipe (W. C. H.—36/17).—Heat the soap on the water bath with a little water; mix in the carbolic oil, and stir thoroughly; adding more water, if necessary, to produce a cream-like mass when cold. A little pimento oil and oil of *Myreia aeris* will best blend with the odour of the phenol.

Perfume for Violet Powder (J. C.—36/20).—Oil of bergamot, 9; essence of ambrette, 6; oil of rose geranium, 3. Mix. This is improved by a little essence of musk, but as you specify a cheap formula, probably you will prefer it without. For a high-class perfume, ionone, with a little terpineol and otto of rose, is better.

Makers of Celluloid (E. E. H.—36/19).—The following are among the chief makers of various forms of celluloid:—"Bayerische Celluloidwaren Fabrik," 13, Paper Street, E.C.; The British Xylonite Company, 3, Fore Street Avenue, E.C.; Dr. P. Hunaeus, 16 to 20, Farringdon Avenue, E.C. You will probably obtain particulars of what you require by applying to any one of these.

Books on Food Analysis, etc. (R. T.—36/16).—Muter's 'Short Manual of Analytical Chemistry'; A. Wynter Blyth's 'Foods: their Composition and Analysis'; Pearmain and Moore's 'Aids to the Analysis of Foods and Drugs'; and A. H. Allen's 'Commercial Organic Analysis,' are among the most useful books. To obtain a thorough training in this branch of analysis you should become a pupil in the laboratory of a practising analyst.

Formalin as a Meat Juice Preservative (F. D. P.—36/15).—There is no evidence to show that formalin, even in the small quantity necessary to obtain a sterile product, is absolutely harmless; on the contrary, it is possible that it may adversely affect the digestibility of the substance. We should advise you to employ sodium chloride. Probably no antiseptic preservatives are absolutely without a retarding effect on the process of digestion. Formaldehyde, boric acid, and other substances have a very wide application for the purpose, but in the present stage of our knowledge of their physiological effect in minute but frequently repeated doses, their use is not to be recommended for such an article as you name, presumably to be used by invalids. (See page 538.)

Corrections.

Mr. R. LORD GIFFORD, of Blackburn, thinks the compositor rather confuses his arguments printed at page 520, by making him say "employ every source the Society could command," and further, "regaining or rather keeping." The first ought to read "every resource," etc., and the second "keeping or rather regaining."

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

CULTIVATION OF INSECT-FLOWERS IN ALGERIA.

The cultivation of the pyrethrum plant for the production of insecticide powder has been attended with encouraging results at the botanical station of Rouïba, in Algeria. Trial cultivations have been made with the white pyrethrum of Dalmatia, a plant that is more vigorous and more prolific in flowers than the Caucasian or the Persian varieties. At the present day, two-thirds of the insect powder obtained from pyrethrum that is used in Europe is produced in Dalmatia. The plant (the exact species is not given in the note) requires a clayey-sandy soil, somewhat light; it can withstand drought. It is right to irrigate only in case of extreme dryness of the soil. In Algeria it is necessary to sow in the nursery from the beginning of autumn, and to transplant in the spring. The plantation is arranged so that the plants form rows one metre apart; each plant is separated from the next by a distance of fifty centimetres. The plant flowers in May, and is harvested in the course of the summer. Six to eight hundredweights of dried flowers are gathered per hectare. The powder is obtained by pounding the flowers in a mortar.—*Revue des cultures coloniales*, **41**, 315.

ATOMIC WEIGHT OF NITROGEN.

G. Dean gives an account of work in connection with the determination of the atomic weight of nitrogen, in continuation of that of which a preliminary notice has already been communicated (*Proc. Chem. Soc.*, 1898, **14**, 174). He deduces from the results of previous workers, a mean value of 14·034 for the atomic weight of nitrogen, but points out that the means of the determinations by chemical methods of individual workers vary from 13·975 (Pelouze) to 14·05 (Stas). The ratio of the densities of oxygen and nitrogen, as determined by Lord Rayleigh and by M. Leduc, is 16 : 14·003. As those variations seemed to be too great, it was decided to try a new method which would involve as few atomic weights as possible, and only those which are known with the highest accuracy. Silver cyanide was selected as the compound containing nitrogen, and the ratio between a given mass of it and that of the potassium bromide required for the complete precipitation of the silver contained in it determined with all the precautions insisted on in such work by Stas. The cyanide was decomposed in some cases by dissolving it in nitric acid, in other experiments sulphuric acid. The ratio between the purest silver and the sample of potassium bromide used was carefully determined, so that the ratio found was really Ag : AgCN. This was found to be 107·93 : 133·962, whence CN = 26·032 and N = 14·031 if C = 12·001.—*Proc. Chem. Soc.*, **15**, 213.

LIQUID HYDROGEN AND SEED GERMINATION.

Sir W. T. Thiselton Dyer has made some experiments, at the instance of Professor Dewar, on the influence of the temperature of liquid hydrogen on the germinative power of seeds. The seeds formerly selected by Brown and Escombe, when experimenting upon the effect of the temperature of liquid air on seeds, were chosen so as to represent different families. The number they used was too large for the present investigation, on account of the costliness of liquid hydrogen. Barley and wheat were taken for the sake of comparison with Brown and Escombe's results. The question of shape and bulk next influenced the selection; wheat and barley are roughly ellipsoidal and medium in size; the vegetable marrow was added because it is relatively large but flattened, and mustard, which is small and spherical. Composition was next considered, so in addition to these oily and farinaceous seeds a pea was taken, on account of its nitrogenous composition, and partly because of its spherical shape. Lastly, a very minute seed, the musk, was chosen. All the seeds were supplied by Messrs. Sutton, of Reading, and certified of good germination. They were sealed up in a glass tube cooled first in liquid air and then transferred to hydrogen. In this way a temperature of −250 or −252° C. was reached, and maintained for half an hour, and later for an hour another set of seeds being cooled only in liquid air for comparison. On opening the tinfoil packages in which the seeds had been wrapped they were found to be as fresh and bright as before treatment. They were sown in a cool greenhouse, without heat, on July 27. On August 1 they had all germinated. Again a packet of seeds was cooled, this time without graduation of cooling, and actually immersed in liquid hydrogen for upwards of six hours. The temperature reached was −453° F. below melting ice. These seeds germinated without exception. Professor Dewar considers that there is no doubt about the seeds having actually been brought down to the temperature of the liquid hydrogen. It seems probable that plant structures are deficient in thermal transparency, and they are notoriously indifferent conductors. Nevertheless it is difficult to believe that in the case of such small bodies as seeds, their being brought to the temperature with which they are surrounded can be more than a question of time. It is not impossible, however, that even at low temperatures the thermal capacity of at least the seed-coats may be considerable.—*Proc. Roy. Soc.*, **420**, 361.

OXYDASES IN THE VINE.

To the list of plants already found to contain oxidising ferments the vine is now added. According to C. Cornu, all the organs of every variety of the plant examined contained the oxydase. The ferment is more active in the spring than in the autumn.—*Journ. Pharm. Chim.* [6], **10**, 342.

EXPERIMENTS WITH MILK PRESERVATIVES.

In some recent experiments with animals on the physiological action of minute quantities of boric acid and of formalin, as employed as food preservatives, H. E. Annett has thrown considerable light on what is a most important, but, so far, undetermined question. Five kittens were fed on milk containing 80 grains of boric acid per gallon. In four weeks all were dead. Five kittens were fed with milk containing 40 grains per gallon; two died in the third week, and the rest in the fourth. Five control kittens received pure milk, none died. The diminution in weight in the animals receiving the boric acid milk was very marked and brought into significant relief by comparison with the increase in weight in those fed on the normal fluid. It was seen, in a day or two, that the kittens treated with the boric milk were losing appetite. Diarrhœa, inactivity and depression followed, then rapid emaciation and death. With milk containing formalin similar results were obtained. Of five kittens treated with milk containing 1 part of formaldehyde in 50,000 of milk, three died in five weeks; the average increase in weight was 177·6 Gm., compared with 251·1 Gm. of four control kittens treated with normal milk; with milk containing 1 : 25,000 of formaldehyde, another series showed an average gain of 196·6 Gm., as against 325·7 Gm. gain by kittens fed on normal milk. Of a third lot treated with milk containing 1 part of formaldehyde in 12,500 of milk, two died in the fourth week; the average gain in weight was only 96·4 Gms. against 312·5 Gms. with the "controls" fed on normal milk. The younger the animals were, the more susceptible they appeared to the influence of the formalin. The experiments are only preliminary, but the fact cannot be denied that they have a very distinct bearing on a matter which is, literally, of vital importance.—*Lancet*, **2**, 1899, 1282*a*.

"COMPANY PHARMACY": A REPLY TO Mr. GLYN-JONES.

BY CLEMENT FIELDING,
Pharmaceutical Chemist, Halifax.

Among the various suggestions made by Mr. Glyn-Jones in his article in the *Pharmaceutical Journal* of November 18, 1899, page 473, there is (contrary to the opinion of Mr. Glyn-Jones), only one course that should be adopted, namely, absolute consistency.

It is quite true that we cannot expect the Government, in dealing with companies, to go beyond the principle of the 1868 Act, nor do we as chemists desire this. Indeed it is the very principle of that Act which we wish to see carried out, namely, the protection of the public, by prohibiting the dispensing or compounding of medicines, and the sale of poisons by unqualified or irresponsible bodies or persons, as well as the consequences of that principle.

When it is considered that practically every individual chemist has had to undergo a curriculum to qualify himself to protect the public in these respects, it would in any country in the world be admitted that it is only natural justice that those who have with difficulty earned certain privileges, should have those privileges conserved to them. With this object, one of the two following clauses should be adopted by the Council, and strenuously supported :—

1.—It shall be unlawful for a company to carry on the profession or business of a physician, surgeon, dentist, chemist, or midwife, and if any company contravenes this enactment, it shall be liable on summary conviction to a fine not exceeding five pounds for every day during which the contravention happens, provided that nothing herein contained shall prohibit the sale by a company of drugs, chemicals, or other articles usually sold by chemists, but shall only prohibit a company dispensing or compounding medicines or selling the poisons which individuals are prohibited from selling by the Pharmacy Acts, 1852 and 1868.

2.—(*a*) No company may carry on the business or use the description of a pharmaceutical chemist, pharmacist, dispensing chemist, or chemist, or other description implying qualification under the Pharmacy Acts, 1852 and 1868.

(*b*) The words "carry on the business" used in this section, shall, however only mean the dispensing or compounding of medicines and the sale of poisons prohibited in the case of individuals by the said Pharmacy Acts, and shall not extend to prohibit any company from selling drugs, chemicals, or other articles usually sold by chemists, except as aforesaid.

These clauses it will be seen follow as far as possible the wording of sections three and two respectively of the proposed Companies Bill.

Anything short of this is absolutely useless, and in case of deviation therefrom it would be a saving of time and trouble if the agitation were allowed to drop. As to the suggestion that pharmacy as a whole is like human nature, a bundle of inconsistencies, that is no reason why the law on the subject should be the same. If any individual chooses to derogate from the law he does so at his own risk, and should take such steps as will put him in a position to be within the law. Making suggestions with a view to regulating company pharmacy is of no use, because such a course would be as much contrary to public policy as in the case of physicians, surgeons, dentists, or midwives, on the ground that if companies are regulated for that purpose they can, by limiting their liability as provided by the Companies Acts, escape full liability for the consequences of any wrongful acts. A member of a company could say "what does it matter if any member of the public does brings an action against my company for damages or negligence? I am liable only to the amount of the shares I hold in the company, and if it winds up I have sufficient money put aside and invested to enable me then to begin business on my own account and that cannot be touched by any action against the company."

Again, it is contrary to the spirit of the Pharmacy Acts that a company should be authorised to sell poisons because (as in Part I. of poison schedule) the purchaser has to be known to the seller, and the purchaser cannot, of course, in any case be known to a company nor even in the usual case to the qualified servant of a company, who generally skips about from town to town, either to suit his own caprice or at the sweet will of the company, which might have branch establishments in a dozen different towns.

Then again, why midwives should be protected and not pharmacists is absolutely unintelligible. Neither of the clauses before suggested in any way prohibits the carrying on by companies of the business of vendors of drugs or chemicals, or other articles usually sold by chemists, but only seeks to conserve hard-earned privileges to those who have earned them; privileges which, as recognised by the Pharmacy Acts, are the only means by which the public can properly be protected. There are not wanting many complaints that nowadays the examinations are becoming exceedingly difficult, and doubts are already expressed as to whether the game is worth the candle, but what will it be like when parents find that companies consisting largely of unqualified individuals are gradually lowering the standard of the profession and depriving qualified men of their rights, for it cannot be expected that the general public will in their own interest discriminate between responsible and irresponsible practitioners; indeed, it was because of such lack of discrimination on the part of the public that the Pharmacy Act, and indeed, any other qualifying Acts have had to be passed. The suggestion that qualified directors should be insisted upon is futile in every respect, because it is well known that directors usually meet only once a week, and often only once a month, or at longer intervals, and by that means no evil whatever would be remedied. The suggestion in the Court of Appeal in the London Provincial Supply Association case, that in case of sale or keeping open shop by a corporation, the directors and not the corporation would be liable, was quashed by the Law Lords, who said they should—if satisfied that "person" included "corporation"—have had no difficulty in imposing the prescribed penalty on the corporation itself, and expressly stated that they felt none of the difficulties felt by the Court of Appeal in this respect.

The proposed Companies Bill also inflicts the fine named therein on the company itself and not on the directors. (Sec Section 3.) It is of no use thanking the Government for the attempt by the proposed Companies Bill to provide for qualified control, for the Bill only insists on control by a qualified manager, which is, however, the law at present as decided by the House of Lords in the last-named case. The only additional proposition made by the Bill is to paint the qualified manager's name on the shop door.

Though qualified directors might have absolute control of the buying of poisons, or chemicals, they could not in the nature of things have absolute immediate control over the dispensing of medicines or the sale to the public of poisons.

As to not interfering with vested interests of companies, it is clear that if we do not insist on these two things being in the hands of qualified men having control as the keepers of open shop, etc., it means absolute surrender. In all other respects no vested interests need be touched, but the vested interest of legally qualified chemists would be conserved.

THE ASSAY OF EXTRACTUM BELLADONNÆ LIQUIDUM.

BY F. H. ALCOCK.

By following a similar plan to the one suggested for Extractum Ipecacuanhæ Liquidum, it is found that a result is obtained which can be utilised as a means of assay. As an example, five cubic centimetres of liquid extract was mixed with ten cubic centimetres of ether, and five cubic centimetres of diluted sulphuric acid, and the ethereal layer removed. As this was of a greenish colour, a suspicion arose that the preparation was not solely made from the root, which was, perhaps, confirmed by the fact that the colour of the extract was unusually dark. Owing to this greenish colour being imparted to the ether, a second washing was adopted, and the ether residues, after washing with a little water, were evaporated in a tared dish, and found to weigh 0.125 gramme, and to be free from alkaloid. Thinking that washing with chloroform might remove more non-alkaloid matters from the acid alkaloidal liquid, it was shaken up with ten cubic centimetres of this solvent,

when a brownish resinous precipitate made its appearance, which was removed by straining through a small pledget of cotton after removal of the chloroform. This resinous matter was found to be soluble in alcohol, and of a non-alkaloidal nature. The evaporated chloroform solution did not increase the weight of the ether residue. On now rendering the clear deep reddish-brown coloured liquid alkaline with ammonium hydroxide, and shaking out with ether chloroform three times (with care, twice suffices), the whole of the alkaloid was removed from the liquid, and the mixed solutions evaporated spontaneously at the temperature of the laboratory, 68°F. As evaporation proceeded, beautiful acicular crystals, one quarter of an inch long, were seen to dart across the liquid, and when all the solvent had evaporated, the residue was a pretty sight to see. Not a particle of colour was to be seen, and fan and fern-like clusters of crystals lined the floor and sides of the flat-bottomed glass crystalling dish. These were dried *in vacuo*, and afterwards weighed. The amount was 0.038 gramme. On applying the heat of a water-bath to the dish, the crystals seemed to fuse and pass to a varnish-like mass, but whether continued application of heat really affects the product has to be found out; it certainly mars the crystalline beauty. By titration, the alkaloid residue came out 100 per cent., and, of course, was quickly and easily dissolved by the cold acid, the solution being colourless. A series of experiments on the application of this method to nux vomica preparations and other similar galenicals is in progress, and will be concluded in a few days.

INCOMPATIBILITY AND SOME OF ITS LESSONS.*

BY WALTER G. SMITH, M.D.

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Part 1.—General. (*Concluded.*)

Until recently, the real nature of chemical equilibria escaped attention, and chemical processes were too largely regarded as belonging to the phenomena of non-reversible processes.

A chemical equation is often read (by students) in only one direction, from left to right, and the products on the right-hand side of the sign of equality are taken as final and unchanging. But this is found not to be the case, and we must therefore keep before us the possible interaction of all the molecules that may exist in the system under consideration.

Now the arrow symbols in the above general equation represent the important and fruitful idea that, *in principle*, reactions are Reversible or Reciprocating. That is to say, where AD and BC are produced, they act upon each other and reproduce, in part, the original compounds AB and CD. Hence, when two salts are dissolved in water, four salts really exist in the solution.

In this manner an interchange goes on until the opposing reactions have attained equal velocities.

By "velocity" is meant the rate of chemical material transformation, and accordingly the word has a different meaning in chemistry from what it has in mechanics, and their only common factor is time.

The fact that the reaction needs time for its completion involves hat, beside the cause producing it (*i.e.* "moving force" or "affinity"), a resistance comes into play. The nature of the resistance can be most varied, whilst the "moving force" is definite for a given state of matter (van't Hoff). (Cf. C. Johnstone Stoney's paper "On the Appreciation of Ultra-visible Quantities," *Phil. Mag.*, 1892, p. 425.)

In the language of the kinetic molecular theory no condition of equilibrium between substances capable of mutual reaction can be regarded as static, but rather must it be reckoned as a dynamic equilibrium. When the "peace of dynamic equilibrium" (Mendeléeff) is attained we simply mean that the reaction progresses with the same velocity in the one direction as in the opposite direction. Therefore reversible reactions evolve (exothermal) or absorb (endothermal) but little heat.

We cannot observe the velocity of chemical change either from left to right of the equation, or from right to left alone, for we can measure merely the *difference* between these values.

The state of equilibrium and the reaction velocity are dependent not only upon the active masses of the reacting substances, but further upon a number of factors, *e.g.*, temperature, pressure, electrification, and illumination, which collectively may be regarded as being associated with the introduction of energy *into* or the abstraction of energy *from* the system.

Of these factors, temperature is the most influential, for all experimental measurement has shown that the velocity with which a chemical system strives to reach its state of equilibrium increases enormously with the temperature.

Most reactions double or treble their velocity for a rise of 10° in T.

Examples of Reversible Reactions.

Simple solution is a reversible change.

$$\text{Water} \rightleftharpoons \text{Steam.}$$

$$2H_2 + O_2 \rightleftharpoons 2H_2O.$$

$$H_2 + I_2 \rightleftharpoons 2HI.$$

$$FeX_3 + KI \rightleftharpoons FeX_2 + KX + I.$$

This reaction proceeds comparatively slowly in solutions, is not complete, and is reversible (Mendeléeff.)

$$\underset{\frac{1}{3}\text{ mol.}}{\text{Alcohol}} + \underset{\frac{1}{3}\text{ mol.}}{\text{Acetic Acid}} \rightleftharpoons \underset{\frac{2}{3}\text{ mol.}}{\text{Ethyl Acetate}} + \underset{\frac{2}{3}\text{ mol.}}{\text{Water.}}$$

This ratio will remain constant for years.

Further illustrations are afforded by the varying reaction of renal and vesical urine; by the stratification of calculi; and by the precipitation of phosphates from urine by heat and re-solution on cooling.

In urinary chemistry it is important to remind ourselves that the reaction between urates and phosphates is a reversible one. With acid phosphates, biurates yield quadriurates; with basic (monohydrogen) phosphates quadriurates yield biurates. With a certain proportionate mixture of the two classes of phosphates the uric acid salts will be therefore in equilibrium.

$$2M\bar{H}\bar{U} + MH_2PO_4 \rightleftharpoons [M\bar{H}\bar{U}H_2\bar{U}] + M_2HPO_4.$$

$$[M\bar{H}\bar{U}H_2U] \rightleftharpoons M\bar{H}\bar{U} + H_2\bar{U}.$$

$$\text{Quadriurate.} \rightleftharpoons \text{Biurate: Uric Acid.}$$

As examples of non-reversible reactions may be cited gunpowder and other explosive compounds, which can be suddenly converted into gas. Gunpowder is explosive because when the reaction has once been started it spreads, and gains acceleration from the lively development of heat.

Solid CO_2 is not explosive because, in vaporising, the action is reduced to a standstill almost immediately by the cooling down.

In most phenomena of explosion it has been observed that a slow reaction takes place below the T. of explosion, and that a given T. accordingly does not mean a sudden setting in of a reaction which has no existence below it. Since equal ratios of velocity accompany equal differences of T., we conclude that a reaction which takes place at any temperature *must also take place at any other temperature.*

* Reprinted, by permission, from the *Practitioner*. Continued from page 501.

Velocity of reaction may proceed.

(*a*) Simultaneously and uniformly throughout the mass capable of reaction; or by

(*b*) A progressive "wave of reaction" (combustion) (van't Hoff). Velocity moderate, a few metres per second, started by local causes and advancing progressively.

(*c*) Explosive "wave of reaction" set up by pressure.

In the latter case the velocity may vary from about 1,000 to nearly 3,000 metres per second.

PART II.—SPECIAL.

INCOMPATIBILITY has been variously defined by writers, and I propose to define it as "any unintentional change which notably interferes with the elegance, usefulness, or safety of a prescription."

The subject of so-called therapeutical incompatibility is not included in this definition, for it belongs to a different sphere, and its principles are taught by the science of pharmacology.

Neither do I intend to refer to what is often termed pharmaceutical or physical incompatibility, such as errors of solublity, precipitation of resinous or oily solutions by the addition of water, choice of pill excipients, and such-like matters.

My observations will deal with the chemical aspects of prescribing, from a practical and everyday point of view. Even with these limitations the subject of incompatibility is a broad and almost endless one.

For the number of possible combinations is infinite, and no rules will provide against all possible or even likely cases. Moreover, new drugs bring with them new problems, and some of the recent complex synthetic preparations, *e.g.*, antipyrin, do not readily lend themselves to general rules, and have a number of special incompatibilities.

We may accept as a primary rule:—Have as little chemical action as is possible take place among the ingredients of a prescription, unless such is clearly ordered or intended.

This rule holds good, although it must be admitted that some chemical precipitates may be dissolved in the stomach with comparative facility. If only on the ground of elegance such precipitates should be, and can readily be, avoided.

It is worth while to observe the chemical change between two substances can sometimes be much retarded, or even prevented, by forming a *dilute* solution of one of them in a mucilaginous or syrupy liquid before adding the other.

The *order of mixing* the ingredients in a prescription is often of material importance, *e.g.*:—

Corrosive sublimate	gr. ss.	The ammon. carb. would precipitate with the $HgCl_2$ if directly added to it. But if the $HgCl_2$ and KI be first dissolved and the ammon. carb. be added to this solution no precipitation occurs (Scoville).
Ammon. carbon.		
Potass. iodid.	áá gr. v.	
Aquæ	ad ʒi.	
M.		

Again, mix (in order as named):—

Corrosive sublimate.....	gr. iii
Water.....	ʒij
Mucilage	ʒi
Lime water	ʒij

Contrast with the effect of adding the lime water to the corrosive sublimate *before* the addition of mucilage.

Tr. ferri perchlor.	mlv	Most of the iron remains in solution. But if the spirit of ammonia were added *before* the syrup, all, or nearly all, the iron would be precipitated.
Syrupi	ʒi.	
Aquæ	ʒv.	
M. et adde		
Spir. ammon. arom.	ʒij.	

The classes of incompatibilities are grouped under two headings, viz.:—

I. HOMOGENEOUS SYSTEMS, *i.e.*, unattended with any visible *change of form*. There may be colour alteration.

II. HETEROGENEOUS SYSTEMS, *i.e.*, attended with a visible *change of form*, viz., the production of either a gas (or volatile substance), or a precipitate.

The formation of a gas or volatile substance naturally is favoured by a rise of temperature. The chief gas concerned in incompatibilities is carbon dioxide; more rarely, H_2S, or SO_2. But since precipitates, *i.e.*, insoluble compounds, formed at ordinary temperatures, afford by far the largest class of chemical incompatibilities, it is very essential to acquire a clear knowledge of the ordinary rules of solubility. This will enable us to understand and to avoid most of the common pitfalls.

The important elements in the B.P. number thirty-two, and of these about twenty are concerned in incompatibilities.

Generally speaking, whenever an insoluble body can be produced by the mutual interaction of any two bodies it will be formed, because a chemical reaction tends to the production of the most stable body possible under the given conditions. The ordinary tables and charts of qualitative analysis are based upon the rules of solubility. For example, Group I., metals precipitated by hydrochloric acid, is only another way of looking at Rule 5, and so on for the other groups.

RULES FOR SOLUBILITY IN WATER.*

(1) All metallic (basic) OXIDES, HYDROXIDES and SULPHIDES are insoluble, except those of the alkalies (K,Na,NH_4,L), and alkaline earths (Ba, Sr, Ca).

Lime, CaO, is sparingly soluble, 1 in 800; vegetable bases (alkaloids) are mostly insoluble, and do not form carbonates; hence they are usually precipitated from their salts by soluble hydroxides or carbonates. Sulphides are easily decomposed by acids and yield H_2S.

(2) All normal (neutral) metallic NITRATES,† CHLORATES, and ACETATES are soluble; silver and mercurous acetates sparingly.

Quinine acetate is insoluble. Some basic (oxy) acetates and nitrates are insoluble, *e.g.*, bismuth subnitras, $BiONO_3$.

Normal bismuth nitrate, $Bi3NO_3$, is decomposed by water, but is stable for a time in solution in glycerin.

Subacetate of lead precipitates gum, most vegetable colouring matters, and many organic acids. NITRITES are mostly soluble, but are unstable.

(3) All normal PHOSPHATES, ARSENATES, ARSENITES, CARBONATES, and BORATES are insoluble, except those of the alkalies. Lithium carbonate and phosphate are sparingly soluble.

The acid salts are often soluble, *e.g.*, of Ca and Mg.

The phosphates of Fe and Ca, arsenate of Fe, and carbonates of Fe, Ca, Zn, Pb and Mg are the insoluble salts of this group in the B.P.

(4) All normal SULPHATES are soluble except those of Ba, Sr, Pb, $PbSO_4$ is the only one of importance in pharmacy. Calcium, silver and mercurous sulphates are sparingly soluble.

SULPHITES are mostly insoluble, except those of alkalies.

(5) All CHLORIDES and BROMIDES are soluble except AgCl, AgBr. NH_2HgCl (white ppt.), Hg_2Cl_2 (calomel), Hg_2Br_2, and Cu_2Cl_2. Lead chloride and bromide are sparingly soluble.

Some bromides and chlorides, *e.g.*, $SbCl_3$, $BiCl_3$, and $ZnCl_2$, are decomposed by water (hydrolysis), and an insoluble oxychloride or bromide is precipitated.

Liq. bismuthi is incompatible with Ac. hydrochlor. dil. or Ac. nitr. hydr. dil., and it should be prescribed in neutral or alkaline solutions.

(6) Most IODIDES are soluble, except those of lead, mercury, silver, bismuth, and Cu_2I_2.

HgI_2 (red) dissolves easily in solution of KI, forming a colourless double salt (HgI_2,2KI).

(7) Most OXALATES, except those of alkalies, are insoluble, *e.g.*, calcium and cerium.

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* Probably no substance is absolutely insoluble in water.

† Urea nitrate is readily soluble in water but is insoluble in strong colourless nitric acid, a fact often witnessed in the clinical testing of urine.

From the above rules it will be seen that *nearly all alkaline salts are soluble*, and hence alkalics may generaly be neutralised by acids, and their salts may be prescribed in any combinations, *inter se*, without fear of precipitation. Acid tartrates of potassium or ammonium, acid oxalate of sodium, and picrate of potassium are very sparingly soluble.

On the other hand, the majority of the mercurous, lead and silver salts are insoluble.

Salts of the *same acid* radical do not, as a rule, mutually decompose each other. They often combine to form double salts, *e.g.*, the group of alums, and Mayer's solution (HgI_2,2KI). Magnesium sulphate should not be prescribed along with Rochelle salt (soda tartarata), for, after some time, magnesium tartrate will be precipitated. Potassium iodide and potassium chlorate may interact and form irritant potassium iodate.

Alcohol.—In regard to alcohol as a solvent it is not possible to formulate exact rules, but it may be useful to observe that most acetates, benzoates, nitrates, salicylates, valerianates and halogen salts (chlorides, bromides and iodides) are soluble in alcohol, while most other salts are insoluble, except those which are diliquescent (Scoville). Alkaline chlorides and nitrates are insoluble in alcohol.

Solution of magnes. sulph. (1 in 2)	℥ss.
Sp. æth. nitrosi	℥ss.

This becomes solid after a few minutes.

Glycerin.—Its solvent powers lie between those of alcohol and water.

Homogeneous Systems,

i.e., neither a precipitate formed at once, nor a gas liberated. Colour changes may occur.

(1) *Acids and Bases*, in the free state.

(*a*) Generally speaking, these bodies are chemically and therapeutically incompatible, and it is inadmissible to prescribe, *e.g.*,* lactic acid with lime water. This has been prescribed as a gargle.

Lin. tereb. acet. with Lin. camph. ammon., Ac. nitro. hyd. dil. with Spir. ammon. aromat.

(*b*) But if the resulting salt be soluble and poisonous, the toxic action persists in spite of chemical neutralisation, *e.g.*, oxalic acid and alkalies ("salt of lemon"). Lime water is the antidote for oxalic acid (Rule 7).

Hydrocyanic acid and alkalies.

The physiological action of KCN substantially agrees with that of HCN.

Alkaline bicarbonates are not decomposed by HCN. This is a favourite and proper combination.

(2) *Halogen compounds*, *i.e.*, of Cl, Br, I.

The order of affinity for hydrogen and metal is:

$$Cl \rightarrowtail Br \rightarrowtail I.$$

Hence free Cl or Br will liberate iodine from iodides.

The order of affinity for oxygen in combination is:

$$I \rightarrowtail Br \rightarrowtail Cl.$$

There is no known oxide of bromine.

Chlorides are the most stable group, and alkaline iodides are more unstable than the corresponding bromides and chlorides. It is important to become familiar with some decompositions of iodide of potassium: *e.g.*—

(*a*) By free Cl or Br.

$$KI + Cl = KCl + I.$$

Free Cl can be detected in chloroform by addition of KI (or CdI_2, B.P.) and starch mulcilage.

(*b*) By nitric or nitrous acids:

$$3KI + 4HNO_3† = 3KNO_3 + 2H_2O + NO + I_3.$$

It is easy to detect KI in urine by this means.

The free iodine is evidenced by starch, or the rose red colour imparted to chloroform when agitated with the urine. The test for nitrates in drinking water is based upon the same principle.

H_2O_2 or ozone liberates iodine from KI, and hence the guaiacum test cannot be applied to the detection of blood in presence of KI.*

Slow decomposition occurs between KI and Bism. subnitras. A common change is with Sp. ætheris nitrosi, which frequently contains free acid, or with Liq. ethyl nitritis, or, amyl nitrite. These combinations are better avoided, even after neutralisation.

Acid salts in conjunction with nitrites favour decomposition.

$$C_2H_5NO_2 + KI + KHT = C_2H_5OH + K_2T + NO + I.$$

(*c*) By *inorganic* ferric salts.

$$Fe_2Cl_6 + 2KI = 2KCl + 2FeCl_2 + I_2.$$

This is an unsuitable and very irritant combination, owing to the free iodine. The undesirable change does not occur with ferric acetate, nor with the "scale preparations" of iron. Therefore, Ferri et amm. citr. and KI are quite compatible.

Alkaline bromides are not decomposed by iron salts, unless the solution be very acid.

KI can, of course, be suitably given along with Syr. ferri iod.

(*d*) Observe the action of KI upon copper sulphate (*see* Heterogeneous Systems).

(*e*) Note the action of free Cl, Br, or I, respectively, upon Liq. ammoniæ (*see* Heterogeneous Systems).

(*f*) "Colourless" tincture of iodine, so-called. This is an impossibility, for free iodine always forms a coloured solution.

The means adopted for decolorising (!) depend upon formation of either:

(i.) A colourless iodide, *e.g.*, by action of the fixed alkalies; sulphites; thiosulphate (hyposulphite) of sodium.

Upon *aqueous* solutions of iodine, viz., Liq. iodi fortis, B.P., the action of potash (or soda) is:

$$6KOH + I_6 = 5KI + KIO_3 + 3H_2O.$$

Similarly, with bromine and chlorine, when heated. This reaction is the basis of the B.P. processes for preparing KI and KBr.

With *alcoholic* solutions of iodine, *e.g.*, Tinctura iodi, iodoform CHI_3, is also formed and precipitated as a fine yellow powder (hexagonal crystals). This is Lieben's test for alcohol, and is used in B.P. for detection of chloral-alcoholate in chloral.

$$C_2H_5OH + 4I_2 + 6NaOH = CHI_3 + NaCHO_2 + 5NaI + 5H_2O.$$

(ii.) An organic substitution compound, *e.g.*, with tannin, or with phenols (carbolic acid; resorcin).

(*g*) Note particularly the incompatibility between Syr. ferri iodidi and potassium chlorate.

This requires a little time for its development, and so may be overlooked.

The following prescription was ordered for a child:—

Pot. chloratis	℈ii.
Syr. ferri iod	iv.
Syr. simpl.	℥iv.
Sp. chlorof.	mxx.
Aquæ ad	℥ii.

The mixture gradually darkened and in a few hours deposited iodine in abundance. In this condition it was given to the child, with the result that serious symptoms set in, terminating fatally. The dispenser was unjustly blamed by the prescriber.

Neutral Syr. ferri iod. (or, in presence of pot. citrate or pot. acetate) is not decomposed, but if, as frequently happens, it contains some free acid, the solution becomes yellow, or brown, and iodine is abundantly liberated:—

$$KClO_3 + 6HI = KCl + 3H_2O + I_6.$$

Chloric acid is, possibly, first liberated. Ultimately hydrated ferric oxide may be thrown down, and possibly some irritant potassium iodate may also be formed.

* The illustrative examples are selected from actual prescriptions. The corresponding experiments are performed by the students in the Practical Pharmacy Class in T.C.D.

†*Pure* dilute nitric acid does not set free iodine.

* Pot. iodidi	gr. 72
Vin. colch.	m 72
Æth. ozonic (Robbins)	℥vi.
Syr. aurantii	℥vi.
Aquæ ad	℥vi.
M.	

Upon one occasion a yellow crystalline ppt. was formed; and upon another, the bottle burst with explosion.—(*Ph. J.*, [3], 12432.)

This reaction, then, may also be partly a heterogeneous one. Potassium chlorate is compatible with ferric salts.

(3) *Ferric salts and acetates.*

The mixture (Basham's mixture) becomes blood red,* from formation of ferric acetate. Therapeutically, quite admissible and harmless; as is likewise ferric meconate produced when Tinct. opii is combined with Tinct. ferri perchloridi.

Ferric chloride strikes a deep red with antipyrin, and violet purple with salicylates.

(4) *Formation of nitro- and nitroso-compounds.*

Resorcin with sp. æth. nit. = dark red.

The solution made from the subjoined formula turned a permanent dark red, and produced severe irritation upon the skin:—

℞	Hydrarg. perchlor.	gr. iv.
	Resorcin	3i.
	Spir. Chlorof.	aa 3ii.
	Spir. æth. nitr.	M.

Antipyrin with spir. ætheris nitr. = green.

This reaction (using $NaNO_2$) is given as a test for phenazone (antipyrin) in B.P. The incompatibility may be avoided by prescribing them in alkaline solution.

Sodium salicylate (or Bism. salicylate) with spir. æth. nitr. = red.

Bismuth subnitrate gives a red compound with salicylic acid or sodium salicylate. Acetanilide (antifebrin) *slowly* develops a yellow or red colour with sp. æth. nitr.

It is better to avoid any of these combinations, and nitrites should always be prescribed in as simple a form as possible.

(5) *Glycerin and borax.*

Borax is decomposed by polyhydric alcohols, *e.g.*, glycerin, glucose, and honey (mel boracis). In *aqueous* solution, borax reacts alkaline, but Glycerinum boracis reacts acid, and contains free boric acid, and therefore is incompatible with carbonates.

$$2C_3H_5(OH)_3 + Na_2B_4O_7 = 2C_3H_5BO_3 + 2NaBO_2 + 3H_2O.$$
$$C_3H_5BO_3 + 3H_2O = C_3H_5(OH)_3 + H_3BO_3 \text{ (boric acid).}$$

It will now be seen why glycerin of borax is compatible with cocaine hydrochloride, whereas aqueous solution of borax would precipitate the cocaine.

Borax forms a tenacious jelly with mucilage.

(To be continued.)

* According to Mendeléeff, *normal* ferric salts are colourless, or nearly so (*e.g.*, iron-alum, ferric oxalate, ferric phosphate), and the brown or yellow colour is really due to basic ferric salts.

BRITISH PHARMACOPŒIA, 1898.

INDIAN AND COLONIAL ADDENDUM.†

The British Pharmacopœia of 1898 is already largely an Imperial British Pharmacopœia; for medical and pharmaceutical authorities within the seventy areas of administration which comprise India and the British Colonies were invited to aid, and did aid, in the compilation of the book, and, it may be added, have very generally expressed their satisfaction at the manner in which their recommendations have been embodied in the volume.

But included in the recommendations were many locally important drugs for which local recognition only, within the respective areas of administration, was requested. To have delayed the publication of the Pharmacopœia until, by necessarily slow correspondence, full local information respecting those drugs could be obtained, and locally satisfactory pharmaceutical preparations of the drugs be devised, was obviously undesirable.

Immediately, however, after the issue of the Pharmacopœia in May, 1898, steps were taken to obtain trustworthy descriptions of the drugs in question, and these, with appropriate notes, were printed and laid before the Medical Council at its succeeding Session in November, 1898, in the form of a thirty-two page, wide-margin, quarto pamphlet, entitled "A Report on the proposed Indian and Colonial Addendum to the British Pharmacopœia of 1898." The Council ordered that copies of this "incomplete draft Addendum, freely open to additions, omissions, and alterations," be sent, either through the Indian and Colonial Offices by the continued kind permission of the Right Honourable the Secretaries, or, with the concurrence of those Secretaries, direct from the Medical Council, to medical and pharmaceutical authorities in India and the Colonies. Nearly nine hundred copies, or an average of twelve copies to each of the seventy areas of British administration, were thus distributed before the end of the succeeding February, 1899. Each copy was accompanied by a printed official explanatory covering letter from the Editor.

On abstract of the replies (fifty-three from the seventy areas) and the results of 250 quarto pages of letters from the Editor (transcripts of which have been laid before the Chairman of the Committee), with some intimation of what is still required before the Addendum can be completed, together form the present Editorial report.

† A report of progress, by the Editor—Dr. John Attfield, presented to the Pharmacopœia Committee of the General Medical Council on November 29, 1899

INDIA AND THE COLONIES.

Areas of Administration.

INDIA.—Ajmere-Merwara, The Andamans, Assam, Bengal, Berar, Bombay, British Baluchistan, Burma, The Central Provinces, Coorg, The Deccan and Madras, The North-West Provinces and Oudh, The Punjab. Total, fourteen or fifteen.

AFRICAN COLONIES.—Basutoland, Bechuanaland Protectorate, Cape of Good Hope or Cape Colony, Gambia, Gold Coast, Lagos, Natal, Saint Helena, Sierra Leone. Total, nine.

AUSTRALASIAN COLONIES.—British New Guinea, Fiji Islands, New South Wales, New Zealand, Queensland, South Australia, Tasmania, Victoria, Western Australia, Western Pacific. Total, ten.

EASTERN COLONIES.—Ceylon, Hong Kong, Labuan, Mauritius, Seychelles Islands, Straits Settlements. Total, six.

MEDITERRANEAN COLONIES.—Cyprus, Gibraltar, Malta. Total, three.

MISCELLANEOUS COLONIES.—Falkland Islands. One Administration.

NORTH AMERICAN COLONIES.—British Columbia, Manitoba, New Brunswick, North-west Territories, Nova Scotia, Ontario, Prince Edward Island, Quebec: forming the eight Provinces of Canada. Newfoundland. Total, nine.

WEST INDIAN COLONIES.—Bahama Islands, Barbados, Bermuda Islands, British Guiana, British Honduras, Jamaica and Turks and Caicos Islands, Leeward Islands (Antigua, Dominica, Montserrat, Saint Christopher and Nevis, Virgin Islands), Trinidad and Tobago, Windward Islands (Grenada, Saint Lucia, Saint Vincent). Total, eighteen.

Total British Dependencies in India and the Colonies, seventy, more or slightly less, according to combinations.

All correspondents and contributors have been reminded that the Medical Council desires to publish an Indian and Colonial Addendum as a part of the British Pharmacopœia of 1898, hence that only drugs which are already fairly well known can find a place in that Addendum; and that drugs of which little is known or the investigation of which cannot be completed soon, may possibly be included in the next Pharmacopœia or in an Appendix thereto, and that certainly reports respecting them will always be welcomed by the Council, but that publication of the Addendum cannot be much longer delayed for their insertion.

INDIA.

The interests of the provinces of India, in relation to the imperialisation of the British Pharmacopœia, were centred in a special Committee appointed by the Government of India in 1894. The Committee consisted of Surgeon-General R. Harvey, D.S.O.,

Officiating Inspector-General of Civil Hospitals, Bengal (President); the Medical Storekeeper, Calcutta; and the Senior Medical Officer, British Troops at Calcutta. These officers assembled in the capital of British India, themselves drew up two reports which furnished important contributions to the Pharmacopœia of 1898, and received from the Principal of the Madras Medical College a report in reply to a letter written by the Secretary of the Committee and laid before the Madras College Council, and which report included nearly all the drugs that now appear under "India" in the draft Addendum. With the issue of these reports the labours of the Committee came to an end, and the three reports were in due time transmitted through the Privy Council to the Medical Council.

The officers who, at the instance of the Madras College Council, drew up the third report just mentioned were Surgeon-Captain (now Surgeon-Major) F. J. Crawford, M.D., Professor of Materia Medica in the College, and R. Hollingsworth, Esq., Lecturer on Botany. With these authorities there is now (1899) associated Lieut.-Col. H. St. Clare Carruthers, the Government Medical Storekeeper, a highly-skilled enthusiast in all matters pertaining to the treatment of drugs and the production of efficient pharmaceutical preparations. Through the Surgeon-General with the Government of Madras, C. Sibthorpe, C.B., voluminous correspondence has passed between the Editor and Major Crawford, who, in a letter received at the Medical Council Office on November 5, 1899, says, in relation to the whole of the Indian drugs of the draft Addendum and their preparation: "I shall soon write to you further and perhaps be able to state when a final communication may be expected from us."

Surgeon-General C. Sibthorpe, C.B., also forwards a statement showing that *Picrorrhaza kurrson*, Royle, *Adhatoda vasica*, Nees, and *Alstonia scholaris*, R. Br.. are being investigated by an Indigenous Drugs Committee in Madras.

Some voluminous but unofficial correspondence has also passed between the Editor and Dr. George Watt, C.I.E., Secretary of the Indigenous Drugs Committee, Calcutta. The members of this Committee are, it is believed, framing a letter which will convey to the Medical Council their views on the general question, and probably will also forward documents showing the course they are adopting to secure much-needed chemical, physiological, and therapeutical investigation of Indian indigenous drugs. Such a Committee can obviously give valuable aid to the Medical Council in the early production of the first, as well as in the compilation of every future, Indian and Colonial Addendum to the British Pharmacopœia, and as Indian contributors to the text of future British Pharmacopœias.

Surgeon Major-General Bidie (Retd.) has contributed a long report, which is already in the hands of the Pharmacopœia Committee of the Medical Council. It includes notes on each of the Indian drugs of the draft Addendum, and also on *Thevetia neriifolia*, Juss., and *Ipomœa hederacea*, Jacq.

Mr. David Hooper, one of the authors of 'Pharmacographia Indica,' has been good enough, in response to editorial appeal, to contribute information on many of the Indian drugs of the draft Addendum.

Mr. David Kemp, long resident in India, has published pharmaceutical notes on eleven of the Indian drugs of the draft Addendum.

Dr. E. M. de Sousa, Member of the Council of the Burma branch of the British Medical Association, and writing also from what as a pharmacist of Rangoon he has observed of medical practice in Burma, considers that the Pharmacopœia of 1898 suffices for the requirements of the province.

AFRICAN COLONIES.

From Basutoland comes an official statement that "the British Pharmacopœia of 1898 suffices for the medical and pharmaceutical requirements of this territory."

From the Bechuanaland Protectorate no reply has been received.

From the Cape of Good Hope, or Cape Colony, come several official and unofficial communications. They show that while the British Pharmacopœia of 1898 suffices broadly for present needs, many South African plants have known medicinal value, and are being investigated, both locally and in England, with a view to probable inclusion in a future Pharmacopœia, either text or addendum. The Secretary of the Colonial Medical Council in Capetown, writing on August 9, 1899, by desire of the President, states "that the Council is extremely anxious to do all in its power to help the object, and the question is now engaging earnest attention." The Secretary of the Eastern Province Branch of the British Medical Association, writing from Grahamstown on June 26, 1899, makes a similar statement. The *South African Medical Journal* for April and for May, 1899, publishes several contributions on the subject, Dr. Hewat, of the Cape Medical Council, drawing attention to the following drugs as probably worthy of official recognition: *Monsonia ovata, Monœcia monodelphia, Matricaria glabrata, Garuleum bipinnatum,* and *Lastrea athamantica;* also *Mylabris bifaciata.*

The Natal Medical Council has taken the matter in hand, and, "as soon as the Council is in a position to report on the subject will do so." Sixty Zulu medicines have been sent from the Protectorate, through the Natal Administration, to England for investigation.

From neither Gambia, the Gold Coast, Lagos, or St. Helena has any reply been received.

The Colonial Surgeon of Sierra Leone considers that the value of the Addendum would be great, but that the West Coast of Africa affords neither chemical, pharmaceutical, nor medical opportunities for the investigation of the powerful, the mildly diaphoretic, or the other native drugs.

AUSTRALASIAN COLONIES.

The Australasian drugs of the draft Addendum were introduced under medical advice and responsibility, but with the concurrence of authorities in pharmacy. The *Chemist and Druggist of Australasia* has reprinted the text of the Queensland and Victorian sections and the chief prefatory paragraphs of the draft, has invited and received special contributions from experts (G. Watkins, E. C. Blake, H. G. Smith, R. T. Baker, J. H. Maiden, P. Bancroft) respecting the included drugs, and has gone to some trouble to ascertain how often those drugs and their preparations have been called for in the chief pharmacies of the Australasian colonies. The resulting details will be useful when the Addendum comes to be settled. But pharmaceutical data as to the frequency of use of a drug, valuable when the medical question is one of exclusion of an old drug, is obviously of less value when the question relates to the inclusion of a new drug, the introduction being a medical matter and necessarily antecedent to the general employment of the drug. An editorial note in the same journal includes two remarks which go to the root of the relations of the Australasian Colonies to the projected Addendum. "One of the most striking features of the practice of pharmacy in Australia is the very small variation from the practice of the Old Country. . . . *The climatic conditions do not differ very greatly from those of the Old Country.*" Another journal, *The Australasian Journal of Pharmacy*, also reprinted the paragraphs of the draft Addendum.

The authorities in British New Guinea have not yet replied.

The Chief Medical Officer of the Fiji Islands supports the inclusion of *arachis oil*, which has been used with satisfaction for the past ten years, in place of olive oil, at the Hospital and other Government institutions. He and his official medical colleagues also strongly recommend the insertion of the dried rhizome of *Piper methysticum*, the local "Yaqona" (yang-gona), or "Kava Root," or "Ava Root" (see *Pharmaceutical Journal*, 2nd Ser. Vol. IV., p. 85, 1862). Several dozens of cases of the abandonment of the alcoholic habit have taken place in this colony by the adoption of regular doses of the cold aqueous unfermented infusion. Twelve pounds of the dried rhizome have been received at the Medical Council's office.

In New South Wales the officers and members of the Eastern

Suburbs Medical Association of Sydney strongly support the proposed complete imperialisation, sooner or later, of the British Pharmacopœia, on the lines now being followed. The Pharmaceutical Society of New South Wales, acting on an official communication from the Health Department, as well as on the general invitation from the Medical Council, has appointed a committee to deal with the subject of the Addendum.

The New Zealand Branch of the British Medical Association, the Otago Pharmaceutical Association of New Zealand, and the New Zealand Pharmacy Board, have the draft Addendum before them.

In Queensland the Pharmacy Board has confirmed the previous medical and pharmaceutical action as now reflected in the draft Addendum, and has decided to supply such further descriptions as have been desired.

From South Australia comes an opinion from the Council of the South Australian Branch of the British Medical Association that the British Pharmacopœia of 1898 suffices for the medical and pharmaceutical requirements of the province. The Pharmacy Board of South Australia, replying through the Government Colonial Surgeon and the Colonial Office, consider that the materia medica of the British Pharmacopœia of 1898 fills all requirements.

The Council of the Pharmaceutical Society of Tasmania expresses the opinion that the British Pharmacopœia is sufficient for all purposes at present, "as we can adapt it to our climatic and other requirements," but cordially approves of the principle of an Indian and Colonial Addendum, and would contribute to any fund for defraying the costs of researches on colonial drugs having fairly good local reputation. The Court of Medical Examiners are not prepared to take further steps in the matter.

The "Victoria" drugs in the draft Addendum were recommended by the Victorian Branch of the British Medical Association in conjunction with the late Government Botanist, Baron von Mueller, the late Mr. J. Bosisto, C.M.G., and five representatives of the Pharmacy Board and the Pharmaceutical Society of Victoria. For the further consideration of the Addendum, representatives of the Medical Societies of Victoria and of the Melbourne Medical Association have been conjoined with representatives of the Pharmacy Board and the Pharmaceutical Society of Australasia, and have furnished the Premier with a report for transmission through the Colonial Office to the Medical Council. Replies to each of the queries raised in the draft Addendum have been forwarded. The inclusion of *Acaciæ Cortex* is supported and a description forwarded. *Aconitum napellus*, cultivated experimentally in Victoria, corresponds with that cultivated in Britain. The inclusion of *Duboisia* and *Duboisine* is proposed to be deferred, for the reasons mentioned in the draft Addendum. As to *Eucalyptus Suppositories*, *Syrup*, and *Tincture*, it is agreed that, like the official *Lozenge*, they be made with the official gum; but "this Committee would prefer to see the true 'red gum' (of *E. rostrata*) alone official." *Fennel* grown in Victoria does not differ from the official. As to *Kino eucalypti*, "this Committee entirely approves of the proposed use of 'Botany Bay Kino' in the Australasian parts of the Empire when it possesses the characters and responds to the tests of the official Kino." [*Grindelia robusta* was recommended by the Queensland authorities.—Ed.] A Committee of the Faculty of Medicine of the University of Melbourne concludes that besides *Duboisia* and *Fœniculi fructus*, the *Acaciæ cortex* and *Kino eucalypti* of the draft Addendum may be omitted.

The Medical Authorities in Western Australia have no suggestion to offer.

The many islands of the Western Pacific are administered by the High Commissioner of the Fiji Islands. See Fiji Islands.

EASTERN COLONIES.

From Ceylon comes a comprehensive report by Dr. Van Dort, strongly supported by the Principal Civil Medical Officer. Nearly every one of the drugs of the draft Addendum is reviewed, and the following statements are made:—"With few exceptions the drugs are well known in this island, are of great repute, and largely used in native practice. . . . European practitioners [in Ceylon] testify to their real value and to their fitness to supersede. . . . . the various official European drugs for which they have been proposed as equivalents. . . . Nearly all are indigenous." Dr. Van Dort says that many other indigenous drugs have reputation in Ceylon, but mentions only three as being known to and used by him, namely:—*Ipomea turpethum*, R.Br.; *Justicia adhatoda*, Linn., *vel Adhatoda vasica*, Nees [*vide Madras*, Ed.]; and the *Hygrophila spinosa*, T. And., *vel Asteracantha longifolia*. Dr. Van Dort and the Principal Civil Medical Officer were thereupon requested by the editor, writing from the Council's offices on June 1, 1899, to obtain details concerning the best pharmaceutical forms of these or other Sinhalese or Tamil drugs used by the Vederales, or native doctors, and to obtain any further general medical opinions from European practitioners that would be likely to be useful. A reply, dated November 9, 1899, and received in London on November 25, shows that a Sub-committee of the Ceylon Branch of the British Medical Association sent a private circular to the qualified medical practitioners in the island, requesting opinions on the above and other drugs, with the result that the recommendation to include the foregoing three drugs is confirmed. The President of the Branch, Dr. Allan Perry, who also is Principal Civil Medical Officer, sends a copy of the report by the Sub-Committee. Of this report two sentences may be quoted:—"Even if the native drugs of proved efficacy are never likely to supersede the official drugs of the British Pharmacopœia, the importance of being able to substitute the former for the latter in remote villages where European drugs are not always available, or in dispensary practice as a measure of economy, does not seem to have been recognised hitherto in its proper light." Again:—"Your Committee, fully impressed with the importance of a systematic and experimental study of native drugs, from a strictly medical as well as from a commercial point of view, beg to recommend that the subject be brought before the notice of the Ceylon Government by the Association, with a view to secure its assistance in carrying out a properly organised scheme for such study." The formation of a special central Research Committee is then recommended, with the object of aiding the Medical Council in producing, in due time, an Imperial British Pharmacopœia. The Report concludes with an acknowledgment of the services rendered by the pharmacists who had prepared fluid extracts and tinctures of the drugs for the Committee.

The suggestions from Hong Kong in 1894 having been embodied in the British Pharmacopœia of 1898, the hope is now expressed by the resident officers that the drugs of the draft Addendum will be made official, and that the requirements of the Colony will then be fully satisfied.

From Labuan, Mauritius, and the Seychelles Islands no communication has been received.

From the Straits Settlements comes the opinion of the Colonial Surgeon-in-Charge, Singapore, dated April 13, 1899, that the British Pharmacopœia of 1898 suffices for the requirements of the Colony. On October 17, 1899, the Principal Civil Medical Officer finds "the universal opinion to be that the British Pharmacopœia of 1898 suffices for the medical and pharmaceutical requirements of this Colony."

MEDITERRANEAN COLONIES.

The Cyprus authorities have no suggestion to offer.

The Surgeon of the Colonial Hospital in Gibraltar reports to the Governor that native remedies are derived from plants represented in the British Pharmacopœia of 1898, and that in any case the limited vegetation could not furnish a constant supply of the local remedies.

The Chief Government Medical Officer in Malta replying through the Governor, strongly recommends the inclusion in the Addendum of "*Cucurbitæ semina*, Melon pumpkin seeds," as an agreeable, safe, and certain tænifuge. He encloses a complete botanical de-

scription, and regards the seeds of this *Cucurbita maxima* as quite distinct from those of *C. pepo*. This remedy is extensively used in Malta in preference to kousso and male fern, both of which grow in the Colony, and to the pomegranate bark, and is more easily taken than either. The dose is four ounces of the cleaned and peeled fresh seeds pounded up to a creamy consistence by aid of a very little water gradually added. It is almost inviting to take, but a little flavouring or sugar may be included if desired. The remedy should be taken in the morning, fasting, the patient having had a small dose of castor oil the preceding evening. The seeds should in no case be more than a month old.

MISCELLANEOUS COLONIES.—No reply has been received from the Falkland Islands.

NORTH AMERICAN COLONIES.

The medical and pharmaceutical interests, in the Addendum, of the eight provinces of Canada are centred in an influential Committee sitting in Montreal. The Editor has corresponded with Drs. Adami, Bazin, Blackader, and Prof. Morrison, but the Committee includes presidents of various medical and pharmaceutical societies and associations, professors of pharmacology, therapeutics, chemistry, botany, and pharmacy, editors of journals, and other representative men. A draft report including some thirty or forty drugs and preparations has been circulated for comment throughout the Dominion, a copy being sent to the editor of the Addendum. This Report, together with voluminous "Suggestions" by Prof. Morrison, has been printed in the *Canadian Pharmaceutical Journal* for March, 1899, and reprinted in the British *Pharmaceutical Journal* for September 2, 1899, pages 230 to 233. An endeavour will be made to secure, without undue delay, harmony of treatment between the Canadian portion of the Addendum and the United States Pharmacopœia of 1900. On October 28 last the editor received from the Secretary of the Canadian Committee a letter stating that "very shortly we expect to send you a revised draft report." [The latter came to hand on December 1, 1899.—Ed.]

No official reply from Newfoundland has yet been received.

WEST INDIAN COLONIES.

The Governor of the Bahama Islands has brought the desires of the Medical Council before the Medical Authorities of the Colony, but no report has yet been made.

The Medical Authorities of Barbados have no suggestion to offer.

The Secretary of the Bermuda Branch of the British Medical Association reported to the Colonial Secretary of Bermuda that the respective papers should be brought before the Association, but no further communication has yet been received.

In British Guiana the Acting-Surgeon General, after consulting other medical authorities and the Chemists and Druggists' Association, is of opinion that the British Pharmacopœia of 1898 suffices for the medical and pharmaceutical requirements of the Colony.

In British Honduras "the British Pharmacopœia of 1898 suffices for all requirements so far as this colony is concerned."

From Jamaica, including Turks and Caicos Islands, valuable contributions to the British Pharmacopœia of 1898 were received and were incorporated. Presumably, therefore, no further addition is yet desired.

From the Leeward Islands, the Medical Officer of No. 2 District, Montserrat, states that several of the plants mentioned in the draft Addendum grow wild in the islands, and that he will welcome the official recognition of those drugs. The British Pharmacopœia will then meet all requirements. No direct replies have yet been received from Antigua, Dominica, Saint Christopher and Nevis, or the Virgin Islands.

The Governor of Trinidad and Tobago referred the draft Addendum to the Surgeon-General and to the Pharmaceutical Society of Trinidad. The Secretary of the Medical Board of Trinidad replies that the many popular local remedies scarcely deserve official recognition. There appear, however, to be some local drugs of considerable reputation, but they have not been even cursorily examined pharmacologically, and their investigation would take far too long for their possible inclusion in the forthcoming Addendum.

As regards the Windward Islands, the Administrator of Saint Lucia states that: "The Members of the Medical Staff are unanimous in the opinion that there are many plants growing in St. Lucia which possess valuable medicinal properties; but they do not make any general recommendation for the official recognition of any of them." The Colonial Surgeon points out that Gresbach's 'Flora of the British West Indian Islands,' and Duss's and Heckel's 'Flore Phanéragameque des Antilles Françaises,' deal fully with the subject.

Writing from St. Vincent, also for Grenada, the Colonial Surgeon reports to the Administrator that the British Pharmacopœia of 1898 suffices for the requirements of the Colony.

GENERAL CONCLUSION.

It will be seen that fifty-three of the seventy British Administrations of India and the Colonies have already communicated to the Medical Council their views respecting an Indian and Colonial Addendum to the British Pharmacopœia, and, so far, without exception, concur in supporting the broad principle of imperialisation of the great national book of medicines; while every one of the seven important classes of Colonies or Provinces which form the British Empire beyond the boundaries of the United Kingdom, heartily joins with England, Scotland, and Ireland in doing all that can be done from time to time to promote the ultimate production of an Imperial British Pharmacopœia.

JOHN ATTFIELD, F.R.S.,

Editor of the Pharmacopœia, and of the forthcoming Addendum, for the General Medical Council.

General Medical Council Office,
299, Oxford Street, London, England.

Extract from the Report of the Pharmacopœia Committee of the General Medical Council, received and adopted by the Council on December 5, 1899.

RESPECTING THE INDIAN AND COLONIAL ADDENDUM.

"Fifty-three of the seventy British Administrations of India and the Colonies have already communicated their views to the Medical Council. The Committee desire to express their cordial thanks to those who have thus contributed much valuable assistance, and to note with gratification that in many Colonies the British Pharmacopœia in its present form has completely satisfied all requirements."

PHARMACY IN THE ISLE OF MAN.

We have been favoured by the Manx Attorney-General with a copy of the Pharmacy Bill which has been prepared by him—by command of the Lieut.-Governor of the Isle of Man—and passed by the Manx Legislative Council, on November 23. The full text of the measure follows:—

THE PHARMACY BILL, 1900.

MEMORANDUM EXPLANTORY OF OBJECTS OF THE BILL.

This Bill deals with the sales of poisons and compounding the prescriptions of medical men. Persons selling poisons or compounding medical prescriptions are required to be qualified as pharmaceutical chemists or chemists and druggists. Persons recognised as pharmaceutical chemists (or chemists and druggists) are those qualified as such under the Pharmacy Act, 1868 (an Act of the Imperial Parliament), or under the Pharmacy Act (Ireland), 1875 (an Act of the Imperial Parliament), or any Act amending the same passed previous to the promulgation of this Act. Chemists and druggists are defined by the 5th section of the Bill, and include all persons registered as such under the provisions of the Pharmacy Act, 1868, and all persons who up to July 5th, 1899, have carried on in this Isle the business of a chemist and druggist by keeping open shop for the compounding of medical

prescriptions. Provisions are also made for the recognition of asistants under certain circumstances. Persons selling or keeping open shop for the sale of poisons or compounding medical prescriptions, or using any title or description implying the possession of a qualification to practise pharmacy, without being a pharmaceutical chemist or a chemist and druggist are made liable to a penalty not exceeding £10. Nothing in the Bill is to affect any legally qualified medical practitioner; or any member of the Royal College of Veterinary Surgeons of Great Britain as to dispensing medicines for animals under his care, or the dealing in patent medicines, or wholesale dealers. The Bill contains regulations to be observed in the sale of poisons, and provides that the Adulteration Acts, 1874 to 1895, shall extend to medicines.

Preamble.—Whereas it is expedient for the safety of the public that persons keeping open shop for the retailing, dispensing, or compounding of poisons or medical prescriptions, and persons known as "chemists and druggists," should possess a competent practical knowledge of their business; and, to that end, that from and after the day herein named all persons not already engaged in such business should, before commencing such business, be duly qualified as herein provided:—

We, therefore, your Majesty's most dutiful and loyal subjects, the Lieutenant-Governor, Council, Deemsters, and Keys of the said Isle, do humbly beseech your Majesty that it may be enacted, and be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lieutenant-Governor, Council, Deemsters, and Keys, in Tynwald assembled, and by the authority of the same, as follows (that is to say)—

1. **Short title.**—This Act may be cited as "The Pharmacy Act, 1900."

2. **Definitions.**—In this Act the following expressions have the meanings hereinafter respectively assigned to them (that is to say):—"Pharmaceutical chemist" means either—

(*a*) A duly registered pharmaceutical chemist within the meaning of the 31 and 32 Victoria, chapter 121 (being an Act of the Imperial Parliament, and hereinafter referred to as "The Pharmacy Act, 1868"); or

(*b*) A person registered as a pharmaceutical chemist under the provisions of the 38 and 39 Victoria, chapter 57 (being an Act of the Imperial Parliament applicable to Ireland only and hereinafter referred to as "The Pharmacy Act (Ireland), 1875"), or any Act amending the same passed previous to the promulgation of this Act.

"British Pharmacopœia" means the book so called published from time to time by "The General Council of Medical Education and Registration of the United Kingdom," in terms of section 54 of the 21 and 22 Victoria, chapter 90 (being an Act of the Imperial Parliament).

3. **Persons selling or compounding drugs and poisons, or assuming the title of "Chemist and Druggist," to be qualified.**—No person shall sell or keep open shop for retailing, dispensing, or compounding poisons or medical prescriptions, or assume, use, or exhibit, the name or title of "pharmaceutical chemist," "chemist and druggist," or "chemist," or "druggist," or "pharmacist," or "dispensing chemist or druggist," or any name, sign, title, description, or addition, implying the possesion of a qualification to practise pharmacy in this Isle, unless such person shall be a pharmaceutical chemist or a chemist and druggist within the meaning of this Act, and conform to such regulations as to the keeping, dispensing, and selling of such drugs and poisons as are hereinafter provided.

4. **Articles named in Schedule A to be deemed poisons within the meaning of this Act.**—The several articles named or described in the schedule A to this Act, and also any other articles which for the time being shall be deemed to be poisons within the meaning of the Pharmacy Act, 1868, shall be deemed to be poisons within the meaning of this Act.

5. **Chemists and druggists within meaning of this Act.**—"Chemists and druggists" within the meaning of this Act shall consist of all such persons as may be duly registered as such under the provisions of the Pharmacy Act, 1868, also of all persons who at any time before, and up to the 5th day of July, 1899, have carried on, in this Isle, the business of a chemist and druggist, in the keeping of open shop for the compounding of the prescriptions of duly qualified medical practitioners, and also until the 31st day of December, 1901, of all persons who, for the period of one year immediately preceding the said 5th day of July, 1899, have within this Island, and for the period of nine years prior to the beginning of such year have, within this Island, or in any part of the United Kingdom, been continuously engaged as assistant to any person carrying on the business of a chemist and druggist in the keeping of open shop for the compounding of the prescriptions of duly qualified medical practitioners, and from and after the said 31st day of December, 1901, of all such last mentioned persons who shall have obtained from the Master, Wardens, and Society of the Arts and Mystery of Apothecaries of the City of London a certificate of his qualification to act as assistant to an apothecary under the provisions of 55 George III., chapter 194, being an Act of the Imperial Parliament.

6. **Protection of titles, and restrictions on sale of poisons.**—Any person or persons who shall sell or keep an open shop for the retailing, dispensing, or compounding poisons or medical prescriptions, or who shall take, use, or exhibit the name or title of "chemist and druggist," or "chemist," or "druggist," or any name, sign, title, description, or addition, implying the possession of a qualification to practise pharmacy not being a pharmaceutical chemist, or chemist and druggist, or who shall take, use, or exhibit the name or title of "pharmaceutical chemist," "pharmaceutist," or "pharmacist," not being a pharmaceutical chemist, or shall fail to conform with any regulation as to the keeping or selling of poisons made in pursuance of this Act, or who shall compound any medicines of the British Pharmacopœia, except according to the formularies of the said Pharmacopœia, shall for every such offence be liable to pay a penalty not exceeding ten pounds.

7. **Reserving rights of certain persons.**—Nothing hereinbefore contained shall affect any legally qualified medical practitioner who, in order to obtain his diploma for registration within the meaning of the Medical Act, 1899, shall have passed an examination in pharmacy; or prevent any person who is a member of the Royal College of Veterinary Surgeons of Great Britain from dispensing medicines for animals under his care, or extend to, or interfere with, the making or dealing in patent medicines, or with the business of wholesale dealers in supplying poisons in the ordinary course of wholesale dealing; and upon the decease of any pharmaceutical chemist or chemist and druggist actually in business at the time of his death, it shall be lawful for any executor, administrator, or trustee of the estate of such deceased to continue such business, if and so long only as such business shall be *bonâ fide* conducted by a duly qualified assistant, and a duly qualified assistant within the meaning of this clause shall be a pharmaceutical chemist or a chemist and druggist within the meaning of this Act. Provided always that registration within the meaning of this Act shall not entitle any person so registered to practise medicine or surgery, or any branch of medicine or surgery

8. **Regulations to be observed in the sale of poisons.**—It shall be unlawful to sell any poison, either by wholesale or by retail, unless the box, bottle, vessel, wrapper, or cover in which such poison is contained be distinctly labelled with the name of the article and the word "poison," and with the name and address of the seller of the poison; and it shall be unlawful to sell any poison of those which are named in the first part of Shedule A to this Act, or may hereafter be added thereto in terms of section four of this Act, to any person unknown to the seller, unless introduced by some person known to the seller; and on every sale of any such article the seller shall, before delivery, make or cause to be made an entry in a book to be kept for that purpose, stating, in the form set forth in Schedule B to this Act, the date of the sale, the name and address of the purchaser, the name and quantity of the article sold, and the purpose for which it is stated by the purchaser to be required, to which entry the signature of the purchaser and of the person, if any, who introduced him shall be affixed; and any person selling poison otherwise than is herein provided shall, upon a summary conviction before a high-bailiff or two justices of the peace, be liable to a penalty not exceeding five pounds for the first offence, and to a penalty not exceeding ten pounds for the second or any subsequent offence; and for the purposes of this section the person on whose behalf any sale is made by any apprentice or servant shall be deemed to be the seller; but the provisions in this section which are solely applicable to poisons named in the first part of the Schedule A to this Act, or which require that the label shall contain the name and address of the seller, shall not apply to sales by wholesale to retail dealers in the ordinary course of wholesale dealing, nor shall any of the provisions of this section apply to any medicine supplied by a legally qualified medical practitioner to his patient, nor apply to any article when

forming part of the ingredients of any medicine dispensed by a person registered within the meaning of this Act, provided such medicine be labelled, in the manner aforesaid, with the name and address of the seller, and the ingredients thereof be entered, with the name of the persons to whom it is sold and to whom it is delivered, in a book to be kept by the seller for that purpose.

9. **Adulteration of food or drink to extend to medicines.**—The provisions of the Acts of Tynwald, intituled "The Adulteration Acts, 1874 to 1895," shall extend to all articles usually taken or sold as medicines, which shall for the purposes of such Adulteration Acts be considered articles of food or drink, and every adulteration of any such article shall be deemed an admixture injurious to health, and any person who sells any such article adulterated shall, unless the contrary be proved, be deemed to have knowledge of such adulteration.

10. **Application of penalties.**—All prosecutions for the recovery of fines or offences against this Act shall be at the suit of the inspector under the Adulteration Acts aforesaid, or of any chief constable, or inspector, or sergeant of police, and shall be proceeded with summarily before a high-bailiff or two justices of the peace; and all fines when recovered shall be paid to the Treasurer of the Isle of Man, to be carried to the general revenue thereof.

11. **Copy of "The Registers of Pharmaceutical Chemists and Chemists and Druggists," etc., to be evidence.**—A printed copy, purporting to be a copy of 'The Registers of Pharmaceutical Chemists and Chemists and Druggists' for the time being, and purporting to be printed and published in accordance with the provisions of the Pharmacy Act, 1868, or any certificate purporting to be under the hand of the Registrar for the purposes of the said Act, and to be countersigned by the President or two members of the Pharmaceutical Society of Great Britain, shall be evidence in all legal proceedings and before all persons that the persons therein specified as registered are registered under the provisions of the Pharmacy Act, 1868, and the absence of the name of any person from such printed copy shall be evidence, until the contrary be made to appear, that such person is not registered according to the provisions of such Act.

12. **Copy of 'Register of Pharmaceutical Chemists for Ireland' or 'Register of Chemists and Druggists in Ireland,' etc., to be evidence.**—A printed copy purporting to be a copy of the 'Register of Pharmaceutical Chemists for Ireland,' for the time being and purporting to be printed and published in accordance with the Pharmacy Act (Ireland), 1875, or any Act amending the same passed before the promulgation of this Act, or any document purporting to be extract therefrom, or from the original registers certified under the hand of the Registrar appointed under and by virtue of the said Act, and to be countersigned by the president or two members of the council of the Pharmaceutical Society of Ireland, shall be evidence in all legal proceedings and before all persons that the persons therein specified as registered are registered according to the provisions of the said Act, and the absence of the name of any person from any such copy shall be evidence, until the contrary shall be made to appear, that such person is not registered in such register according to the provisions of the said Act.

13. **Copy of 'British Pharmacopœia' to be evidence in legal proceedings.**—A printed copy purporting to be a copy of 'The British Pharmacopœia' for the time being, and to be published under the direction of the General Council of Medical Education and Registration of the United Kingdom shall be evidence in all legal proceedings, and before all persons without further proof, and shall be deemed, until the contrary shall be made to appear, to be a true and correct copy of the 'British Pharmacopœia.'

14. **"Registers of Pharmaceutical Chemists, etc.," to be deposited in Rolls Offices.**—The Treasurer of this Island shall, as soon as possible after the publication thereof in each year, purchase out of the funds of the general revenue of this Island, a copy of the last published edition of 'The Registers of Pharmaceutical Chemists and Chemists and Druggists' (published under the provisions of the Pharmacy Act, 1868), of 'The Register of Pharmaceutical Chemists for Ireland (published under the provisions of the Pharmacy Act (Ireland), 1875), and of the 'British Pharmacopœia,' and shall deposit such copies in the Rolls Office; and the copies so deposited shall be open to inspection by the public, upon payment of the fee of one shilling, upon all days and during all hours upon and during which the Rolls Office is open for the transaction of public business.

SCHEDULES.

SCHEDULE A.—PART I. (SECTION 8.)

Arsenic, and its preparations.
Aconite, and its preparations.
All poisonous vegetable alkaloids, and their salts.
Atropine, and its preparations.
Cantharides.
Corrosive Sublimate.
Cyanide of Potassium, and all metallic cyanides and their preparations.
Emetic Tartar.
Ergot of Rye, and its preparations.
Prussic Acid, and its preparations.
Savin, and its oil.
Strychnine, and its preparations.
Vermin Killers, if preparations of poisons the preparations of which are in Part I. of this schedule.

PART II.

Essential Oil of Almonds, unless deprived of its prussic acid.
Belladonna, and its preparations.
Cantharides, tincture and all vesicating liquid preparations of.
Chloroform.
Chloral Hydrate, and its preparations.
Corrosive Sublimate, preparations of.
Morphine, preparations of.
Nux Vomica, and its preparations.
Opium, and its preparations, and preparations of poppies.
Oxalic Acid.
Precipitate, Red (red oxide of mercury).
Precipitate, White (ammonated mercury).
Vermin Killers, compounds containing "poisons" prepared for the destruction of vermin, if not subject to the provisions of Part I. of this schedule are in Part II.

SCHEDULE B.

Date.	Name and Address of Purchaser.	Name and Quantity of Poison Sold.	Purpose for which it is required.	Signature of Purchaser.	Signature of Person introducing Purchaser.

PHOTOGRAPHIC NOTES.

TONING AND FIXING BATH COMBINED.—Burton states that during a period of twelve years in Japan he has used Aristo paper; and not a single copy has become yellow or bleached. He does not wash the print before toning, and uses the bath once only. The bath contains no lead, but is rich in gold, and therefore dear. The following formula gives sufficient solution for a sheet of paper, 45 × 55 Cm.:—Sodium thiosulphate, 60; borax, 5; gold chloride, 0·15; water, 250; calcium carbonate, 2 Gm. The carbonate remains undissolved and prevents the bath becoming acid; filtering is unnecessary. In about ten minutes the copies have a beautiful brown tone, when they must be well washed.—*Brit. Journ. of Photography.*

PLATINUM TONING OF ARISTO AND CELLOIDIN PAPER.—Gilson advocates the use of the following method for toning Aristo paper. Solution A. Chrome alum, 10; sodium chloride, 40; water, 1,000. For toning, take solution A, 50; potassium platinous chloride, 1; water, 950. A reddish brown to black tone is obtained; the print is immersed without washing, and if a number of prints are toned at one time, they must be kept in motion. When the desired tone is obtained the print is immersed in a bath of water containing a little ammonia or soda, and the fixing bath to which the print is brought should also have a trace of alkali added. It is advisable to heat the platinum bath to about 20° C.—*Amateur. Photograph.*, **13**, 142.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, DECEMBER 6, 1899.

Present :—

Mr. WM. MARTINDALE, President.

Mr. G. T. W. NEWSHOLME, Vice-President.

Messrs. Allen, Atkins, Bateson, Carteighe, Corder, Cross, Glyn-Jones, Harrington, Harrison, Hills, Johnston, Park, Savory, Southall, Storrar, Symes, Warren, and Young.

The minutes of the last meeting were read and confirmed.

Pharmacy Legislation.

Dr. SYMES, having referred to the fact that the proposed Companies Bill would affect Ireland equally with Great Britain, asked if it would not be desirable to seek the co-operation of the Council of the Pharmaceutical Society of Ireland in any action which might be determined upon.

The PRESIDENT said most probably that would have to be done, but the Council was not in a position to do so at present.

The Late Mr. Thos. Hodsoll.

The PRESIDENT said he had to announce with great regret the death of Mr. Thos. Hodsoll, Islington, who for many years acted as Divisional Secretary for the Hoxton Division, and always took great interest in the affairs of the Society.

Appointment of Examiners.

The SECRETARY reported the receipt from the Privy Council Office of the usual letter approving the appointment of the Examiners for the ensuing year.

Superintendents of Written Examinations.

The following gentlemen were appointed superintendents and deputy superintendents of written examinations :—

Centre.	Superintendent.	Deputy.
Birmingham	Thompson, Charles	Jones, William
Brighton	Gwatkin, James R.	Savage, William W.
Bristol	Keen, Benjamin	Allen, Benjamin
Cambridge	Peck, Arthur	Coulson, Horace
Canterbury	Bing, Edwin	Bing, Charles
Cardiff	Munday, John	Coleman, Alfred
Carlisle	Hallaway, John	Pattinson, Michael H.
Carmarthen	Lloyd, Walter	Phillips, George
Carnarvon	Jones, John	Davies, Robert
Cheltenham	Barron, Wm.	Palmer, Frank T.
Darlington	Robinson, Jas.	Hutchinson, Rev. E.
Douglas (I. M.)	Radcliffe, John C.	Young, John
Dundee	Kerr, Charles	Hardie, James M.
Edinburgh	Stephenson, John B.	Henry, Claude F.
Exeter	Lake, John Hinton	Milton, Thomas C.
Glasgow	Watson, David	Dunlop, Thomas
Guernsey	Nickolls, J. Bate	De La Rue, F. H.
Hull	Bell, Charles B.	Stoakes, Benj. M.
Inverness	Ogston, William	Bethune, W. J.
Jersey	Cole, George	Baker, John T.
Kirkwall	Stewart, Duncan	Webster, Rev. D.
Lancaster	Vince, James	Arkle, William
Leeds	Reynolds, Richard	Branson, F. W.
Lincoln	Birkbeck, John T.	Elmitt, George
Liverpool	Smith, John	Buck, Anthony S.
London	Taylor, Geo. S.	Allen, Charles B. Moon, Harry
Manchester	Kemp, Harry	Swinn, Charles
Newcastle-on-T.	Clague, Thos. M.	Owen, Alfred E.
Northampton	Bingley, John	Mayger, W. D.
Norwich	Sutton, Francis	Corder, Octavius
Nottingham	Sergeant, F. Ross	Beverley, R. H.
Oxford	Prior, George T.	Thurland, Henry
Penzance	Symons, Netherton H.	Buckett, A. H.
Peterborough	Sturton, John Gilbert	Sturton, Frank Ainsworth
Plymouth	Hunt, Freeman W.	Woods, Wm. H.
Sheffield	Squire, George	Pater, Joseph B.
Shrewsbury	Cross, William G.	Blunt, Thomas P.
Southampton	Dawson, Oliver R.	Wilson, Harry
York	Sowray, Joseph	Saville, John

Elections.

The following persons, having tendered their subscriptions for the current year, were elected "members" of the Society :—

Fry, Samuel, Bishops Waltham.

Tod, James Arnold, Portobello.

Restorations to Register.

The names of the following persons, who have severally made the required declarations and paid a fine of one guinea, were restored to the Register of Chemists and Druggists :—

Joseph Waddington Graves, 48, Lower Eldon Street, York.

John Eddy Knight, 12, Rendezvous Street, Folkestone.

Finance Committee.

The report of this Committee, including the recommendation that certain accounts be paid, was read.

The PRESIDENT, in moving the adoption of the report and recommendations, said the Society was in rather a better financial position than this time last year.

The motion was unanimously adopted.

Benevolent Fund Collections.

The PRESIDENT announced that Mr. T. R. Williams, the representative of a wholesale house, had interested himself and his friends in the Benevolent Fund, and had sent the Secretary £4 1s. 6d., as the result of a sixpenny collection made in the metropolitan district north of the Thames. They were much obliged to Mr. Williams, and hoped his example would be followed by others possessing similar opportunities of coming into association with registered persons. Ten guineas had also been received from the Committee of the Junior Pharmacy Ball, and £12 had been collected by Mr. Stamp, of Hampstead. The election of annuitants was coming on, and it was very desirable that funds should come in.

Benevolent Fund Committee.

The report of this Committee included a recommendation of grants to the amount of £145 in the following cases :—

The widow (64) of a chemist and druggist, who has had four previous grants; a sufferer from chronic rheumatism. (London.)

A life member (65) and subscriber to the Fund for twenty-one years; forty-five years in business. (Ipswich.)

The widow (69) of a founder and subscriber, who died in 1898.

The widow (66) of a chemist and druggist who has had a grant for several years past. (Crewe.)

The widow (39) of a registered chemist and druggist who died in August, leaving three young children unprovided for. (Kettering.)

A chemist and druggist (66) who was formerly an associate and prizeman. Unable to obtain employment owing to failing sight. (London.)

A former associate and subscriber (58) who suffers from epilepsy. (Horncastle.)

The widow (65) of a chemist and druggist, who has had several previous grants. (Auchterarder.)

A former chemist and druggist and subscriber (75), who is now entirely dependent on his relatives. (London.)

A registered chemist and druggist (67), and former subscriber, who has had several previous grants, and who is only able to do occasional work. (Shirley.)

One case was deferred for further information, and one was not entertained.

The VICE-PRESIDENT, in moving the adoption of the report, remarked that the list was rather a long one on the present occasion. A certain sum had been given to one gentleman on the condition that his friends also came to his assistance, and he was glad to report that this assistance had been rendered, thus placing the gentleman in question in fairly comfortable circumstances.

The report was unanimously received and adopted.

Library, Museum, School, and House Committee.

The report of this Committee stated that several donations to the Library and Museum had been received (see *P.J.*, November 11, p. 455), and the Committee had directed that the usual letters of thanks be sent to the respective donors. The Librarian had presented his usual report including the following particulars regarding attendance at the Library :—

Attendance.	Total.	Highest.	Lowest.	Average.
October	438	31	4	17

Circulation of Books.	Total.	Town.	Country.	Carriage Paid.
October	158	84	74	16s. 8½d.

The Committee recommended that the undermentioned books be purchased for the Library in London:—

Richter, Organic Chemistry, 3rd edition.
Thorpe, Quantitative Chemical Analysis, 12th edition.
Watson, Text-book of Physics, 1899.
United States Dispensatory, 18th edition.
Semmler, Tropische Agricultur.

The Curator's report had also been received and included the following particulars:—

Attendance.	Total.	Highest.	Lowest.	Average.
October	367	29	6	13

The report of the Committee also stated that the School staff had attended and reported. The sub-committee charged with the consideration of the modifications necessary after August, 1900, in the scholarships regulations, had submitted certain recommendations, which were adopted. It was recommended that the examinations for the Jacob Bell Scholarships and the Manchester Pharmaceutical Association Scholarships be held on the third Tuesday in June, in London, Edinburgh, and Manchester. The Committee did not see any sufficient grounds for acceding to an application which had been made to hold a first examination in Lerwick, having regard to the fact that examinations for leaving certificates under the Scotch Education Department are held all over Scotland. The consideration of the invitation to appoint representatives on a General Committee of the International Assembly in connection with the Paris Exposition of 1900, had been deferred for further information. A letter had been received from Dr. Ladenburg, announcing the receipt of the Hanbury medal.

The President moved the adoption of the report and recommendations, and that was at once agreed to.

Mr. Glyn-Jones asked whether the Committee had considered the suggestion he recently made, that members of the Council should be supplied with copies of the reports of committees. It was then pointed out that in many cases there would be a difficulty about it, as the Committees met just before the Council meeting, but he noticed that this Committee met on November 8.

The President pointed out that, in the report of this Committee last month, there was a paragraph pointing out why Mr. Glyn-Jones's suggestion was not practicable, and that report was adopted.

Additional Local Secretaries.

The following additional local secretaries were appointed:—

Aberdeen ..... Cruikshank, John
Dunfermline ..... Gilmour, David
Leigh (Lancashire) ..... Boardman, F. J.

The President said he wished to express the thanks of the Council to Mr. Strachan, who had been for many years the zealous local secretary for Aberdeen, for the very valuable assistance which he had rendered the Society while fulfilling that office.

Assistant Local Secretaries.

The following Assistant Local Secretaries were also appointed:—

Birmingham	North	Poole, Jeffrey
	Central	Jones, William
Dundee	Lochee	Russell, John W.
	Broughty Ferry	Park, William
Glasgow	North	Russell, James A.
		Riddell, James H.
	South	Dunlop, Thomas
Liverpool		Buck, Anthony S.
		Grace, Walter A.
		Walker, Francis
		Hudson, Thomas H.
		Thompson, C. J. S.
Nottingham	East	Rayson, J. T.
	West	Gill, W.
	Rushcliffe	Chambers, John W. P.

Correspondence.

The Secretary announced that an application had been received from Mr. L. N. J. B. Verdier, that his certificate from the Toulouse Academy (University of France) be accepted in lieu of the "First" examination. This application was referred to the Board of Examiners.

A letter had been received from M. Crinon, of the Association Générale des Pharmaciens de France, stating that the Ninth International Pharmaceutical Congress would be held in Paris.

Also a letter from M. Bocquillon Limousin, Treasurer of the Pelletier-Caventou Monument Fund, thanking the members of the Council for their subscription to the Fund.

Both letters were referred to the Law and Parliamentary Committee.

The Company Trading Problem.

The President said he had to report the receipt of a number of communications from local associations conveying resolutions on the subject of "company" trading. Memorials from several provincial districts had also been received on the same subject. The substance of nearly all those communications had already been made public, through the medium of the *Pharmaceutical Journal*, so that there was no occasion to read the actual documents received; but he thought the Council would like to obtain a general idea of the views expressed in them, and he had, therefore, had an epitome of the correspondence made, which he would ask the Secretary to read.

The Secretary then gave the following epitome of the correspondence:—

From Newcastle-on-Tyne.—The local Association, on November 8, passed a resolution expressing the conviction that the public interest required the personal qualification of responsible owner or owners of a pharmaceutical business. The meeting expressed a further opinion that *bonâ-fide* pharmacists should be able to conform to the foregoing principle without disadvantage to themselves.

From Dundee.—The Forfarshire and District Chemists' Association met on November 22 and passed three resolutions:—(*a*) Urging the insertion in the Companies Bill of a clause prohibiting the carrying on of a chemist's business by a company of unqualified persons; or, in the alternative, suggesting that the Society should block the Government Bill. (*b*) Suggesting that additions should now be made to the Poison Schedule. (*c*) Expressing the opinion that the Council should get dispensing in hospitals and doctors' surgeries put under the regulations of the Pharmacy Act.

From Burton-on-Trent.—A meeting of registered persons in the district was held on November 22, and arrived at the opinion that no company should be allowed to carry on the business of a chemist and druggist or use the titles. The meeting was also of opinion that chemists should be exempt from jury service.

From Leeds.—At a meeting of the Leeds Chemists' Association on November 23 a draft clause for insertion in the Companies Bill was adopted. The clause provides that no company shall carry on the business of a chemist and druggist or use titles unless its "controlling shareholders" are qualified.

From Preston.—At a meeting of the Chemists' Association, held on November 23, a resolution was passed in support of the recommendation of the Law and Parliamentary Committee, which was sent back by the Council on November 1 for reconsideration.

From Hanley.—The North Staffordshire Association met on November 23. Resolved that titles must be protected and selling of poisons by companies of unregistered persons stopped.

From Dover.—Conveying a resolution adopted by a special meeting of the local association expressing approval of the clause drafted by the Law and Parliamentary Committee.

From Grimsby.—Resolutions expressing the opinion that:—(*a*) Carbolic acid should be scheduled as a poison. (*b*) Doctors' dispensaries should be placed under the same poison regulations as chemists' shops.

From Bradford.—Resolution passed by the Bradford and District Chemists' Association on November 28 in favour of permitting the practice of pharmacy by companies if the directors or the managing-director be qualified, and each shop be under the direct control of a qualified assistant.

From Sheffield.—Resolution passed at an extraordinary meeting of the Sheffield Pharmaceutical and Chemical Society, held on November 29, expressing the opinion that it should be unlawful for companies to use titles, or to escape the liabilities imposed upon natural persons by Section 15 of the Pharmacy Act, 1868; and that no unregistered person should be permitted to exercise control in the retailing, dispensing, or compounding of poisons.

From Manchester.—A petition signed by 289 registered persons carrying on business in Manchester and the neighbourhood, urging the promotion of legislation to render it illegal for limited companies to use chemists' titles; and that any attempt to regulate company trading should be strenuously opposed. The petition is sent through the local secretary at Manchester, and the signatures have been obtained by the Manchester Pharmaceutical Association.

From Warrington.—A similar petition, signed by every chemist in business in Warrington.

From Linlithgow.—A petition, signed by all the chemists in the county, urging the Council to promote a clause for the purpose of protecting chemists' titles and prohibiting the keeping of "open shop" by companies of unregistered individuals.

From the Midland Pharmaceutical Association.—A resolution, passed on December 1, asking the Council to aim at the protection of titles, and the prohibition of practice by companies unless the business is under the sole control of qualified directors.

From the Leamington, Warwick, and Kenilworth Chemists' Association.—Demanding that the Council should secure:—(*a*) That in every sense the word "person" in the Pharmacy Act, 1868, should include "persons"; and (*b*) that the right of erasing from the Register the name of persons guilty of "covering" should be granted to the Society.

The Federation Suggestions.

The Secretary of the Federation of Local Pharmaceutical Associations had also sent a bundle of correspondence on the company question, as the result of the circular sent by the Federation on November 13 to all local associations. The correspondence had reached the Secretary too late for classification, but a rough analysis had been supplied by Mr. Cocks showing the trend of opinion throughout the country. Of the replies received, the voting was as follows:—(*a*) In favour of protecting both titles and practice, 50; (*b*) titles only, 11; (*c*) qualified directorate, 15; (*d*) qualified managing directorate, 3; (*e*) qualified manager, 4.

Mr. HILLS asked if there was any means of finding out whether the fifty bodies who had voted in favour of asking for protection both for titles and practice were in favour of the clause which was before the Council last month—*i.e.*, an absolute prohibition of all company trading in poisons, because he noticed that a certain proportion of the resolutions objected to companies, excepting those consisting of qualified persons?

The PRESIDENT said he did not know that the details asked for by Mr. Hills had yet been worked out, but he proposed to refer all these communications to the Law and Parliamentary Committee for consideration. That Committee had a very difficult task before it, and the views of the members of the pharmaceutical calling throughout Great Britain would afford valuable assistance, more especially when those views were the outcome of a careful and intelligent consideration of the question at issue. He was glad to find the local associations manifesting a praiseworthy interest in the important subject with which the Council had to deal, and that the manifestation had taken the practical form of sending to the Council the result of their discussions and their deliberations. But resolutions were sometimes easier to draft than to act upon, and he hoped he should not give rise to disappointment when he said that the Law and Parliamentary Committee was not at the present moment prepared to report on the matters referred to it. A certain course had been agreed to which it was not expedient to make public just now, but if any members of the Society should on that account be disposed to think that the Committee was desirous of shirking its difficulties, he might take that opportunity of stating most emphatically that there was not the slightest ground for any such suspicion. Speaking for himself, he should most certainly not concur in any course which would lead to a chronic condition of waiting. But, as his distinguished predecessor—Mr. Carteighe—had occasion to say sometimes, it was necessary to repose a certain amount of confidence in the Council, and it was not always desirable, from a political point of view, to let the world know what was going on in the committee-room. To adopt a military simile, the Law and Parliamentary Committee was now engaged in the very delicate work of conducting a "reconnaissance," and he thought he was only acting as a prudent general would in saying nothing as to the direction in which the operation was proceeding. He would, therefore, move that the communications received from various parts of Great Britain on the subject of company trading be referred to the Law and Parliamentary Committee.

Dr. SYMES said there were other matters referred to in some of those communications as well as company trading. For instance, it was suggested that the poison regulations existing in chemists' shops should be made compulsory in dispensaries.

The PRESIDENT said his intention was certainly to refer the whole of the communications to the Committee. He would add "etc." after the words "company trading" to make the matter clear.

The proposition was then agreed to unanimously.

Carbolic Acid.

Mr. STORRAR asked if any further communication had yet been received from the Privy Council on the carbolic acid question.

The PRESIDENT said not yet. He had been recently to the Privy Council Office, and was informed that the matter was still under consideration, the Privy Council being in communication with the Agricultural Department, which was going to report on what it considered to be necessary.

Mr. BATESON asked if more pressure could be brought to bear in the matter.

The PRESIDENT said it did seem peculiar that the Privy Council did not act more promptly, as fresh cases of poisoning by carbolic acid were constantly being reported in the Press.

General Purposes Committee.

The Council went into Committee to hear and discuss the part of the report of this Committee, which dealt only with legal business. On resuming, the report and recommendations were unanimously adopted, and special resolutions were passed authorising the Registrar to take proceedings against the persons named therein.

Suggested Alteration of Bye-Laws.

Mr. CARTEIGHE said the Council would remember that a month ago he suggested a minute dealing with the fees paid to examiners and kindred subjects. At that time he was under the impression that no alteration would be needed in the Bye-laws for some years, but on looking into the matter he found it would be necessary as soon as the altered conditions with regard to the Preliminary examination came into force, to repeal some of the ancient Bye-laws, and this would therefore have to be done in the course of next year. This would be a convenient time for making any changes which were desirable, and as it was a lengthy process, the Bye-laws having to be read three times by the Council and then submitted to a general meeting, it was well to begin in good time. There were certain Bye-laws to which their friends in the north took exception, which were made many years ago, and hardly suited the present conditions, and he personally should be very glad to look carefully into the matter and see if any improvement could be made. The object was not to get money out of candidates, but simply to keep things in order. He would therefore move that a sub-committee consisting of the President, Vice-President, Mr. Carteighe, and Mr. Hills, be appointed to consider and report to the General Purposes Committee what alterations are necessary or desirable in the Bye-laws.

The proposition was agreed to unanimously.

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THE COUNCIL MEETING.

Though the agenda for the meeting last Wednesday did not contain any mention of a report from the Law and Parliamentary Committee, there was a full attendance of members, Mr. Grose alone being absent, in consequence of sickness in his family. After the minutes of the previous meeting had been read and confirmed, Dr. Symes referred to the circumstance that the proposed Companies Act Amendment Bill would apply to Ireland as well as to Great Britain, and suggested that on that account the Pharmaceutical Society of Ireland might be invited to co-operate with the Council in any action that might be determined upon in regard to that Bill as it affects pharmacy. In reply the President said that most probably that would be done, but at present the Council was not in a position to do so.

Mention was made by the President of the recent death of Mr. Thomas Hodsol, of Islington, who had for many years acted as a divisional secretary and took great interest in the affairs of the Society.

The Secretary reported that the Privy Council has approved the appointment of examiners, made at the last meeting of Council.

Several appointments of superintendents and deputy superintendents of written examinations were made as stated at page .

The report and recommendations of the Finance Committee were adopted on the motion of the President, who remarked that the Society's financial position is rather better than it was last year.

The President announced that a sum of £4 1s. 6d. had been sent to the Benevolent Fund by Mr. T. R. Williams—who had collected small contributions in the Metropolitan district north of the Thames, while acting as the representative of a wholesale house, and thanks were expressed to him for the interest taken in the Fund;—also that another contribution of ten guineas has been received from the Committee of the Junior Pharmacy Ball, and that £12 has been collected by Mr. Stamp, of Hampstead.

On the recommendation of the Benevolent Fund Committee, ten grants, amounting to £145, were ordered to be paid. See page 560.

The report of the Library, etc., Committee, included recommendations as to modified regulations relating to the scholarship examinations that would be required after August, 1900, see page 561, and that there is no sufficient reason for holding a first examination at Lerwick; the consideration of an invitation to appoint representatives on a General Committee in connection with the Paris Exhibition of 1900 was deferred, and a letter had been received from Professor Ladenburg acknowledging receipt of the Hanbury Medal.

In reply to Mr. Glyn-Jones's inquiry whether his suggestion, that members of Council should be supplied with reports of the proceedings of committees, had been considered, the President said that the impracticability of carrying out that suggestion had been pointed out last month.

Several local secretaries and assistant local secretaries were appointed as stated at page 561, and the President expressed the thanks of the Council to Mr. Strachan for the valuable assistance he rendered during many years when he was local secretary for Aberdeen.

Among the correspondence was an application by Mr. Verdier that the certificate of the Toulouse Academy (University of France) should be accepted, in lieu of the first examination—from Mr. Crinon of the Association Générale des Pharmaciens de France, in reference to the Ninth International Congress proposed to be held in Paris next year—and a letter from Mr. Bocquillon Limousin, thanking the members of Council for subscriptions to the Pelletier-Coventou Fund.

The President then announced that a number of memorials and other communications relating to "company" trading had been received from local associations the substance of most of which has already been published and an epitome of the views expressed was read by the Secretary, see page 561, the result of which was that fifty associations were in favour of protecting both the title of chemist and druggist, and the right of qualified persons to practise. Eleven were in favour of protecting the title only; fifteen approved of a qualified directorate, three of a qualified managing director, and four of a qualified manager, showing a very considerable majority (fifty) in favour of fully maintaining the principle and provisions of the Pharmacy Act as compared with those (thirty-three) who are disposed, in some degree, to recognise "company pharmacy" as admissible.

In reply to Mr. Hills' inquiry whether the fifty associations in favour of protecting both titles and practice, supported the resolution that was before the Council last month, involving absolute prohibition of "company pharmacy" or whether they refer only to companies consisting of unqualified persons, the President said he did not know whether that point had been ascertained, but he wished all these communications to be referred to the Law and Parliamentary Committee for consideration, The President added that expression of the views of members of the pharmaceutical calling throughout the country would much assist the Committee in its difficult task, and expressed his approval of the practical form in which the results of their deliberations were being sent to the Council.

Though at present the Committee was not in a position to report upon the subject, he hoped that would not give rise to disappointment, and desired to take that opportunity of stating most emphatically that the Committee would not shirk, and that he would not concur in any course leading to a chronic state of waiting. But some confidence must be placed in the Council and in himself as acting like a prudent general. Dr. SYMES mentioned that the application of poison regulations in dispensaries and other matters were referred to in the communications as well as "company pharmacy," and the PRESIDENT replied that the whole of them would be considered.

In reply to Mr. STORRAR'S inquiry whether a further communication had been received from the Privy Council Office as to carbolic acid, the PRESIDENT said that he had been informed the matter was still under consideration, and that the Privy Council is communicating with the Agricultural Department, from which a report as to what was considered necessary might be expected.

In reply to Mr. BATESON'S inquiry whether pressure could not be brought to bear, the PRESIDENT said the hesitation of the Privy Council seemed peculiar in face of the circumstances that cases of poisoning by carbolic acid are so constantly occurring.

Mr. CARTEIGHE, referring to a former suggestion, said that at the time he was under the impression no alteration of the Bye-laws was necessary, but on looking into the matter he found that when the altered conditions in regard to the preliminary examination came into operation, some of the Bye-laws would have to be repealed. That would be a convenient opportunity for any desirable changes, and as there were certain Bye-laws made many years ago to which exception was taken by their friends in the North, as being scarcely adapted to present conditions, the matter might be carefully considered with a view to possible improvement. The object of the Society was not to get money out of candidates, but to keep order. He moved that the matter be considered by a sub-committee consisting of the PRESIDENT, VICE-PRESIDENT, Mr. CARTEIGHE, and Mr. HILLS, which would report to the General Purposes Committee, and a resolution was passed to that effect. After the legal report of the General Purposes Committee had been discussed, a resolution was passed authorising the Registrar to take proceedings in various cases.

PERSON AND PERSONS.

AMONG the misconceptions prevailing as to the Pharmacy Act, 1868, even with persons who might be expected to be better informed, is the supposition that the judicial difficulty experienced in 1880 as to the meaning of the Pharmacy Act was due to the singular form of the word "person" having been used in the Act instead of the plural form. That, however, is entirely a mistaken view, and if the word "persons" had been used in the Act the present position in regard to companies would not have been any different from what it is. The conclusion that a corporation or a company—which must for the purpose of limited liability consist of at least seven persons—is to be regarded as outside the provisions of the Pharmacy Act was not arrived at by the Law Lords because a company consists of more than one individual, but because a company or corporation is, from the legal point of view, an entity or ideal person. The reason for regarding such a person outside the Pharmacy Act was not that it consists of seven or more persons, but the fact that it is not a "person" that could conform to the requirement of being examined in order to be qualified or to satisfy any of the requirements of the Pharmacy Act in respect to the registration of persons who were carrying on the business of chemists and druggists before the passing of the Act in 1868. To the capacity of ordinary common sense, those circumstances have appeared to be sufficient proof that the Pharmacy Act was intended to apply to individuals, in the sense that individuals only are, or can be, capable of the qualification required by the Act for certain purposes, while that corporations, or companies, being as persons, incapable of that qualification are, therefore, subject to the prohibitory provisions of the Act because they are not qualified or qualifiable persons. The Law Lords on the contrary took the view that the word "person" in the Act is used in such a way that it does not "include" ideal persons, companies, or multiple individuals: consequently that such persons are free to do anything and everything that the Pharmacy Act prohibits an individual from doing. Lord Chief Justice COCKBURN was the only judge who decidedly objected to that view, as being contrary to a common-sense consideration of the intention and policy of the Pharmacy Act; but all the other judges who took a different view also admitted being under very great difficulty as to the view that should be taken, and they all agreed in declaring their inability to comprehend what really is the meaning of the Act. The essentially individual nature of the qualification required by the Pharmacy Act—in the case of persons selling poisons, or keeping open shop for that purpose, and for dispensing or compounding medicines containing poisons within the meaning of the Act—should have served to demonstrate that the object of the Act would be defeated if the word "person" was not made to apply to the legal entity constituted by the incorporation of several persons as a joint-stock or limited liability company. But the circumstances of the particular case to which the trial related were of a nature to divert attention from that consideration. The fact that the chemist's shop carried on by the company had been bodily bought up, together with its legally qualified keeper, as a going concern, contributed plausible support to the contention that, so far as the interests of the public were concerned, there was no difference between the business carried on by the company with the former legally qualified keeper of the shop, acting in the capacity of manager to the company, and that which had been carried on by the same person before the company acquired the business. But whatever plausibility there may appear to be in that argument, so far as the public interest is concerned, it has no kind of weight in answer to the claim that the privileges acquired by registered chemists through legally prescribed qualification, have also to be considered as a matter of justice.

ANNOTATIONS.

"Preparation" is a term which appears to have a strangely confusing effect upon the minds of those who are not familiar with its application in a pharmaceutical sense to the form in which a medicinal agent is made suitable for administration. In that sense a calomel pill is a preparation of calomel, and the calomel contained in the pill may form only a small fraction of its weight or bulk. That is the sense in which the term "preparation" is chiefly employed in the Poison Schedule of the Pharmacy Act. The only exception is in the case of vermin killers, some of which are with less propriety referred to as "preparations" of poisons in one or other part of the schedule. In both cases a "preparation" is little else than a mixture of a particular article with other materials chosen to suit the purpose to which it is to be applied, and just as a mixture of some strychnine with meal and fat, etc., suitably put together for killing rats, may be called a preparation of strychnine, so the mixture of nicotine, alcohol, and camphor, in question at the Mansion House last week, may be termed a preparation of nicotine, though it is not intended for medicinal use. Tobacco, however, is not a preparation of nicotine, though it contains nicotine. Neither is opium a preparation of morphine, both being natural products and not artificial mixtures: opium is a poison within the meaning of the Pharmacy Act, while tobacco is not. But a mixture of alcohol and camphor with 35 per cent. of nicotine, undoubtedly comes under the head of preparations that are poisons within the meaning of the Pharmacy Act, and the sale of such a mixture is a sale of nicotine, just as the sale of a soothing syrup containing morphine has been held to be a sale of morphine.

The Reports of Association and other meetings called to discuss the company pharmacy problem are this week more numerous than ever, and it has, therefore, been found necessary to curtail them within the barest limits. It may be as well to point out that on occasions like the present, when the object in view is simply to gauge the feelings of registered chemists, all that is necessary is to report the result of the various discussions. Any facts that can be quoted or arguments advanced in connection with the company pharmacy problem, have been quoted and advanced again and again during the past twenty years; it is vain, therefore, to occupy valuable space every week by printing speeches in which such repetitions occur. That is to say, unless good reason can be shown for so doing. No such reason presents itself in connection with any of the reports which have been abridged this week, and they have, therefore, been dealt with as briefly as possible. In this connection, also, it seems desirable to direct the attention of the responsible officers of associations to the fact that they are the proper persons to decide what portion of the associations' proceedings is most suitable for publication. Official reports of pharmaceutico-political matters are, in every way, more satisfactory than those prepared by non-technical reporters—the essential points stand out more clearly as a rule, the risk of error is much less, and there is not the same temptation to make the reports unduly long. Moreover, other things being equal, an editor is more likely to publish an official report of a meeting without condensing it, than a report by a professional reporter who may be interested in making the most of his opportunities. Secretaries of associations, therefore, are advised, as far as possible, to prepare their own reports of meetings for publication.

The Federation of Local Pharmaceutical Associations has scored heavily in connection with the attempt of its chairman and secretary to secure a consensus of pharmaceutical opinion, which should serve as a useful foundation upon which to base any proposals to influence legislation. There appear to be some fifty-seven local associations in existence at the present time and, of those, thirty-six (see page 568) have, so far, recorded their views. In addition, the registered chemists of thirty-five towns and districts, where associations do not exist, have also been induced to express definite opinions. Altogether, seventy-one towns and districts are thus represented and it is significant that, in every instance but two, there is agreement upon the point that the assumption and use of chemists' titles should be restricted to individuals registered under the Pharmacy Acts. The two exceptions are the Chester Chemists' Association and the chemists of Abingdon; neither of those bodies appears to have considered it necessary to express any opinion regarding the question of titles. Fifty-one towns and districts have declared against companies of unregistered persons being permitted to retail, dispense, or compound poisons. Of the twenty-eight which have expressed the opinion that the directors of any companies formed to carry on the business of a chemist and druggist should be registered individuals, eleven only agree to that course as an alternative to the prohibition of the dispensing and sale of scheduled poisons by companies of unqualified persons. That is to say, the chemists of only seventeen towns lack confidence in the justice of their cause and have voted absolutely for the recognition and regulation of companies. But even those seventeen are firm on the question of restricting the use of titles, and an important minority in each case would prefer to support the rest of the country in its policy of "no surrender." The reports of other meetings may shortly be expected and, before long, it will doubtless be possible to record the views of the chemists of Great Britain as a whole, on the subject of company pharmacy.

The Pharmaceutical Society's second evening meeting in London, for the present session, will be held at 17, Bloomsbury Square, W.C., on Tuesday next, the 12th inst., the President in the chair. A lecture will be delivered on this occasion by Professor J. Millar Thomson, F.R.S., one of the Society's Examiners, who will take as his subject "Some Relations of Water to Other Substances." The lecture will be illustrated by experiments, and the chair will be taken at eight o'clock precisely.

The Pharmacopœia Committee has reported to the General Medical Council that up to the present date, 28,500 copies of the British Pharmacopœia of 1898 have been printed, and of those 27,613 copies have been disposed of; it has therefore become necessary for a further issue of 3,000 copies to be authorised. The Committee notes with satisfaction that the expenses incurred in the preparation of the Pharmacopœia have been more than met. A Conference has been held between the members of the Sub-Committee and the representatives of the Pharmaceutical Societies of Great Britain and Ireland, and on the recommendation of the Joint Committee a number of debatable points have been referred to experts for further investigation and report. With the view to the more speedy production of the Indian and Colonial Addendum, the Pharmacopœia Committee has deemed it advisable to discontinue for the present the preparation of the annual reports on the progress of pharmacy. A detailed Report on the Indian and Colonial Addendum has been presented by the Editor, Dr. John Attfield, and is printed at page 554 *et eq.* Fifty-three of the seventy British Administrations of India and the Colonies have already communicated their views to the Medical Council. The Committee expresses cordial thanks to those who have thus contributed much valuable assistance, and notes with gratification that in many Colonies the British Pharmacopœia in its present form has completely satisfied all requirements.

"OBSERVER'S" QUOTATION from Lord Selborne's judgment is quite correct so far as it goes; but it does not sustain his assertions, although detached from its context. Our correspondent overlooks the fact that the opinion it conveys was formed by Lord Selborne only as a means of escape from a difficulty which his Lordship recognised as a serious one. Our correspondent also overlooks the fact that this opinion was arrived at by Lord Selborne mainly from the consideration that there is in the Act a provision for a special case in which unqualified individuals might carry on the business of a deceased chemist and druggist. He also overlooks the fact that Lord Selborne was under the impression that there is no difference between such conduct of a business and the carrying on of a chemist's business by a company of unqualified persons. Lord Blackburn's dictum relating to the sharing of profits derived from vending poisons or poisonous drugs is not very sagacious, to say the least; neither is it in any way germane to the paramount question as to the necessity for a vendor of poisons being qualified; his Lordship's further dictum as to nobody else than a qualified person intermeddling with that trade (as he calls it) is contrary to the manifest intention of the Act that nobody but a qualified person should sell poison, while the conclusion that there is not anything in the context or in the object of the Act to show that the word "person" should apply to a "person" constituted of several unqualified individuals, is manifestly opposed to the purport of the provision that it shall be unlawful for "any person" to sell poison, etc., unless qualified within the meaning of the Act. The present contention is that the judge-made law, which now operates as a legal precedent exempting a company of unqualified persons from the provisions of the Pharmacy Act, is founded upon error, though it is binding as a legal precedent, and therefore requires to be reversed for both reasons. The question as to whether the Act contains the principle of qualified ownership, and the question as to whether the object or policy of the Act requires that it should, were neither of them decided by the House of Lords' judgment, which went no further than to declare that it was "impossible to infer" that a larger construction should be put upon the word "person": moreover that decision applies to the circumstances of the particular case before the court and only so far as the general question at issue was considered and understood.

THE "SETTLED LAW" as to "qualified ownership," referred to by "Observer" as being the outcome of the House of Lords decision, is that—notwithstanding the provisions of the Pharmacy Act—a company is a "person" that may keep open shop for retailing, dispensing, or compounding poisons. That such a foundation for procedure to remedy the evil registered chemists have so long suffered from, has not the necessary coherence with common sense to be relied upon, has been clearly perceived by the Lord Chancellor. Moreover, when it is considered that the recognition of a company, as a "person"—above the law—opens the door for any unqualified individual to evade the Pharmacy Act by means of the bogus or one-man application of company machinery, the continued endeavour, in some quarters, to justify the usurpation of registered chemists' privileges by "company pharmacy" appears to cohere with common sense as little as the idea of a company carrying on practice that requires individual qualification by examination.

THE EVILS OF THE ONE-MAN COMPANY SYSTEM were referred to in severe terms by Lord Russell, in summing up a case a few days ago. An undischarged bankrupt had constituted himself a company, and had thus been able to obtain large credit. Referring to the matter, Lord Russell said that for a man who was an undischarged bankrupt to be able to get together the necessary number of dummies and form a company under the protection of the law was a scandal, and how long such a scandal would be allowed to continue he did not know. If a man, being an undischarged bankrupt, obtained credit to the amount of twenty pounds without revealing that fact, he was guilty of an offence, and yet seven undischarged bankrupts could clothe themselves with an Act of Parliament and obtain credit, not merely for a few pounds, but for thousands, without committing an offence.

THE PREVENTION OF TUBERCULOSIS was the subject of a suggestive address by Sir Richard Thorne Thorne, chief medical officer of the Local Government Board, last week. He said that the difficulty of successfully dealing with the terrible scourge of consumption was intensified by the serious housing problem, which was presenting itself in our great cities. If people could only be made to realise that it was a necessity to health for them to live amid open surroundings, the death-rate from tuberculosis would steadily decrease. The millions which were yearly spent on the treatment of zymotic diseases would be far better employed in opening up the towns, and thus stamping out the causes of the evil which doctors could only relieve and modify. Another step which would appreciably lower the number of deaths from tubercular affections was the proper supervision of the growth and preparation of various articles of diet. Milk was one of the most dangerous of all foods, for probably some ninety per cent. of our milch cows were tubercular. In a herd of forty selected beasts belonging to the Queen, thirty-four were thus diseased. Such a state of things was most dangerous to the health of the community, for the bacilli were too minute to be readily detected, and passed with ease through the udder of the cow into the milk-pail, and thus into the human organism. Still another means of reform was to be found in a systematic drainage of the subsoil. If that were carried out, and the other matters to which he had referred were duly attended to, Sir Richard thought it would speedily be seen that consumption did not run in families, although it certainly did run in houses.

"PHARMACY MADE EASY" is the heading of a column in a New York paper, which dissects the claim of a "self-styled Brooklyn professor" to be able to fit pupils to pass the pharmaceutical examinations within three months. The legal requirements in New York State include four years' practical experience, but young men "anxious to ameliorate their present material and intellectual condition," though "so situated as to be unable to secure a higher education through the ordinary channels of public or private institutions of learning," are informed that they can be prepared for the position of licensed pharmacist in the short time mentioned. The "professor," as an inducement, states in his typewritten letters that there is hardly any trade or profession which offers to "an ambitious yet poor young man" a better opportunity than the profession of pharmacy "to reach a higher social plane." Judging from that statement, we must assume that pharmacy in New York promises to become what the clerical profession has been held to be in England—a short cut to gentility. But, to return to the main subject, the "ambitious yet poor young man" is told that he can be prepared for the position of licensed pharmacist, entitling him to a salary of twelve dollars to twenty-five dollars a week, without interfering with his present business position, and for a tuition fee of only fifty dollars, payable in instalments. The result, foreshadowed in glowing terms, is that youthful ambition is to be rewarded, within a few short years or even months, by the happy ownership of a prosperous drug-store, thus reaching "the goal of financial independence which so many are vainly striving to reach in other professions." The name of the "professor" does not appear on the list of graduates of the New York College of Pharmacy, and the President of the New York Board of Pharmacy characterises the whole affair as a "most impudent fraud."

THE SUBJECT OF UNQUALIFIED DISPENSERS came up for consideration at the meeting of the General Medical Council on Tuesday. Mr. Teale brought up a report from the Committee which had been appointed to deal with the matter, after the receipt of certain

communications relative to unqualified dispensers forwarded by the Privy Council. In that report it was stated that two bodies possessed a certain amount of authority in the examination and certification of dispensers—the Pharmaceutical Society and the Society of Apothecaries. Having carefully considered the whole matter, the Committee believed that the transition from the small amount of dispensing which a medical man could without difficulty perform himself, to the larger amount requiring the services of a special dispenser, was so gradual that it would be impossible to draw a line and say at what point a qualified person became indispensable. In those circumstances the Committee did not see its way to recommend any course to be taken by the Council at the present time in reference to this question, but it endorsed the reply sent by the Executive Committee to the Privy Council:—"That, while they fear that occasional accidents may arise from the employment by qualified medical practitioners of careless or incompetent dispensers, the cases, in their opinion, are very rare, and it appears to the Committee that probably the best protection is afforded to the public by the responsibility of the practitioner for the acts or defaults of the servants whom he employs." The report of the Committee was received and entered on the minutes, and as the complaint giving rise to the report came from the Privy Council and had formed the subject of several questions in Parliament, it was resolved to forward a copy to her Majesty's Government.

Pharmacy in the Isle of Man is to be placed in the same position as in Great Britain and Ireland, the Manx Legislative Council having passed a Pharmacy Bill, based on the British and Irish Pharmacy Acts, which recognises the right of all persons registered under those Acts to practise pharmacy in the island. The full text of the Bill—which has been kindly furnished to us by the Manx Attorney-General, Mr. G. A. Ring—is given at page 557 *et seq.* It is interesting to note that it is thought expedient for the safety of the Manx public that the compounding of medical prescriptions, as well as the retailing of poisons, should be restricted to duly qualified persons—*i.e.*, (1) pharmaceutical chemists or chemists and druggists registered under the provisions of the Pharmacy Acts of Great Britain or Ireland; (2) persons who have carried on the business of a chemist and druggist in the Isle of Man, prior to July 5 last; (3) persons who have been engaged as assistant to any person carrying on the business of a chemist and druggist for certain specified periods; and (4) persons who are qualified to act as assistant to an apothecary. It is not proposed to institute examinations or to establish a special Register of qualified persons for the island; carbolic acid is not included is the schedule of poisons; and nothing appears in the Bill which would have the effect of prohibiting corporate bodies from using pharmaceutical titles or carrying on the business of a chemist and druggist.

The Reply to Mr. Glyn-Jones contributed this week by Mr. Fielding (see p. 550) is brief, but will probably be convincing to all who are not disposed to accede to the proposition that the Pharmacy Acts should virtually be repealed in the interests of unqualified individuals who happen to possess control over a certain amount of capital. Mr. Fielding's position is that the Council of the Pharmaceutical Society—as representing all registered persons, as well as members of the Society—should insist upon the inability of companies to fulfil the professional duties of pharmacy and upon the necessity of prohibiting such bodies from dispensing or compounding medicines or from selling scheduled poisons. That is a consistent position to occupy, and Mr. Fielding is fully justified in protesting against the tendency to become inconsistent because absolute consistency is not always possible. The object of British pharmacists should be to remove as many as possible of the inconsistencies which pervade the law affecting their profession, not to seek to import more into it. If, therefore, our law-makers seem disposed to allow registration under the Companies Acts to continue to be a short cut to registration under the Pharmacy Acts, the sooner we revert to absolute consistency and ask for the repeal of the Pharmacy Act of 1868 the better.

BRITISH PHARMACEUTICAL CONFERENCE.

A general representative meeting of London pharmacists interested in the forthcoming meeting of the British Pharmaceutical Conference was held in the Council Room of the Pharmaceutical Society, 17, Bloomsbury Square, W.C., on Wednesday, December 6, at three o'clock. The President of the Pharmaceutical Society (Mr. W. Martindale) was voted to the chair.

The minutes of a previous preliminary meeting having been read by the Hon. Secretary (Mr. H. Cracknell), his colleague, Mr. W. Warren, read a number of communications from gentlemen unable to be present, and announced that the following had promised subscriptions to the Entertainment Fund.—Messrs. W. G. Allen, Elias Bremridge, H. Collier, A. W. Gerrard, W. Harvey, Idris and Co. Limited, T. H. W. Idris, F. H. Lescher, Theophilus Nicholls, R. A. Robinson, and C. Umney. He also mentioned that Mr. Idris, on behalf of his firm, offered the Conference facilities for viewing the firm's aërated water factory at Camden Town, providing refreshments, and also carriages to convey the members of the Conference to and from the works.

The Treasurer (Mr. J. H. Mathews) also announced that he had received promises of subscriptions amounting to about £30, but some of the items were included in the list mentioned by Mr. Warren.

The Chairman said the next business was to suggest the date of the Conference meeting, and he asked that it might be fixed so as not to clash with the July examinations and with the August Council meeting.

Several suggestions were made, and it was finally resolved, on the motion of Mr. M. Carteighe, seconded by Mr. E. N. Butt:—

That it be recommended to the Secretary of the Conference that the meeting should be arranged to take place as from July 24, 1900, the reception to be held on the previous evening, July 23.

A question was raised as to whether it had been decided to hold the Sessions of Conference in the Pharmaceutical Society's house.

The Chairman explained that it was so decided at Plymouth, when the Conference accepted the invitation to hold its next meeting in London.

Appointment of General Local Committee.

The following gentlemen were then appointed as the General Local Committee, with power to add to their number:—Messrs. C. B. Allen, W. C. Allen, Arkinstall, Leo Atkinson, Dr. J. Attfield, P. C. Baker, F. Bascombe, I. Bourdas, J. W. Bowen, Elias Bremridge, R. Bremridge, E. N. Butt, M. Carteighe, H. Collier, A. J. B. Cooper, H. Cracknell, A. W. Gerrard, W. S. Glyn-Jones, Goldby, Professor H. G. Greenish, W. Gulliver, C. Hanbury, A. W. Hanson, J. F. Harrington, W. Harvey, W. Hills, E. M. Holmes, D. L. Howard, M. Howell, J. Humphrey, J. C. Hyslop, T. H. W. Idris, G. Knight, F. H. Lescher, Peter MacEwan, W. Martindale, J. H. Mathews, J. E. Langford Moore, W. A. H. Naylor, Theo. Nicholls, R. H. Parker, A. J. Phillips, F. Ransom, R. A. Robinson, W. P. Robinson, G. S. Taylor, C. Umney, J. C. Umney, J. S. Ward, W. Warren, E. A. Webb, Edmund White, and A. Wigginton.

Mr. Carteighe moved that the President of the Pharmaceutical Society (Mr. W. Martindale) be elected Chairman of the General Committee. This was seconded and carried. Mr. F H. Harrington, President of the Western Chemists' Association, was elected Vice-Chairman.

The meeting then resolved itself into committee, and the following were appointed as the

Executive Committee:—

Messrs. R. Bremridge, M. Carteighe, H. Cracknell, J. F. Harrington, W. Martindale, J. H. Mathews, J. C. Umney, and W. Warren.

Mr. W. A. H. Naylor (Secretary of the Conference) pointed out that all gentlemen who wish to join the General Committee should become members of the Conference It was also pointed out that individual subscriptions to the Entertainment Fund are not actually limited to two guineas, but that smaller amounts would be welcomed.

THE COMPANY PHARMACY PROBLEM.

DURING the past two months the company pharmacy problem has been discussed by most of the local pharmaceutical associations throughout Great Britain and, through the agency of the Federation of Local Pharmaceutical Associations, meetings of chemists have also been called to discuss the matter in several towns where associations do not at present exist—Burton-on-Trent, Darwen, Motherwell, Norwich, Reading, Ripon, Rochdale, Rothesay, Shipley, Stalybridge, Weston-super-Mare. In other towns the local secretaries of the Pharmaceutical Society have ascertained the views of the local chemists by means of a personal canvass, or by letters addressed to each chemist individually.

Restriction of Titles to Individuals.

The following thirty-five associations are agreed with regard to the necessity of restricting the assumption and use of chemists' titles to individuals registered under the Pharmacy Acts :—

Birkenhead Pharmaceutical Association.
Bradford and District Chemists' Association.
Bristol Pharmaceutical Association.
Burnley and District Chemists' Association.
Bury Chemists' Association.
Cambridge Pharmaceutical Association.
Colchester Chemists' Association.
Derby and District Chemists' Association.
Dewsbury and District Chemists' Association.
Dover Chemists' Association.
Edinburgh District Chemists' Trade Association.
Falkirk and East Stirlingshire Chemists' Association.
Forfarshire and District Chemists' Association.
Great Yarmouth Chemists' Association.
Grimsby and District Chemists' and Druggists' Association.
Halifax and District Chemists' Association.
Inverness Chemists' Association.
Leamington, Warwick and Kenilworth Chemists' Association.
Lincoln Chemists' Association.
Manchester Pharmaceutical Association.
Midland Pharmaceutical Association.
Newcastle-on-Tyne and District Chemists' Association.
North-East Lancashire Chemists' Association.
North Staffordshire Chemists' and Druggists' Association.
Nottingham and Notts. Chemists' Association.
Plymouth, Devonport, Stonehouse and District Chemists' Association.
Preston Chemists' Association.
Scarborough Chemists' Association.
Sheffield Pharmaceutical and Chemical Society.
Spalding Chemists' Association.
Swansea and District Chemists' and Druggists' Association.
Tunbridge Wells and District Chemists' Association.
Wolverhampton Pharmaceutical Association.
Workington Chemists' and Druggists' Association.
Wrexham and District Chemists' Association.

The registered chemists of the following thirty-four towns and districts appear to be virtually agreed upon the same point :—

Belper.
Blackpool.
Bridlington Quay.
Burton-on-Trent.
Canterbury.
Carlisle.
Dartford.
Darwen.
Dudley.
Ely.
Galashiels.
Harwich.
Hertford.
Hitchin.
Ilkley.
Keith.
Kingston-on-Thames.
Lewes.
Lichfield.
Linlithgow County,
Motherwell.
Norwich.
Reading.
Ripon.
Rochdale.
Rothesay.
Salisbury.
Shipley.
Stalybridge.
Stockport.
Streatham.
Swindon.
Tewkesbury.
Weston-super-Mare.

Prohibition of Dispensing, etc., by Companies.

The following twenty-five associations have expressly declared that the retailing, dispensing, or compounding of scheduled poisons by companies of unregistered persons should be prohibited :—

Birkenhead.
Bristol.
Cambridge.
Dewsbury.
Dover.
Falkirk.
Forfarshire.
Grimsby.
Halifax.
Inverness.
Leamington.
Manchester.
Newcastle-on-Tyne.
North-East Lancashire.
North Staffordshire.
Nottingham.
Plymouth.
Preston.
Scarborough.
Sheffield.
Swansea.
Tunbridge Wells.
Wolverhampton.
Workington.
Wrexham.

The registered chemists of the following twenty-six towns and districts have expressed the same opinion :—

Blackpool.
Bridlington Quay.
Burton-on-Trent.
Canterbury.
Carlisle.
Darwen.
Dudley.
Ely.
Galashiels.
Harwich.
Hertford.
Keith.
Kingston-on-Thames.
Lewes.
Lichfield.
Linlithgow County.
Motherwell.
Reading.
Ripon.
Rochdale.
Rothesay.
Salisbury.
Stalybridge.
Streatham.
Swindon.
Tewkesbury.

The Cambridge, Dover, North-East Lancashire, Preston, and Swansea Chemists' Associations would prohibit the retailing, dispensing, or compounding of poisons by all companies, whether consisting of registered persons or not. So would the chemists of Darwen and Reading, whilst the North Staffordshire Chemists' and Druggists' Association and the Grimsby Association would entirely prohibit the practice of pharmacy by companies of unregistered persons.

Registered Persons as Directors and Managers.

The following twelve associations are of opinion that the directors or managers of any companies formed to carry on the business of a chemist and druggist should be registered persons. The associations indicated by an asterisk (*) have also given expression to the view that companies of unregistered persons should not be permitted to retail, dispense, or compound scheduled poisons :—

Bradford.
Burnley.
Chester.
Colchester.
Derby.
Edinburgh.
*Falkirk.
Great Yarmouth.
*Halifax.
Lincoln.
Midland.
Spalding.

The registered chemists of the following sixteen towns and districts have expressed the same opinions as the associations in the foregoing list. The asterisk has the same significance here as in the former case :—

Abingdon.
Belper.
*Canterbury.
Dartford.
*Dudley.
*Galashiels.
*Harwich.
Hitchin.
Ilkley.
*Lichfield.
Norwich.
*Rothesay.
Shipley.
*Stalybridge.
*Swindon.
*Tewkesbury.

The Bradford, Colchester, Derby, and Edinburgh Associations stipulate, in addition, that each shop should be in charge of a registered chemist, as also do the registered chemists of Dartford, Harwich, Ilkley, Norwich, Rothesay, Stalybridge, and Swindon.

Associations that have not yet Decided.

The following twenty-one Associations do not appear to have passed any resolutions on the subject recently:—

Aberdeen and North of Scotland Society of Chemists and Druggists.
Bolton Pharmaceutical Association.
Bournemouth and District Pharmaceutical Association.
Brighton Association of Pharmacy.
Dumfries and Maxwelltown Chemists' Association.
East Aberdeenshire Chemists' Association.
Exeter Association of Chemists' and Druggists.
Glasgow and West of Scotland Pharmaceutical Association.
Hastings and St. Leonards Chemists' Association.
Hull Chemists' Association.
Leeds Chemists' Association.
Leicester Chemists' Social Union.
Liverpool Chemists' Association.
Newport and Monmouthshire Chemists' Association.
Northwich Chemists' Association.
Oxford Chemists' Association.
Southampton Chemists' Association.
Streatham and District Chemists' Association.
Sunderland Chemists' Association.
Western Chemists' Association (of London).
Windsor and District Chemists' Association.

The results of some meetings, however, have not yet been received, and other meetings are yet to be held.

THE FEDERATION SUGGESTIONS.

It will be remembered that, about a month ago, a circular letter, containing certain suggestions for discussion, was sent—by the Executive Committee of the Federation of Local Pharmaceutical Associations—to all secretaries of local associations and to all local secretaries of the Pharmaceutical Society. The five suggestions, each of which had previously received some measure of support, were proposals:—

1. To protect chemists' titles and make it illegal for companies of unregistered persons to keep open shop for selling poisons as in the case of individuals.
2. To apply for protection of titles only.
3. That all the directors of a company shall be qualified.
4. That the managing director only need be qualified.
5. That a company shall be allowed to carry on the business with a qualified manager or assistant, who shall be registered for the purpose, and whose name shall appear in connection with the business.

Seventy-five replies have been received by the Hon. Secretary of the Federation, and sent on by him to the Council of the Pharmaceutical Society. According to Mr. Cocks' analysis of those replies, the chemists of fifty towns have voted for the first course, eleven for the second, fifteen for the third, three for the fourth, and four for the fifth. Seven meetings voted for the first and third courses, a proceeding which probably means that, in the opinion of those present, if companies of unregistered persons cannot be prevented from keeping open shop for the sale of poisons, they should at least be compelled to have registered chemists as directors. The chemists of one town, absurdly enough, express approval of the first, second, fourth, and fifth suggestions, and say they would also support the third if they thought there was any prospect of Parliament falling in with it. The replies received from the chemists of seven towns indicate that they did not arrive at any decision.

TUNBRIDGE WELLS AND DISTRICT CHEMISTS' ASSOCIATION.

At a meeting of this Association held on November 30, it was moved by Mr. A. NICHOLSON, seconded by Mr. OGLE, and carried *nem. con.*

That this meeting, in view of the fact that in 1868 Parliament deemed it necessary for the protection of the public health that chemists should pass a qualifying examination previous to registration, considers it most desirable in the public interest and in justice to qualified chemists, that the titles of chemists should be protected (as in the case of the legal, medical, and other professions), and that it should be made illegal for companies of unregistered persons to keep open shop for the selling of poisons and dispensing prescriptions; and that the above resolution be forwarded to the Council of the Pharmaceutical Society.

BURY CHEMISTS' ASSOCIATION.

At a meeting of this Association held on November 22, it was decided:—

That chemists' titles should be protected and that the Pharmaceutical Council be requested to use its best endeavours to get a clause to that effect inserted in the Companies Bill.

It was also the opinion of the meeting that "cash chemists," "drug stores," and similar titles should be covered by the clause.

CAMBRIDGE PHARMACEUTICAL ASSOCIATION.

A meeting of the above Association was held at the Bull Hotel, Cambridge, on December 1, Alderman DECK in the chair, for the purpose of discussing the company pharmacy problem. Mr. A. SIDNEY CAMPKIN, J.P., opened the discussion, and concluded his speech by moving a resolution urging:—

That chemists' titles should be protected, and that, as in the case of individuals, it be made illegal for companies of unregistered persons to keep open shop for the sale of poisons.

Mr. H. F. COOK seconded the proposition, which was agreed to, *nem. con.*

CHESTER CHEMISTS' ASSOCIATION.

At a meeting of this Association held on November 29, it was resolved:—

That in the opinion of this meeting no action will meet the requirements of the Pharmacy Act which does not provide that directors of companies shall be qualified chemists, as is required of individuals under Section 15.

DOVER CHEMISTS' ASSOCIATION.

On November 23, at the meeting of this Association, it was unanimously resolved, on the motion of Mr. W. J. BARNES, seconded by Mr. ED. THOMPSON:—

That the clause as drafted by the Law and Parliamentary Committee of the Pharmaceutical Society receives the approval and support of this meeting.

FALKIRK AND EAST STIRLINGSHIRE CHEMISTS' ASSOCIATION.

At a meeting of this Association, held on November 29, it was resolved:—

That chemists' titles should be protected, and that it should be made illegal for companies of unregistered persons to keep open shop for selling poisons.

In the event of the Legislature not agreeing to the foregoing view, it was considered that any company carrying on the business of a chemist and druggist should have on a directorate of seven not less than two qualified chemists, or a proportion of one-third qualified if the directorate was not made up of that number, and in all cases the managing director should be qualified by examination, and each business place be under the charge of a qualified manager.

GRIMSBY AND DISTRICT CHEMISTS' ASSOCIATION.

At a meeting of this Association it was resolved to support the first of the Federation's suggestions, viz.:—

To protect chemists' titles and make it illegal for companies of unregistered persons to keep open shop for selling poisons as in the case of individuals.

Many of the members were of opinion that not only should the selling of poisons be restricted to registered persons, but also all articles in the B.P.

INVERNESS CHEMISTS' ASSOCIATION.

At a special meeting of this Association, held on November 27, it was resolved, on the motion of Mr. MACLEOD, seconded by Mr. JUNOR:—

That, examination being the absolute condition of qualification or registration, companies must not use the title of pharmaceutical chemist or chemist and druggist, and must not dispense or retail scheduled poisons unless the individual members of such companies are qualified.

LEAMINGTON, WARWICK AND KENILWORTH CHEMISTS' ASSOCIATION.

A meeting of this Association was held on November 24, when Mr. J. T. BARRETT proposed, Mr. E. BLOOMFIELD seconded, and it was carried unanimously:—

That we demand of the Pharmaceutical Society that they shall ask of Parliament or the Lord Chancellor that in every sense under the Pharmacy Act, 1868, the word "person" should also read "persons," and that persons should be liable to the same law as a person.

It was also proposed by Mr. J. T. BARRETT, seconded by Mr. H. HULTON, and carried unanimously:—

That we propose that the Pharmaceutical Society should demand that the same rights be granted to it as have already been granted to the Medical Council, namely, the right to strike off the Register the name of any person who acts as a cover to an unqualified person or persons.

LINCOLN CHEMISTS' ASSOCIATION.

The members of this Association have passed the following resolution:—

That no company should be permitted to carry on the business of a chemist and druggist, or assume or use the title of pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or chemist or druggist, or dispensing chemist or druggist, or any other title implying registration under the Pharmacy Acts, unless all the directors and secretaries be qualified.

MEETING OF BURTON-ON-TRENT CHEMISTS.

The chemists of Burton-on-Trent have unanimously resolved:—

That no company should be allowed to carry on the business of a chemist and druggist, or assume or use the title pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or chemist, or druggist, or dispensing chemist or druggist, or other title implying registration under the Pharmacy Acts, unless each member of the company is so registered.

MEETING OF CHEMISTS AT NORWICH.

The chemists of Norwich assembled at the Royal Hotel in that city on Thursday, November 30, when Mr. FRANCIS SUTTON, borough analyst and local secretary to the Pharmaceutical Society, occupied the chair, and the subjects of trade defence and company pharmacy were discussed. Mr. W. Johnston was present on behalf of the Chemists' Defence Association, and went fully into the details of same. The rules, etc., were freely discussed by the chemists present, after which a resolution was passed, expressing approval of the Association, and recommending that it receive the support of the trade. A debate on the company pharmacy problem followed. The impression of the meeting seemed to be that, however desirable suppression of companies might be, there did not appear to be any probability that such a consummation could be attained. The following resolution was moved by Mr. GARDINER, seconded by Mr. BETTS, and passed unanimously:—

That this meeting of Norwich chemists is of opinion that the Council of the Pharmaceutical Society should make a recommendation to the Lord Chancellor to endeavour to amend the Limited Liability Company Act on the following lines:—

That no company of persons not registered under the Pharmacy Acts shall keep open shop for the sale of poisons unless such company shall be controlled by a director or directors registered under the Pharmacy Acts and holding a reasonable proportion of the shares in such company.

That no company unless controlled by a director or directors qualified as above shall use chemists' titles protected by the Pharmacy Acts.

That Limited Liability Companies authorised as above to keep open shop for the sale of poisons shall cause the name of the manager of each shop or place of business where poison is sold to prominently appear in or on such place of business or on the labels on all poisons sold.

MEETING OF DARWEN CHEMISTS.

At a meeting of registered chemists held at Darwen on November 30, it was unanimously resolved:—

That the clause for the Companies Bill submitted by the Law and Parliamentary Committee of the Pharmaceutical Society should be supported.

MEETING OF MOTHERWELL CHEMISTS.

At a meeting of registered chemists held at Motherwell on November 21, if was resolved:—

That chemists' titles should be protected, and it should be made illegal for companies of unregistered persons to keep open shop for the sale of poisons.

MEETING OF READING CHEMISTS.

At a meeting of registered chemists held at Reading, on November 22, it was resolved:—

That the Council of the Pharmaceutical Society should be recommended to adopt for insertion in the Companies Bill, the clause submitted to the Council by the Law and Parliamentary Committee.

MEETING OF RIPON CHEMISTS.

The chemists of Ripon have met and resolved:—

That chemists' titles should be protected, and that it should be made illegal for companies of unregistered persons to keep open shop for the sale of poisons.

MEETING OF ROTHESAY CHEMISTS.

The chemists of Rothesay have held a meeting and decided:—

That chemists' titles should be protected, and that it should be made illegal for companies of unregistered persons to keep open shop for the sale of poisons.

It was also agreed that if such companies are to continue to carry on business as chemists and druggists, the managing director, manager, or responsible assistant in each shop, should be a person registered under the Pharmacy Acts.

MEETING OF ROCHDALE CHEMISTS.

At a meeting of registered chemists, held at Rochdale on November 28, it was unanimously resolved:—

That a company or other corporate body should not be allowed to assume or use any title implying registration under the Pharmacy Acts of Great Britain or Ireland, and that any company or other corporate body contravening this enactment it should be liable, on summary conviction, to a fine not exceeding £5 for every day during which the contraventious happen, and that anything which would be an offence under Section 15 of the Pharmacy Act, 1868, or under Section 30 of the Pharmacy Act (Ireland), 1875, if committed by an individual, should be an offence if committed by a company or other corporate body, provided always that nothing should be done to prevent the formation of a company of persons registered under the Pharmacy Acts of Great Britain or Ireland, to retail, dispense, or compound poisons.

MEETING OF SHIPLEY CHEMISTS.

At a meeting of the registered chemists of Shipley on November 27, various suggestions for dealing with company pharmacy were considered. It was deemed esential that all companies should be under the control of duly qualified men, and that the following clause, or one of a similar purport, should be included in the Companies Bill:—

It shall be unlawful for any company to assume or use the title of pharmaceutical chemist, or pharmaceutist, or pharmacist, or chemist and druggist, or any other title which may imply registration under the Pharmacy Acts, unless the whole of the directors or other persons in whom is vested the control and management of the business of such company are duly registered under the Pharmacy Acts.

It was also resolved that for the purpose of effectually protecting chemists' titles it should be enacted:—

That the application of the title of "pharmacy" to any establishment should be deemed to imply that the proprietor is registered as a pharmaceutical chemist, and that the similar use of the title of "drug store" should be deemed to imply that the proprietor is registered as a chemist and druggist.

It was further thought the provisions of the Pharmacy Acts as to the sale of poisons should be more rigorously enforced, so as to ensure that all such sales should be made by or under the supervision of a registered chemist.

MEETING OF STALYBRIDGE CHEMISTS.

At a meeting of registered chemists, held at Stalybridge on November 23, it was resolved:—

That none but legally-qualified persons should be allowed to dispense prescriptions; sell, dispense, or compound poisons, or keep open shop for those purposes and use the title of pharmaceutical chemist or chemist and druggist in connection with that business.

In the event of companies of unregistered persons being permitted to continue to carry on the business of chemists, it was thought that the directors should be qualified persons, and that there should be a qualified manager for each shop. In addition it was thought that an attempt should be made to obtain better control of qualified persons, and that Section 16 of the Pharmacy Act, 1863, should be amended so that at least one executor or trustee of a deceased chemist's business should be a qualified chemist.

MEETING OF WESTON-SUPER-MARE CHEMISTS.

At a meeting of registered chemists held at Weston-super-Mare, on November 28, it was considered that the time has not arrived for the pharmaceutical community at large to propose any lines of action, and that it is wiser to wait until the Council of the Pharmaceutical Society has produced a new clause. At the same time it was thought that chemists' titles must be protected.

MIDLAND PHARMACEUTICAL ASSOCIATION.

A special meeting was held at the Great Western Hotel, Birmingham, on December 1, to discuss the company pharmacy problem. The chair was taken by the PRESIDENT (Mr. Jeffrey Poole). Amongst the letters of apology read was one from Mr. J. T. Cattell, who expressed the opinion that chemists should protest against the company business in every possible manner, both in public and behind the counter, with a view of getting their titles and qualifications more fully and generally acknowledged. Mr. J. Spilsbury wrote to the effect that unless chemists insisted on trading under their own names there would still be a loop-hole for evasion of the Act by encouraging covering. After a prolonged discussion, the CHAIRMAN proposed:—

That the Council be asked to draft a Clause providing that companies shall not use our titles, and shall only carry on the business of a chemist and druggist provided the business is under the sole control of qualified directors, whose names shall be conspicuously displayed in some prominent position in the pharmacy, and appear on all labels and other printed matter used in the business.

Mr. BARCLAY formally seconded the motion, which was opposed by Messrs. BARRETT and PERRY, but ultimately carried.

NORTH STAFFORDSHIRE CHEMISTS' AND DRUGGISTS' ASSOCIATION.

At a well-attended meeting of the above Association, held at Stoke-on-Trent, on Thursday, November 23, the following resolution was unanimously passed, after a long and animated discussion.

That in the opinion of this Association, Chemists' titles must be protected, and that it shall be illegal for companies of unregistered persons to keep open shop for selling, compounding, and dispensing poisons, as in the case of individuals.

At times there were strong divisions of opinion, but it was felt desirable to pass one unanimous resolution, with the result stated.

SCARBOROUGH CHEMISTS' ASSOCIATION.

At a meeting of this Association, held on November 27, Mr. H. Chapman moved, Mr. Cross seconded, and it was carried unanimously:—

That this Association urges the Pharmaceutical Society to use its influence in inserting in the Companies Bill (*a*) That the titles be protected, and (*b*) That it will be made illegal for any company of unqualified persons to use the title of chemist, or druggist, or to sell poisons.

SPALDING CHEMISTS' ASSOCIATION.

The members of this Association are of opinion :—

That chemists' titles should be protected, and all directors of companies carrying on the business of a chemist and druggist should be qualified under the Pharmacy Acts.

WORKINGTON CHEMISTS' AND DRUGGISTS' ASSOCIATION.

The chemists in business at Workington held a meeting on Friday evening, November 24, at which all the members of the trade in the town were present; it was unanimously decided to form an association to be called the "Workington Chemists' and Druggists' Association." Mr. Wm. Carruthers was elected President; Mr. J. Thompson, Vice-President; and Mr. J. R. Mason, Secretary and Treasurer. It was arranged that meetings for the discussion of matters affecting the trade be held at regular intervals. After some discussion, *re* the company pharmacy problem, a circular containing suggestions for proposed legislation thereon, received from the Secretary of the Federation of Local Pharmaceutical Associations, was read, and the suggestions therein considered. A resolution proposed by Mr. F. J. Birkett, and seconded by Mr. G. T. Archibald, to the following effect:—

That chemists' titles should be protected, and that it should be made illegal for companies of unregistered persons to keep open shop for selling poisons,

was unanimously agreed to.

CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held on Thursday, November 30, at 73, Newman Street, London, W., the President (Mr. F. W. Gamble) in the chair, when a paper was read by Mr. H. Hymans on:—

The Occurrence of Sodium Sulphate in Nature,

which will be printed in next week's Journal.

Mr. Hymans had also on view a number of specimens of thènardite in large rhombic crystals, agglomerated into masses. Several of the specimens were quite colourless, while others were of a whitish translucence, with a faint bluish tint. Some of them were mingled with clayey soil, but the majority consisted of practically pure sodium sulphate.

The reading of the paper was followed by an interesting conversation *re* the natural mineral and chemical deposits of the world.

The President congratulated Mr. Hymans on having compiled so interesting a paper. He thought it was one that would reflect credit on the Association. He should like to know why such large deposits of sulphates accumulated in various places. It was certainly strange that any mineral or chemical could accumulate in any part of the globe in so great a state of purity as some of the specimens exhibited by Mr. Hymans.

A question was raised by Mr. Fothergill as to whether the blue coloration of the thènardite was caused by a trace of copper sulphate.

Mr. Hymans said that could not be so, as it did not contain any mineral.

The President suggested that it was due to some optical effect, and Mr. Hymans was inclined to agree with that view.

Various other points were discussed, and the conversation then drifted to the subject of spectacles and the different kinds of glass employed by opticians. Finally, a vote of thanks was accorded to Mr. Hymans, and the meeting adjourned.

MANCHESTER PHARMACEUTICAL ASSOCIATION.

A meeting of this Association was held in the Chemical Theatre of Owens College on Wednesday, 6th inst. In the absence of the President (Mr. G. S. Woolley) through illness, Mr. Harry Kemp presided, and said that although the illness of the President was not serious, yet it was sufficient to keep him at home, and for the same reason they were also without the presence of their Secretary (Mr. Walton). Mr. Rymer Young was absent in London on Pharmaceutical Council business, and he wrote regretting he was unable to be present.—Professor Weiss, who lectured on "The Method in which Plants Protect Themselves," in his opening remarks welcomed the pharmacists present to Owens College. They wanted members of the Pharmaceutical Society to feel that they had a sort of home there, and he hoped they would feel more so as their members became recruited from their pharmacy classes at the college. He took it as an augury that they would by their presence appreciate his remarks, and he should always be pleased when opportunity offered to add to the interest of their meetings. Want of time had prevented his preparing a lecture of more particular interest to pharmacists; but he hoped to remedy this on a future occasion. The lecture took a popular form, the Professor commencing by throwing on the screen sections of diatoms, laminaria, cacti, etc. The pictures of the red sea-weeds were very beautiful, as also were those of higher plants, and the liability of the latter, under certain conditions, to the attacks of fungi, as also the manner in which they were protected from such attacks, were demonstrated.—A hearty vote of thanks was accorded to Professor Weiss for his interesting lecture, on the motion of the Chairman, who also informed the audience that no fewer than 289 chemists on the Register in the Manchester district had signed the petition on the subject of company pharmacy. He thought that this spoke well for the unanimity of the chemists of the district on this particular question.

PHARMACEUTICAL SOCIETY OF IRELAND.

At Dublin, on November 27, the usual fortnightly meeting for the discussion of scientific subjects was held at 67, Lower Mount Street, Mr. W. F. Wells in the chair. Amongst those present were Dr. J A. Walsh, Messrs. George Brown, H. O'Connor, J. Smith, D. M. Watson, J. T. Turner, W. V. Johnston (Hon. Secretary), etc. The minutes of the last meeting were read and confirmed. An apology for non-attendance was received from Mr. G. D. Beggs. The President it was stated was absent through indisposition. Some routine business having been transacted, the members proceeded to the consideration of "Dispensing Difficulties," and examined in detail a number of uncommon formulæ obtained from various sources Mr. Boardman, Inchicore, sent in two contributions, as follow:—

(1)	℞	Chlorodyni	ʒiss.
		Acidi Gallici	ʒiii.
		Tr. Kino	ʒii.
		Mist. Cretæ ad	ʒvi.
(2)		Liq. Carbonis Detergens Adepis .... aa	ʒss. M. ft. Ung.

and the President submitted for Mr. H. O'Connor three samples of a mixture, one of which was made up by himself, another by a different person, and the third by an English house. The preparations was as follows;—

℞	Uurotropin	ʒii.
	Liq. Strychniæ	♏ 36.
	Quin. Sulph.	Gr. xii.
	Acid. Sulph. Dil.	ʒii.
	Acid. Phosph. Dil.	ʒiss.
	Syr. Limonis	ʒss.
	Aqua ad	ʒvi.

Mr. Boardman's contribution was spoken to at considerable length. The prescription to which the President called attention was stated to have been written by a Dublin medical man. The patient got three bottles of the mixture; one from the President's pharmacy, one from another local house, and the third in England. In each case there was some peculiarity observable, but the solution was of the same strength, although the crystals were much heavier in one than in the other, probably due to its lying quiet in the shop.

Dr. Walsh referred to a difficult prescription which he had received, and in connection with which he had had to send to Ger-

many. He spoke of a doctor who prohibited the eating of salt meat by the patient after the latter had taken a dose of calomel.

Mr. O'CONNOR said that the chemists' responsibility ought to cease when the patient took the powder.

Several other members called attention to various dispensing difficulties encountered in daily practice. It was decided to invite Mr. Ray to give an expression of opinion in the matter.

Mr. WATSON was in favour of individual experiment, and thought that each member should send in a report on the matter spoken upon.

Mr. JOHNSTON concurred and said this was his idea all along.

Mr. WELLS said some years ago at the evening meetings the members were asked to hand in some questions and to bring them to the subsequent meetings when they could be fully discussed. He was glad to see that the idea had come up again.

Mr. TURNER showed an American prescription, and remarked that he had copied it out with the idea of ascertaining what should be charged for it.

Mr. JOHNSTON: Put it in the trade Press and we will find out. It all depends on the time the prescription would be handed in.

Dr. WALSH said the question was more suitable for the Dublin Branch of the Chemists' Federation to deal with. He thought the prescription would, under ordinary circumstances, take about two hours to make up.

Mr. JOHNSTON having given his experiences of an Enniskillen prescriber was followed by Mr. WELLS, who showed how a little forethought on his part in regard to a suspected mixture gained a new customer for him.

Mr. BROWN hoped there would be a further similar discussion, and it was resolved to take a note of the prescriptions referred to and to subject them to practical investigation and report the result at the next meeting. This concluded the business.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

The third meeting of the session was held in the Lecture Theatre, at 17, Bloomsbury Square, at 5.30 p.m., on Friday, the 24th ult., Mr. E. M. CHAPMAN in the chair.

The minutes of the previous meeting were read, and on the proposal of Mr. UPSHER-SMITH, seconded by Mr. FINNEMORE, were unanimously passed and confirmed.

Mr. Garsed's amendment to Rule V., that "at the commencement of each session the officers of the Association and six other members shall be elected to form an Executive Committee; of the six other members two shall be Major students and four Minor students," was read. This amendment was seconded by Mr. DEANE. Mr. UPSHER-SMITH opposed it, proposing that the rule should stand unaltered; he was seconded by Mr. FINNEMORE. On putting to the meeting eighteen voted for the amendment to Rule V. and ten against it. Mr. Garsed's motion was thus lost, there not being the two-thirds majority required to carry it.

The CHAIRMAN then called on Mr. Garsed to open the debate, "Is a Compulsory Curriculum Desirable in the Interests of Pharmacy?" Mr. GARSED spoke in the affirmative, urging, among other things, that the establishment of a compulsory curriculum would reduce the number of failures to pass the qualifying examination.

Mr. FINNEMORE opposed, speaking for the same length of time as Mr. Garsed—a quarter of an hour.

Messrs. Pollard, Upsher-Smith, Woolcock, Collinette, Hellyer, Lawson, Allen, Heslop, and Deane also spoke, being limited to five minutes each.

Mr. FINNEMORE and Mr. GARSED having replied, the CHAIRMAN put Mr. Finnemore's motion to the vote of the meeting: "Considering the present state of pharmacy, it is the opinion of this meeting of the School of Pharmacy Students' Association that a compulsory curriculum is undesirable." Eight voted in favour.

Mr. Garsed's motion was then voted on; twenty voted for it, and eight against. The resolution, that "in the opinion of this meeting of the School of Pharmacy Students' Association it is highly desirable, in the interests of pharmacy, to establish a compulsory curriculum of at least one year's duration," was accordingly declared carried.

A most successful meeting then terminated. There were thirty-two members present.

PROCEEDINGS UNDER THE PHARMACY ACT, 1868.

THE SALE OF POISONOUS FUMIGATORS.

Pharmaceutical Society v. Jacob Wrench and Sons, Limited.

On Thursday, November 30, three summonses taken out by the Pharmaceutical Society under Section 17 of the Pharmacy Act, 1868, against the respondents, Jacob Wrench and Sons, Limited, Seedsmen, of 39, King William Street, E.C., came before the Lord Mayor at the Mansion House. The first summons charged that the respondents had sold to Mr. Moon a certain poison, to wit, a poisonous vegetable alkaloid called nicotine, being a poison within the meaning of Schedule A, Part I., of the Pharmacy Act, contained in a bottle which was not distinctly labelled with the name of the article, the word "Poison," and the name and address of the sellers. The second summons was for selling the poison to Mr. Moon, he being unknown to the respondents, and not having been introduced to them by some person known to them. The third summons was for having sold the poison without having made an entry of the name of the purchaser in a book prescribed to be kept by the Act for that purpose.

Mr. Vaughan Williams appeared as counsel for the Society; Mr. Horace Avory appeared as counsel for the respondents.

It was agreed that the three summonses should be taken together.

Mr. Vaughan Williams, in opening the case, said that the Act by Section 15 constituted the Pharmaceutical Society the proper authorities to take the proceedings. These proceedings were taken under the 17th Section, and it was open to other persons besides the Society to proceed in the matter, but the Society considered it was their duty, when they found a proper case, to take proceedings under that Section. The 17th Section provided in the most explicit terms that the name of the seller should appear, for obvious reasons, so as to attach responsibility in the sale of such a dangerous article. It also provided that the word "Poison" should be affixed to the bottle. It would be found from the bottle in question that the word "Poison" was not so attached. It would also be seen that the label used was an extremely dangerous one, owing to the mild and ambiguous phraseology which described its contents. The article was called the "X. L.—All Vaporising Fumigator," and it purported to be a composition which was to be vaporised in greenhouses for the destruction of animal life on greenhouse plants. He would call before the Court Dr. Stevenson, who would say that he had analysed the bottle in question, and that it contained no less than 37 per cent. of nicotine. He would also say that nicotine was an extremely dangerous poison, and that one drop of it would kill a rabbit in two and a half minutes.

Mr. Horace Avory said the sole question was whether the composition in question was a poison within the meaning of the Act.

Mr. Vaughan Williams said it would be found that Part I. of Schedule A included "strychnine and all poisonous vegetable alkaloids and their salts" as being articles as to which it was necessary to make an entry in a book at the time of the sale. He gathered that the whole question would be whether this was a poisonous vegetable alkaloid.

Mr. Horace Avory said he would admit that the bottle produced by the prosecutors was sold to Mr. Moon on the 7th of November by the defendant company in the condition in which it now appeared, except for the label, which had been added, "7/11/99. H. Moon. Wrench and Co., Limited."

The Clerk: Do you also admit that the other formalities required by the Act were not observed?

Mr. Horace Avory: Certainly.

Mr. Vaughan Williams said the bottle contained a label stating that it contained sufficient compound for 20,000 cubic feet; that it was prepared in bond from duty free tobacco by special permission of her Majesty's Customs, and went on to say: "As this bottle contains the pure nicotine of tobacco in a highly-concen-

trated form it is advised when the bottle is not in use to be kept in a secure place." It further went on to say that it could be obtained from all seedsmen, etc. "Tobacco is generally considered to have some poisonous properties," and that it ought to be kept out of reach of children, and added: "But the proprietor wishes it to be understood that it contains no other injurious ingredient whatever." Then came directions for using it.

Dr. Thomas Stevenson, a Doctor of Medicine, Fellow of the Royal College of Physicians, F.I.C., Lecturer on Forensic Medicine at Guy's Hospital, and Scientific Analyst to the Home Office, was then called, and deposed to having received the bottle in question from Mr. Moon on the 7th of November. He had analysed it, and found that it contained a solution of nicotine and camphor in diluted alcohol. It contained 37·3 per cent. of alkaloid nicotine, 34·5 per cent. of camphor, 15·1 per cent. of alcohol, and the balance was water. There was a slight trace of colouring matter. Nicotine was a highly poisonous vegetable alkaloid. He had experimented on a rabbit with the composition, and found that a small drop killed a rabbit in two and a half minutes. The quantity contained in the bottle produced was sufficient to kill thousands of people if swallowed. The alcohol and water were added to dissolve it, and the camphor would be, no doubt, to give a strong smell.

Cross-examined by Mr. Horace Avory: Alcohol was not in the Schedule of poisons. Alcohol was a poison if enough were taken of it. A quarter of a pound of pure alcohol was sufficient to kill a man. Tobacco contained nicotine.

Is it suggested by the Pharmaceutical Society that all tobacco must be labelled as a poison now when it is sold?—I do not understand that to be so.

Mr. Vaughan Williams: That is not suggested.

Cross-examination resumed: Every cigar contained a certain amount of nicotine, but people were not in the habit of swallowing cigars. They only swallowed a small proportion of the nicotine from the cigar. A small proportion of the poison was taken into the system every time a cigar was smoked. A thousand cigars would contain an appreciable quantity of nicotine. As he understood, any preparation of a poisonous vegetable alkaloid was a poison.

Mr. Vaughan Williams said the word "preparation" was used in the Schedule.

Mr. Horace Avory: No one would think of calling tobacco a preparation of nicotine, would they?—This is a preparation of nicotine, in my opinion; tobacco is not. Every person who sold tobacco sold a substance containing nicotine.

Then he sells some nicotine?—A sort of nicotine that can be extracted from the tobacco.

Do you say the distinction is that nicotine is an extract from the tobacco, and is not, in fact, contained in every piece of tobacco?—It is not contained as nicotine. It has to be extracted to get the nicotine. It is naturally combined in tobacco with other substances.

The Lord Mayor: Do I understand you to say that a very small proportion of what is contained in that bottle would be fatal to life?—Yes, possibly three or four drops.

Mr. Vaughan Williams: I suppose it is according to the resisting power of the subject?—Yes.

Mr. Horace Avory said that this was such a technical question that he proposed to call one or two scientific witnesses on the point, and then he would be better able to understand what the legal position was.

The Lord Mayor: I do not know whether you heard the answer Dr. Stevenson gave to the question I put?

Mr. Horace Avory: I did, my lord.

Mr. George Whiffen, F.I.C., was then called by Mr. Avory. He said he was the manufacturer of the preparation in question. He considered it did not come under the restrictions of the Act. It was a preparation of nicotine, which nicotine was manufactured from tobacco, which was generally not recognised as a poisonous material. In Part I. of Schedule A some of the poisons, with their preparations, were scheduled, but with regard to the poisonous vegetable alkaloids their preparations were not scheduled. This had been proved to be a preparation of nicotine. As to the poisonous vegetable alkaloids, it was their salts which were scheduled, as well as the vegetable alkaloids themselves. All tobacco contained an appreciable quantity of nicotine, in some cases as much as 7 per cent.

Cross-examined by Mr. Vaughan Williams: He agreed that nicotine was an alkaloid.

A vegetable alkaloid?—It is prepared from a vegetable substance. Being prepared from a vegetable substance, it was a vegetable alkaloid. He had no experience as to its poisonous properties. He might know it in a technical sense, but had no experience of it. He knew it from the text-books. The other substances, the camphor and the alcohol, were added afterwards in the manufacture of the preparation. He did not agree that the salt of an alkaloid would be a preparation of it.

Supposing a preparation to be something which is prepared from something else, cannot you prepare a salt or an alkaloid from it?—You can prepare a salt, but that salt will be a compound of the acid and the base.

Mr. Ernest John Parry, Bachelor of Science of the London University and F.I.C., was then called. He had examined and analysed the preparation in question. He did not analyse the same bottle as Dr. Stevenson analysed, but a similar one, and found it contained 35.5 per cent. of nicotine.

Looking to the question of the Schedule of the Poisons Act of 1868, do you say that this is a poisonous vegetable alkaloid, or that it is a preparation?

Mr. Vaughan Williams submitted that this was a question for the Court to decide. The witness could only say, as a scientific man, what it was as a substance.

The Lord Mayor said the witness had better answer the question.

The Witness said it was a preparation containing 35½ per cent. of nicotine, not pure nicotine.

Cross-examined by Mr. Vaughan Williams: He did not say whether the nicotine had been added to the other contents or whether they had been added to the nicotine, but, whichever way it was, it was a compound of nicotine and the other things mentioned. Of course, it was very poisonous. Nicotine was a poisonous vegetable alkaloid. He agreed with the analysis of Dr. Stevenson.

Mr. Horace Avory said the case was obviously of considerable general importance, and apart from its merits, because it seemed to be quite clear from the evidence of the two last witnesses that the question which his Lordship would have to decide was whether the Schedule to the Act included all preparations of nicotine, and it must be obvious to everyone looking at the Schedule that the Legislature had made a distinction between certain of the poisons which were named in Part I. As to some of them, arsenic, aconite, and ergot of rye, not only the poisons themselves, but all their preparations were included in the Schedule. As to the others, their preparations were not included, and, therefore, it was of the utmost importance that the Act should not be extended to a thing which, if it was in fact, as it was alleged to be, a preparation of one of the other poisons named in the Schedule. He was prepared to admit after the evidence, and he thought it was beyond controversy, that nicotine itself was a poisonous vegetable alkaloid. Therefore, it might be that if a person sold pure nicotine, he would come within the terms of the Act, but the evidence before the Court clearly showed that what had been sold was not the poisonous vegetable alkaloid itself, pure nicotine, but a preparation of it, and therefore it was not included in the Schedule. The practical importance of this question was obviously this, that if the present prosecution were well founded, it would be difficult to see why every sale of tobacco did not come within this Act, because it was admitted that every cigar contained a certain amount of

nicotine. The mere act of smoking, as Dr. Stevenson admitted, led to the smoker swallowing a certain amount of nicotine; therefore, every man who sold a cigar sold a certain quantity of nicotine, but if you were to condemn the mere sale of everything that contained nicotine, then the sale of tobacco would come under the Act. He submitted that there was no difference in law and in fact between a man who sold nicotine and a man who sold nicotine mixed with other things, as in this case. The present case was not one in which there ought to be any straining of the Act of Parliament to meet a public mischief, because this was not the sale of anything which was intended to be swallowed by anyone. It was as plain as a pike-staff that it was only intended to be used as a vaporiser. It was not like those cases which had been before the Courts in recent years where the things sold were cures for coughs or soothing syrups for children, and were found to contain some of the poisons mentioned in the Act, and which had been condemned on that very account, especially when it was borne in mind that those very cases turned upon the words: "Opium, and all preparations of opium," and that it had been held that these soothing syrups and cough mixtures contained preparations of opium, and were within the mischief of the Act. Those were cases where things were sold to be swallowed, and where it was admitted that by taking an excessive quantity inconvenience might be suffered. Here the label was distinct. It said: "This is intended only for fumigating purposes," and there was no more danger of a person getting hold of this and drinking it than there was of a child getting hold of his father's cigar-box and swallowing half a dozen of them. He would ask his Lordship to decide the important question of law first, before he said anything about the merits of the case. He would ask the Court to come to the conclusion, upon the evidence of Dr. Stevenson himself as well as the other witnesses, that this was a preparation of nicotine, and not nicotine itself within the meaning of the Schedule.

The Lord Mayor said he was quite satisfied that this was a poison within the meaning of the Schedule.

Mr. Horace Avory said, as it was an important question and would affect other cases, he would ask his Lordship to state a case for the High Court on the question of law.

The Lord Mayor: Certainly.

Mr. Horace Avory said he did not know whether it would be right to adjudge a penalty now or not.

The Clerk said a penalty must be imposed before a case could be stated.

Mr. Horace Avory said, in that event, he would ask his Lordship to impose a purely nominal penalty. The respondents were a wholesale firm of seed merchants, and in the course of their business they did allow some small retail purchases to be made, which took place in the shape of seeds and garden requisites. They themselves were absolutely ignorant that they were committing any breach of the law, and it had never occurred to anybody before that by selling a substance like this for fumigating greenhouses they were liable to the restrictions imposed by the Act. Numbers of these things had been sold for years, and no warning had been sent by anybody in authority. Up to now the Pharmaceutical Society had never interfered with the sale of these things; therefore, it was a purely inadvertent breach of the Act. There was also the fact that the label gave distinct notice that it was only intended for fumigating, and that it was not to be left within the reach of children.

The Lord Mayor said, on the evidence of Dr. Stevenson, it appeared to be one of the most deadly poisons.

Mr. Vaughan Williams called attention to the fact that the defendants' label said that it was somewhat poisonous.

Mr. Horace Avory said it should be borne in mind that all persons who dealt in seeds and garden requisites were not chemists, and the people who were selling this article did not know anything about its dangerous properties.

The Lord Mayor said on the first summons he should impose a penalty of £5 and £10 10s. costs, on the other two summonses there would be a nominal penalty of 10s. in each case, and a case would be stated. He hoped that in the meantime the sale of this compound would be stopped. He would very strongly urge that upon the proprietors of the compound.

Mr. Horace Avory said so far as his clients were concerned they had already discontinued the sale.

The Lord Mayor said he did not want to prejudice or prejudge the matter, but he should strongly recommend that they should endeavour to collect all outstanding bottles in the hands of the trade. When it was stated by Dr. Stevenson that three or four drops were sufficient to destroy life it would be seen that it was a very serious matter.

ILLEGAL SALE OF LAUDANUM.

Pharmaceutical Society v. *Hare.*

An action was brought by the Pharmaceutical Society of Great Britain, at the Goole County Court on Monday last, before His Honour Judge Raikes, against Herbert Hare, grocer, Old Goole, to recover two penalties of £5 each, for having sold, or kept open shop for the retailing, dispensing, or compounding of poison, to wit, a preparation of opium called laudanum, contrary to the provisions of the Pharmacy Act, 1868, 31 and 32 Vict., cap. 121, Sec. 15.

The Society was represented by Mr. T. R. Grey, barrister-at-law.

Defendant did not appear, but was represented by Mr. J. Burniston, solicitor, who stated at the outset that he was not going to defend the case. He was simply there to arrange as to how the penalties should be paid if the Society pressed the case. He had only been instructed a few moments ago, and he was assured by his client that he did not know he was doing wrong—he had been selling for some time—and he very much regretted it.

Mr. Grey said the Society most certainly pressed the case, for, as Mr. Burniston said, the defendant had been in the habit of selling that drug. One thing for which the Society was appointed under the Act was to prevent the illegal or unlawful sale of any of the poisons mentioned in the schedule by unqualified persons. In the present case the defendant had been written to four times, but he had not replied to any of the communications. He had been asked to admit, in a letter dated November 16 last, that the stuff which he sold was laudanum, so as to save them from making the journey from London. To that letter there had been no answer. They had brought an analyst from Doncaster, and all their witnesses were present, and he submitted that defendant, who, through his solicitor had admitted the offences, was liable for the two penalties with costs under the Act.

Mr. Burniston acknowledged that his client was liable for payment of costs, and enquired what time the Society would allow for payment of the whole.

His Honour: I am afraid from what Mr. Burniston says that the defendant has been in the habit of selling this drug for a considerable time. It only goes to show that a man in a responsible position should know the law. I give judgment for the plaintiffs for the full amount, with costs.

Mr. Burniston again asked for time on behalf of his client.

Mr. Grey said he would just like to point out that the defendant was also liable to penalties under Section 17, because the bottles were not marked poison, and defendant's name and address did not appear.

Mr. Burniston suggested £1 per month.

Mr. Grey: The payment of a penalty by instalments causes this Act to have little effect. I submit, under the circumstances, that we ought to have a certain sum down and the remainder at so much per month.

His Honour: I think if he pays £5 down and the remainder in instalments of £1 per month, that would meet the case.

Mr. Grey concurred, and the Judge made the order accordingly.

LETTERS TO THE EDITOR.

The Company Pharmacy Problem.

Sir,—Will you permit me, through the medium of the Journal, to raise a rallying call to our craft, and especially to those who are halting over this company regulation scheme? We are pushed into a fog over this matter, and the clear issue has become obscured, so that we know not exactly where we are; we are troubled; some of our leaders have lost their heads; we are divided, torn by factions, under the influence of conflicting interests. Selfishness blocks our progress, and if we are not careful we shall be stranded and wrecked. What are we to do then? Approach the powers that be, without hesitation or halting. Stand up as men—men who are in earnest, honest and firm—let us prove that we have no desire to injure others; but do not mean to be injured ourselves. We ask no favours, but we do ask for justice and right, not for selfish ends, but for their own sake. Bounce, insolence, or double-dealing will not avail—they will only damage the cause. If an individual infringes a patent or pirates a trade mark, he is liable to prosecution, and punishable by law, and we hold that the titles—chemist, chemist and druggist, and pharmaceutical chemist, etc., are ours, and that by legal enactment. They are our letters patent, and indicate to the public that we are qualified to do the work for which we have been educated and examined. We know that piracy is both illegal and criminal, and when the pirate or his crew is caught, they are dealt with severely and justly punished. Now, just for a moment, suppose that when these men were caught and placedo their trial, they were to whimper in court and raise the question, hat having been in the business so many years, and in virtue of having accumulated very large vested interests in it, they ought to be left alone, and allowed to pursue their calling, or to be placed under such conditions and regulations as shall enable them still to carry on their business without sacrifice or loss. What would any just Government say or do under such circumstances? Would they yield? We trow not. Would they condone such acts of piracy; if they did, what would an indignant public opinion have to say in the matter? Now, gentlemen of the craft, here is our position to day. Companies limited and bogus companies have been poaching and pirating upon our legally acquired professional rights for years: has not the time come when this system of piracy should be scotched? We appear to have amongst us (and unfortunately in our Council chamber) timid, weak-kneed men who are halting and afraid. Do not, however, forget that we have still among them, and amongst ourselves, men of real grit and good backbone. They may be in minority at present. Never mind that—we want them. Let us rally around them unitedly with all our force and voice, and ask them to pilot us through these troubled waters. They have been ready and trusty guides in the past, and they will not in the present crisis betray us, or say us nay. Our motto must be union, we don't want uniformity or absolute unanimity, but we do want agreement as to broad principles. If we would present a clean sheet to our rulers we must have such agreement; then, and not till then, shall we be able to prevent the pirates from boarding our craft or splitting us upon a rock. It is simple nonsense (rhetorical nonsense) to talk about what ought to have been done twenty years ago: such wisdom after the event is valueless. Mistakes were then made which do not reflect credit upon the chemists of that time (doubtless at that time); but, be it remembered, at this date, mistakes are being committed now which do not reflect any credit upon those who make them, and that after their knowledge and enlightenment. We have now to do with facts as they are, to provide against injustice and wrong-doing. If the Government is approached in a fair and enlightened manner we may be confident that we shall have justice done, and that our cause will be better placed for future consideration. Don't let us forget that if this Companies Bill comes to the fore again that it is not as to a Pharmacy Act, but as to a Companies Prohibition Act that we shall be called upon to watch it. If we cannot get justice done by that, then we must oppose this particular clause tooth and nail, and strive to get it dropped out of the Bill altogether. We shall be none the worse off in spite of croakers to the contrary.

Rotherfield, December 4, 1899. G. G. Hornsby.

Sir,—I should like to make it clear that, when speaking at the Wolverhampton meeting, reported in last week's Journal, I was not arguing that a man should be made a director because he had advanced money to a company; but was replying to the assertion that an unqualified director in a company might exercise control over the qualified director. I was suggesting that even in a private firm any man who had advanced money to a chemist's business might, in like manner, seek to influence the policy of the business, or in some way control the management, and would often have it in his power to do so; so that, provided there were a qualified director at the head of affairs, a limited company might be as safe as regards its management as some private concerns. I should also like to point out that I said "previous attempts at legislation had failed because even a little opposition had been raised to them by the trade," not that they had failed because of the littleness of the opposition raised to them. Is it not possible for the trade to carry the legitimate drug companies with them, by providing that no company shall practise pharmacy, or at least sell poisons, or call themselves chemists, unless at least the managing director of the company is a registered chemist. Year by year as the chemist's business becomes extensive in its character, the tendency is more and more to convert a private business into a limited company, and cases may very conceivably arise in which it may be a great hardship for the title of chemist to be lost to a business, where for legitimate reasons it has been turned into a limited company by a qualified chemist who retains the principal direction of it. In voting on this question in various centres over the kingdom, or in trying to influence members of Parliament, chemists may do well to keep such possibilities in mind, even though present interests seem to suggest another course, always supposing the Legislature is ready to back up those interests by depriving legitimate drug companies—managed by a qualified directorate—of their right to call themselves chemists, or to carry on business at all.

Wolverhampton, December 2, 1899. Thos. Reade.

Sir,—I have pleasure in enclosing herewith copy of a conjoint letter addressed by the Chemists of Linlithgow County to the Council of the Pharmaceutical Society.

Alexander Spencer,
Linlithgow, December 2, 1899. *Local Secretary for Linlithgow*

[Enclosure.]

November 30, 1899.

To the Council of the
Pharmaceutical Society of Great Britain,
17, Bloomsbury Square,
London, W.C.

Gentlemen,—We the undersigned Chemists of the County of Linlithgow, are of opinion that in the public interest any clause inserted in the Companies Bill should have for its object:—

The protection of Chemists' Titles and the making it illegal for companies of unregistered persons to keep open shop for selling poisons as in the case of individuals.

We therefore urge the Pharmaceutical Society to take immediate steps with the object of having a clause inserted in the Companies Bill which will place every member of a company upon the same footing, as to responsibility, as is expected from a qualified chemist, and the acts of a company treated as the acts of an individual, or until the 1868 Pharmacy Act has been amended in the above direction.

We are, dear Sirs,
Yours respectfully,
Signed by A. Tweedie, Bo'ness.
,, John Freeland, Bathgate.
,, James Chapman, Kirkliston.
,, Francis Rae, South Queensferry.
,, Annie T. W. Spence, Linlithgow.
,, Alexander Spence, Linlithgow.
,, David Reid, Bathgate.
,, Findlay Stuart, Broxburn.
,, David Lister, South Queensferry.
,, C. M. Spence, Linlithgow.
,, Thomas Lumsden, Linlithgow.
,, Edward Spence, Linlithgow.

Sir,—In the Frain case on the 20th ult. their specific was described as warranted to cure want of ambition; I think it is a pity that some chemists did not try it, for the body is lamentably lacking in that virtue. Of course, there is no distinction to be made between an examined and qualified physician and pharmacist; if it is proper to protect the one it is equally so to the other. The misfortune is that the decision of the House of Lords is final, however wrong or foolish it may be. I have lately written to the

Lord Chancellor on the subject, pointing out to him the absurdity of Lord Selborne's judgment. (1) If it is illegal for one to do a thing, it must be more so for a number to do it. (2) Before the 1868 Act anyone could be a chemist; how do we know it was not the intention of the Legislature they should not do so now? I pointed out to him that the Act was passed to prevent them from doing it, and that it is absurd to talk of intentions in point of law, they do not count anything; to be legal they must be in black and white. (3) This does not apply to companies, because companies cannot be examined. Again I pointed out that if they cannot comply with the law they ought not to be allowed to break it, and it is absurd to say companies cannot be examined, when the whole British Army is examined every month. But at whose door does the treatment of the thing lie? The chemist himself. When the Society was formed how few joined it again in the opportunities of 1852 and 1868, and how few joined on passing their examinations. No, sir, an opportunity once lost is very difficult to recover; tho fools who opposed the Society in 1867 forming a united society are responsible for the present state of affairs, and now they blame the Society, and many chemists have not clean hands. Before the decision that assistants must be qualified, how few employed them, and a great many have no end of shops without a qualified man in any of them; and then, also what did they sell? I am sure that if the majority outside do not come in quickly, the game will be lost; but if the majority would join and put their shoulders to the wheel, the situation might be carried. I have done my best for chemists, and am very glad I am not in practice now. I ended my career by founding the Kensington Chemists' Association, which by amalgamation became the "Western Chemists," and I established that, for I induced one hundred gentlemen to become members. These local associations are of the greatest importance, and members ought to interview members of Parliament and enlighten them. Look at the rot magistrates, coroners, and other legal functionaries talk; if chemists did not know their business better, the undertakers would be busier. As to the legal status of companies, how long did it take to find out that none but qualified men could sell poisons, and that patent medicines were a mockery, delusion, and snare, and that any containing poisons could only be sold by registered men? Companies are not for the protection or good of the public, what they want is a respectable qualified chemist in their own immediate neighbourhood. Why not strike if you cannot get your rights?

Reading, December 5, 1899. HENRY LONG.

What is the Principle of the Pharmacy Act.

Sir,—You say of my letter, "He makes assertions which cannot be sustained by facts." I assert (1) that our Society contended that the principle of the Pharmacy Act was "qualified ownership"; (2) that the House of Lords declared that it contained no such principle, and that the object and policy of the Act did not require that it should; and (3) that at present it is settled law that "qualified ownership" is not the principle of the Act. Here are the facts in brief:—(1). Mr. Benjamin said for us to the House of Lords, "Nobody shall have an open shop for the sale of poisons except a duly registered chemist. That is our interpretation of the 1st Section, and we say that it includes corporations. The Act says the proprietor must be qualified." (2). Lord Selborne said: "It was not thought necessarily inconsistent with the object and the policy of the Act that the principals, the proprietors of the business, the persons to whom those actually selling the drugs would be responsible, should be unqualified." Lord Blackburn said: "If there had been anything in the Act, or in the nature of things, which made it reasonable that it should be provided that all the profits to be derived from vending poisons or poisonous drugs should be shared amongst those who are pharmaceutical chemists, and that nobody else should intermeddle with that trade; if there was anything of that sort in order to carry out that object, it would be necessary to say that 'person' includes corporation, and not a natural person only. But that object is certainly not avowed on the face of the Act." (3). Any decision of the Court of ultimate appeal is settled law on the question at issue. The facts cited will enable your readers to judge what foundation there is for my assertions. I hope no one will take my statements for more than they are worth. It may be necessary to proceed by way of reversing the settled law by fresh legislation. I suggest that procedure founded on settled law is practicable and sufficient for the one great purpose we are all anxious to secure. Whatever procedure may ultimately be adopted, I sincerely hope we will all fall into line, and work unitedly for the common good.

December 4, 1899. OBSERVER (11/48).

The Society's Examinations.

Sir,—As a student, and one with a little knowledge of the London University examinations, I feel it my duty to say something about "Educationalist's" remarks in last week's Journal. It is recognised that the pharmaceutical examinations are less thorough than those of a university, and there is more "shotting" at the Minor than at examinations conducted by a university; but this depends on the class of men who come into our little "craft." Certainly I agree that two days (it is really less than two days) is insufficient for the Minor; there should be three days' written papers, one day's practical, and one day's oral examination. But "Educationalist" chiefly attacks the Major, and in this I think he is unfair. He attacks it at its weakest point—physics; now depth in physics means depth in mathematics, and as long as our preliminary standard is so low, this cannot be altered. I see no reason why pharmacists should be very mathematical; pharmaceutical physics should be only experimental, and this I think is the case. The experimental part of the physics at the Intermediate examination for science is not more difficult than the Major, but there is a practical examination, which proves a stumbling block to many candidates. Rather than go deep into physics, I should suggest physiology and bacteriology instead; those are subjects which chemists are often only too ignorant about. The botany in the Major is rather in advance of the Intermediate—at least as regards the syllabus. But I understand that the marking is easy in the Major, and I should like "Educationalist" to prove that the practical examination in chemistry in the Final B.Sc. is superior to the Major. And I think the theoretical chemistry of the Major does not lag far behind. At any rate I know men who have relied solely on the training at the "Square" for the chemistry at the Final examination, and have been successful. The statement that "the papers are not up to the standard of the London Matriculation or Senior Cambridge Local" is, in my opinion, a gross exaggeration.

December 4, 1899. SQUARER (11/45).

Sir,—It is pleasant to learn that a gentleman who is so intimate with examination affairs as Mr. J. Laidlaw Ewing, Edinburgh, is voicing what many will hail as a much-needed reform in the direction indicated. It will be infinitely better for the candidates when it has been arranged that they get credit for the subjects in which they have really passed. They will derive much encouragement to persevere with their studies, and so come out well versed in the various subjects. The change would also add enormously to the popularity of the Pharmaceutical Society, and the two-thirds of outsiders would rapidly disappear. In law and medicine the method now hinted at by Mr. Ewing was forced upon the several examining bodies because of the increased high standard of examinations. Why then should not the Pharmaceutical Society follow suit? Their standard has been run up in recent years, but consideration for the candidate has not been apparent. The sooner the change indicated by Mr. Ewing is made, the better it will be for all concerned.

December 2, 1899. A COUNTRY MEMBER (11/31).

Liquor Krameriæ Concentratus.

Sir,—The new preparation of rhatany in the last Pharmacopœia does not seem to be a success. A sample now before me which has been kept cool and away from a strong light has deposited a thick coating over the bottom of the bottle and become perceptibly paler. It contrasts very unfavourably with a little of the old tincture in the bottle on the shop shelves. Is the weaker spirit employed—20 per cent. alcohol instead of proof spirit—the cause of this? Why is it so difficult to obtain a permanent galenical combining rich red colour with marked astringency? Red sanders is unexceptionable, but the astringency is very small. Kino gelatinises. The old tincture of rhatany was not always satisfactory when used as an ingredient of tooth tinctures. Red gum is admirable when freshly made, but not for long; the astringent and colouring principles soon settle to the bottom in flakes or masses of insoluble matter. A compound liquor of logwood I have had in stock some time has proved no exception to the rule. It would be interesting to know the reason of this.

Dover, December 4, 1899. J. F. BROWN.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

KICKXIA AFRICANA.

The seeds of this plant were noticed as a substitute for strophanthus in a former number of the Journal (*P.J.* [3], **17**, 903), but the plant at that time, 1887, was not supposed or known to yield indiarubber. But in 1895, specimens of an indiarubber plant sent from Lagos to Kew were identified as *Kickxia africana* (*Kew Bull.*, 1895, p. 243; 1896, p. 76), and figures of flowers and fruit were given. Recently, however, better materials have been received from Lagos, and these show that the specimens previously received did not belong to one plant, but to two nearly allied species, one of which yields excellent indiarubber, and the other does not, the evaporated juice of the latter yielding a sticky substance more nearly approaching gutta-percha than indiarubber. At a recent meeting of the Linnean Society Dr. Stapf, of the Kew Herbarium, exhibited and described specimens of these two plants, and showed that they must be placed in a new genus, which he named *Fantumia*, after one of the native names of the rubber. The one yielding indiarubber he has named *Fantumia clastica*, This, when in fruit, is recognised by its short stout pod, and when in flower by its petals being ovate and shorter than the tube of the corolla, and when in leaf alone by minute oblong depressions at the base of the lateral veins on the under surface of the leaf. The other plant, which does not yield indiarubber, he has named *Fantumia africana* (this being the old *Kickxia africana*). It is distinguished by its flowers having petals of a linear lanceolate shape, three or more times longer than the tube of the corolla, a long narrow angular pod, and leaves without the minute oblong depressions on their under surface. There are other characters distinguishing them, and the genus *Fantumia* from the genus *Kickxia*, which latter will now be confined to the Asiatic species. A full account of these characters will, we understand, shortly be published by the Kew authorities. A specimen of the pod and seeds of the genuine rubber plant, *Fantumia elastica*, are in the Museum of the Society.

CHEMICAL SUBSTANCES IN PLANTS.

M. P. van Romburgh records the occurrence of the following substances in the vegetable kingdom. Acetone appears to be a substance widely distributed, and was detected in *Hevea brasiliensis*, *Manihot glaziovii* and *utilissima*, *Phaseolus lunatus*, and many other plants. Methyl salicate is apparently a substance of wide distribution in the vegetable kingdom, and is recorded in many plants, and in many organs of those plants. The presence of hydrocyanic acid was determined in *Hevea brasiliensis*, *Manihot glaziovii*, the leaves of *Indigofera galigoides*, and *Phaseolus lunatus*, and, in smaller quantities, in the leaves of many other plants.—*Ann. Jard. Bot. Buitenzorg*, **16**, 1899, p. 1.

ASTERIONELLA A CAUSE OF FOULNESS IN DRINKING WATER.

G. C. Whipple and D. D. Jackson have made a study of the life history and properties of *Asterionella formosa*, a diatom which is a frequent cause of foulness in the supply of drinking water to American cities, giving it an odour varying from fishy to geranium-like, caused by the formation of an oil having a strong analogy to the essential oils. During periods of stagnation the diatoms form spores at the bottom of the reservoirs, and they increase with very great rapidity when these spores germinate; this growth taking place chiefly during the spring and autumn. The growth of the diatom is greatly favoured by light; and the best mode of preventing its increase appears to be to store the water in the dark.—*Journ. N. England Waterworks Assoc.*, 1899.

INFLUENCE OF ELECTRICITY ON PLANTS.

H. Euler gives the result of experiments on the influence of electricity on the growth of plants, chiefly *Elodea canadensis*. He finds that the electrical processes in the atmosphere can have only a slight effect on the amount of dissolved gases in water free from bacteria. Atmospheric electricity can, therefore, have no direct action on the growth of water plants, or of the parts of plants immersed in water.—*Proc. Swedish Acad. of Sciences*, 1899, p. 609.

FORMATION OF PROTEIDS IN THE DARK.

From observations made on the germination of wheat, J. Goldberg states that proteid substances are formed in considerable quantities in the embryo. Since this phenomenon takes place at the close of the period of germination, it is clear that the formation of proteids does not take place at the expense of the decomposition of proteid substances which have passed from the endosperm by osmose.—*Bonnier's Rev. Gén. de Botanique*, **11**, p. 337.

OYSTERS AND DISEASE.

In a report on oysters and disease ('Lancashire Sea Fisheries Memoir,' i., 1899), Herdman and Boyce state that although they have never detected the *Bacillus typhosus* in any oysters obtained from the sea or from the markets, yet in experimentally infected oysters the organism could be recovered from the body of the oyster up to the tenth day, pointing to the possibility of the transmission of enteric fever by oysters. The colon bacillus was frequently found in shell-fish as sold in towns, but not in mollusca living in pure sea-water, the inference being that the presence of the colon bacillus indicates sewage pollution. The *Bacillus enteritidis sporogenes* of Klein was frequently detected in various shell-fish.

GREEN OYSTERS.

In the same paper the vexed question of "greening" in oysters is discussed. There seem to be several distinct kinds of greenness. Some of these, such as the green Marennes oysters and those of some rivers on the Essex coast, are healthy whilst others, such as some Falmouth and American oysters, are not in a healthy state. In the Marennes oysters the greenness is dependent upon the presence of a special pigment (marennin), which seems to be associated with a certain amount of iron. As regards the green Falmouth and American oysters, the greenness seems to be due to the presence of an abnormal amount of copper—nearly four times as much as in the normal oysters. The presence of copper could be detected readily by treating sections of the green oysters with potassium ferrocyanide and dilute hydrochloric acid which gave a red, with ammonium sulphide which gave a black, and ammonia a blue. Pure hæmatoxylin is also a most delicate test for copper, with which it gives a purple. The memoir is illustrated with eight admirable plates.

CHANGES IN OIL OF BERGAMOT.

E. Charabot finds that during the process of ripening, the essential oil of the fruits of *Citrus bergamia* undergoes a marked change, losing free linalool and bergaptene, but increasing in terpinic constituents, and in linalyl acetate. Thus he finds the green fruits give an oil containing 13·9 per cent. of free linalool, and 26·6 per cent. combined as esters; while that from the ripe fruit contained but 5·9 per cent. of free linalool with 29·6 per cent. as esters. The total linalool in oil from the unripe fruit being 40·5 per cent., that in the ripe fruit 35·5 per cent. Although the amount of the terpenes increases during ripening, the relative proportion of their constituents, limonene and dipentene, remain the same.—*Comptes rend.*, **129**, 728.

WHAT IS THE COMPANY PHARMACY PROBLEM?

BY JOHN HUMPHREY.

In reading the various reports and letters dealing with the company pharmacy problem, one cannot help being struck with the manifest ignorance of the subject betrayed on every hand. It has come to be regarded as an article of faith by registered chemists that all their troubles are due to competition by companies of unregistered individuals; it is not surprising, therefore, to find the impression prevailing widely that abolition of such companies would inaugurate a virtual pharmaceutical millennium. To suggest that such an impression is ill-founded may appear heretical; on the other hand, to foster it is nothing short of encouraging belief in an unreality. For, to any unprejudiced observer, nothing is more obvious than the fact that, if the House of Lords' decision in the case of the London and Provincial Supply Association were reversed to-morrow, the average chemist and druggist's position would not be bettered in the least degree. Evasion of the provisions of the Pharmacy Act would remain as easy then as now, and competition might be expected to increase, rather than otherwise.

DISLOYALTY THE CHIEF MISCHIEF.

Paradoxical as the foregoing statement may appear, it is nevertheless true. For the chief mischief at the root of chemists' troubles is not the tendency of capitalists to invest their surplus funds in concerns which, by their success, inflict serious injury upon registered chemists, but the open disloyalty manifested by the action of those registered persons who run branch pharmacies without duly qualified persons in charge and those others who sell their qualification to the highest bidder, without due consideration of the possible injurious effects of their most injudicious procedure upon the professional position of the pharmaceutical body. To put the matter briefly, so long as holders of the statutory pharmaceutical qualification persist in general disregard of the value of that qualification by avoiding the employment of qualified managers or by selling themselves to capitalists who find the lack of that qualification a hindrance to the development of their business projects, so long must those suffer who practise pharmacy in a legitimate manner. Probably, in a greater or less degree, that will be as long as pharmacy is practised in the fashion now prevalent, since it is inconceivable that the evil can ever be entirely rooted out whilst the trading element so far outbalances the professional side of pharmacy. At the same time, the position is far from being a hopeless one, though the remedy for the existing mischief has been vainly sought for nearly twenty years, and the specialists are not yet agreed as to what it should be. It must be recognised at the outset, however, that the statutory qualification is the common property of the whole body of registered persons, and that its value depends upon the manner in which it is cared for.

WHAT THE PROBLEM REALLY IS.

But before applying any treatment, it is always desirable to form an accurate diagnosis; prior to the adoption of resolutions and the drafting of remedial clauses, it would be as well to devote some little consideration to the nature and exact bearing of the company pharmacy problem. Nominally, that problem was first stated in 1881, when the House of Lords decided that a limited company, though a "person" for other legal purposes, is not a "person" within the meaning of the first fifteen sections of the Pharmacy Act of 1868; in reality, the difficulty originated when that measure was added to the Statute book, and it will remain so long as the professional practice of pharmacy continues closely allied with trade, as it is at present. If the leading spirits in pharmacy had it in their power to secure the passing of an ideal Pharmacy Bill, without risk of any modification after leaving their hands, it would still be possible for unregistered persons to reap profit from the practice of pharmacy, if only they could secure the co-operation of persons duly qualified under the Act. And at how cheap a rate such co-operation can be secured it is unnecessary to state here. The existence of black sheep in the ranks of pharmacy is too painfully obvious when we consider that hundreds of pseudo-pharmacies are carried on at a profit by their aid.

HOW EVASION IS POSSIBLE.

Even if companies carrying on the business of a chemist and druggist were abolished, any unregistered individual could continue to do as they do now, if he had command of the necessary capital. The only difference would be that whereas companies are at present outside the scope of the Pharmacy Act, the unregistered individual would simply evade its provisions. All that he would require to do, after stocking his pharmacy, would be to buy up a registered chemist, whom he would place in apparently absolute charge—exhibiting his name outside the place of business, printing it on all the labels, etc., and entering it in the ratepayers' book. The registered individual would then appear, to all intents and purposes, as the proprietor of the business, and the real proprietor could defy detection so long as he paid the dummy proprietor's price. In all probability, there are pharmacies run on such lines to-day, but it is impossible to secure satisfactory evidence on the point; the actual parties to the bargain are not at all likely to give their case away. The requirements of the law may apparently be fulfilled in such a hypothetical case, everything else in connection with the business may be done in a perfectly satisfactory manner, the public interests may not suffer in the least, and the fact that the nominal proprietor only shares the profits concerns no one but the parties to the bargain. True, the registered person is undoubtedly guilty of infamous conduct in a professional respect, but evidence of that is not forthcoming, and the law is helpless in the matter.

THE ESSENTIAL THING TO AIM AT.

On the face of it, such an arrangement might be regarded as differing only in degree from the case of any chemist and druggist who commences business with borrowed capital. The dummy proprietor's share of the profits would be less, but so would his share of the worries incident to the conduct of the business. The responsibility of one, so far as the public was concerned, would be as great as that of the other, and, even if the facts of the illegal arrangement were ever disclosed, it is doubtful if anyone would impute serious blame to the impecunious chemist, except the more orthodox members of his own profession. He might be pitied because of his lack of means, but if his business relations with the public had been beyond reproach, his justification would probably be held to be complete. Moreover, at the worst, he could not be punished, for he could not be proved guilty of any offence, the only person infringing the Statute being the unqualified proprietor. It may be suggested that it is inadvisable to go into detail to show how easily the Pharmacy Act can be evaded, but in response to that it is only necessary to observe that the truth is better faced than shirked, and that if instances of such a nature do occur nobody seems to be a penny the worse. The fact of the matter is that the manner in which a business is financed is of no consequence whatever to anyone but the individuals directly concerned, and it is difficult to see how the public value of a registered chemist's services can vary, whether the capital invested in the business he conducts is provided by himself, by his wife, by his friends, or by outside capitalists—individuals or companies. And that brings us to the main point. What is the essential thing to be aimed at in any satisfactory solution of what is termed the company pharmacy problem? Is it regulation of the manner in which the business of a chemist and druggist is financed, or is it not rather the protection of professional qualification and regulation of the dispensing and sale of poisons?

THE ABOLITION OF COMPANY TRADING INSUFFICIENT.

The abolition of company trading, whether it be possible or not, is not an end in itself. For, as has already been shown, the cause of the mischief would still remain if every company carrying on business as a chemist and druggist were compelled to wind up

to-morrow. The object to be aimed at must strike at the root of the evil, and yet its accomplishment must not be opposed to public policy. It is unreasonable to ask registered chemists to cut themselves off from all the benefits of the Companies Acts, as must be done if company trading in pharmacy is to be prohibited absolutely. And it is the more unreasonable, inasmuch as the vast bulk of the business conducted by chemists and druggists is not pharmacy proper. The most that can be demanded, in reason, is that no company shall be permitted to exploit the professional qualification, or to undertake professional duties for which its members are individually unfitted. The assumption and use of titles based on the possession of a pharmaceutical qualification must be rigidly restricted to the individuals who have been duly educated, examined, and registered as fit and proper persons to perform the professional duties which that qualification is evidence of fitness to perform. A company or other corporate body cannot be educated or examined; it cannot, therefore, be registered, and must not, on any consideration, be permitted, as an association, to assume or use titles which rightly appertain to individual chemists only. That is even more necessary in the public interest than for the sake of registered chemists, since the public is undoubtedly afforded a considerable measure of protection by a proper significance of professional titles being preserved.

The Medical Profession as an Example.

The position of the medical profession affords an admirable instance of that fact. For, although medical titles are well protected, medical practice is absolutely unrestricted, except to the slight extent covered by the Apothecaries Act. It should be patent to everybody, therefore, that the public enjoys an enormous advantage from the restriction of medical titles to duly qualified persons. The medical art has progressed by leaps and bounds, though any quack has been, and is, at liberty to practise; the public, therefore, has benefited in spite of the fact that medical practice is free to anyone, and the present exceptional position of the medical profession must, in great measure, be attributed to the protection of titles. Moreover, if medical men who sell medicines, etc., to their patients would only sever entirely their connection with trade, the position of the profession would be still further improved. In proportion as the supply of medicines has been dropped by medical men, the restriction of titles has sufficed to protect their practice, and that tendency will be more marked as time goes on. The same would be true of pharmacy if similar conditions prevailed to an equal extent; unfortunately, however, there is no immediate prospect of such a position being attained. But what is not within immediate reach is not necessarily unattainable. Registered chemists, therefore, must be of good heart and refuse to go back a single step, as would be the case were they to acquiesce in the surrender of their professional titles to unqualified persons, or to corporate bodies of any kind.

Pharmaceutical Practice.

As regards pharmaceutical practice, the law already protects that to the extent that only individuals registered under the Pharmacy Acts can lawfully dispense and sell scheduled poisons. What is required beyond that is that unqualified persons—whether individuals or companies—shall not be permitted to exploit the services of registered individuals to an unreasonable extent. How that is to be provided for is far from clear, but it may be suggested that one way in which the desired end might be secured would be to insist that every place where the dispensing and sale of poisons is conducted shall be virtually controlled by a registered individual responsible to the public for the conduct of the business carried on there. In other words, the business of every pharmacy should be *bonâ-fide* conducted by a person registered under the Pharmacy Acts, the name of that person being conspicuously painted or affixed outside the premises and printed on all labels, etc., used in the pharmacy. If not actually the proprietor of the business, he should be so virtually, in relation to the public, though the nature of the financial arrangements involved need not be considered. So far as responsibility to the public is concerned, he alone ought to be regarded as the proprietor, and if he chooses to act as cover to any unqualified person, or association of unqualified persons, that might be regarded as a matter of concern to himself alone.

No Surrender of Principle Involved.

Objection may be taken to the foregoing suggestion as involving a certain amount of surrender of principle; but does it really? If every pharmacy were personally conducted by a duly qualified individual who, to all appearances, was the proprietor of the concern, how would either public or pharmaceutical interests suffer? It is safe to say: Not at all. Moreover, the capitalists who now finance so many pseudo-pharmacies would not be compelled to seek other outlets for their capital; yet some hundreds of registered chemists would virtually be placed in business on their own account, without anything being done that would increase the existing competition. The company pharmacy problem would thus be solved. Public interests would be properly cared for, registered chemists as a whole would benefit by the practical elimination of their chief unqualified competitors, and, whilst their professional position as pharmacists would be fully protected, there would be no bar to legitimate trade developments such as would be involved in an absolute prohibition of company pharmacy.

How Shall the Law be Modified?

How the law shall be modified so as to effect such a result as has been indicated remains to be considered, but it should not be difficult to deal with the matter usefully, yet very briefly, in a Companies Bill, though it could only be fully and satisfactorily dealt with in a Pharmacy Bill. For example, if it should be decided to rest content with securing something short of the actual abolition of company trading in pharmacy, whilst rejecting the principle of qualified directorship and seeking to secure something better, the principle of virtual qualified ownership might be maintained by adopting some such clause as the following, which might have a fair prospect of being accepted by the Government for insertion in a Companies Bill:—

> No company or other corporate body may carry on the business of a chemist and druggist unless such business is *bonâ-fide* conducted, in every place where it is carried on, by a person registered under the Pharmacy Acts, the name of that person being conspicuously painted or affixed outside the place where he is conducting the business, and printed in legible characters in all labels, bills of parcels, invoices, receipts, and other documents or publications issued from or referring to such place of business; but, subject to this provision, anything which would be an offence under the Pharmacy Acts, if committed by an individual, shall be an offence if committed by a company or other corporate body.

The proposed clause is based on that drafted by the Lord Chancellor or his advisers and published as Clause 2 of the Companies Bill, 1899; such additions as have been made follow the lines of the Companies Acts rather than the Pharmacy Acts.

Qualified Directors Not Sufficient.

Nothing is said in the clause about the appointment of qualified directors, for it is difficult to see how any board of directors can efficiently control the conduct of a pharmaceutical business unless the existing law with respect to the responsibility of directors is altered to a much greater extent than is at present conceivable. A qualified managing director holding a preponderance of shares and actually conducting the business would be more to the point, but the idea should not be to make companies beyond reproach as persons carrying on the business of a chemist and druggist; what is requisite is that the steps taken should be such as are most likely to conduce to the protection of the public safety. Nothing can prove so effective in that direction as making the qualified individual in charge of each pharmacy as absolutely responsible as a proprietor, whether he is actually the proprietor or not, and that can be effected by some such clause as the foregoing. It will be observed that the clause covers the trade aspect of the matter more particularly; the professional side would be more satisfactorily dealt with

in a clause affecting other professions also. Thus, to take as a basis Clause 3 of the Companies Bill, 1899, it might be enacted that:—

It shall be unlawful for a company or other corporate body to carry on the profession or business of a physician, surgeon, medical practitioner, dentist, pharmaceutical chemist, or midwife, or to use any description implying qualification under the Pharmacy Acts; and if any company or other corporate body contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

Chemists and druggists can well afford to support the inclusion of pharmaceutical chemists in this second clause; such inclusion would probably mean little or nothing for the moment, even if the clause became law. Pharmaceutical chemists, however, may fairly be considered to hold a more purely professional qualification than chemists and druggists, and it does not seem unreasonable to include them, although the Government declines to admit chemists and druggists on the same footing as other professional men. For the present it would be difficult to say how the practice of a pharmaceutical chemist differs from that of a chemist and druggist; but in the future the pharmaceutical chemist qualification may come to mean something more definite than it does now, and if, then, all persons registered under the Pharmacy Acts should be—as is not unlikely—pharmaceutical chemists, much benefit will accrue from the exercise of a little foresight at the present moment.

THE OCCURRENCE OF SODIUM SULPHATE IN NATURE.*

BY HERBERT HYMANS.

Sodium sulphate occurs in nature in various forms and combinations, and in such widely divergent regions as Arizona, Peru, Spain, India, and the Caucasus, in many cases only as crusts or in small quantities, but occasionally in beds or layers of considerable thickness, and of such quality and surroundings as to render them of interest and value from a commercial point of view.

Let us first rapidly survey the minerals in which sodium sulphate occurs, and we can then enter more fully into the properties, occurrence, and composition of the commercially important varieties, and more especially of thènardite, of which I have been enabled to obtain from a large deposit in Spain some interesting details and specimens, through the kindness of Mr. P. S. Boult, who recently had his attention drawn to the property.

The following are the more important minerals containing sodium sulphate. The chemical formulæ are those given by Dana ('System of Mineralogy'), but it must not be assumed that they represent in every case the actual chemical composition of the substance as found native, in which state, of course, there is always present a percentage of impurity, varying with origin and surroundings:—

Thènardite, Na_2SO_4.
Mirabilite, Na_2SO_4, $10H_2O$.
Glauberite, Na_2SO_4, $CaSO_4$.
Hanksite, $4NaSO_4$, Na_2CO_3.
Sulphohalite, $3Na_2SO_4$, $2NaCl$.
Blödite, $Na_2Mg(SO_4)$, $4H_2O$.
Apthitalite, $(NaK)_2SO_4$.
Lecontite, $(Na, NH_4, K)_2SO_4$, $2H_2O$.
Mendozite, $NaAl(SO_4)_2$, $12H_2O$.
Kronkite, $Na_2Cu(SO_4)_2$, $2H_2O$.
Ferronatronite, $Na_2Fe(SO_4)_3$, $3H_2O$.
Caracolite, $Pb(OH)Cl$, Na_2SO_4.

It would be unnecessary to enter into descriptions of all the above, some of which occur in isolated spots and in small quantities. The first three, however—thènardite, mirabilite, and glauberite—occurring in considerable quantities and presenting the sulphate in a pure, or at any rate, easily available form, may be worth fuller details.

Mirabilite, Na_2SO_4, $10H_2O$, derives its name from the term which Glauber, the discoverer of sodium sulphate, gave to that salt—viz., "Sal Mirabile." It occurs in many parts as efflorescences or crusts on rocks. In large beds it is to be found in the Ebro Valley, in Spain, where it is described as occurring in glassy layers from two feet up to several yards in thickness. According to Lunge, this deposit is quite free from iron, and very suitable for glass-making, but most of the English consumers have now given up its use, owing to its variable quality. There are also beds of mirabilite at Aussee in Hungary: Guipuzcoa in New Castile, Spain: near the hot springs at Carlsbad: in Tarapacà, Chili: St. Rambert, France. The following is an analysis quoted by Lunge ('Acids and Alkalies,' ii., 29), of the St. Rambert bed:—

Na_2O,	20·0	per cent.
SO_3,	26·0	,, ,,
H_2O,	53·0	,, ,,
MgO,	0·7	,, ,,
HCl,	trace	
	99·7	,,

Lunge also describes lakes containing in solution very pure sodium sulphate in the Russian Caucasus, and computes the total amount of sulphate at about 260,000 tons. Small deposits of a partially-hydrated sulphate, containing about 20 per cent. of water, occur at the base of Vesuvius, and in other volcanic districts, such as Hawaii.

The great Salt Lake, Utah, U.S.A., holds in solution sodium sulphate of medium purity. The following is a description from Dana's 'System of Mineralogy':—

"The sulphate is present in solution in the lakes, and in winter, when the temperature falls to a certain point, the precipitation begins and the salt accumulates, so that it is gathered from the bottom and thrown up on the shores. Under favourable circumstances, the shores get covered to the extent of several feet in thickness with crystallised mirabilite. It must be gathered as soon as formed, as if the water rise above the critical temperature the whole of the deposit is taken into solution again. This change is often very rapid, the whole deposit within reach of the waves disappearing in the course of a single day."

Glauberite is a combination of anhydrous sodium and calcium sulphates. The derivation of the name is obvious. The chief occurrences are as follows:—Ocana, New Castile, Spain; Aussee, Austria; and several places in Bavaria and Germany; the salt mine of Vic, France; and at Varengeville, near Nancy. The following is a typical analysis:—

Na_2SO_4,	50·50	per cent.
$CaSO_4$,	48·78	,, ,,
Clay, etc.,	0·40	,, ,,
	99·68	,, ,,

It also occurs with thènardite at Rio Verde Valley, Arizonà, and Tarapacà, Chili.

Thènardite, Na_2SO_4, occurs in large rhombic crystals agglomerated into masses, and is usually colourless, or of a whitish translucence, though it occasionally presents a faint bluish tint, the cause of which has not with certainty been explained. When taken from the beds the surface is clear; but on exposure to the air becomes dull and opaque, through the absorption of water. Thènardite, although generally found abundantly in the places where it occurs, is not so widely distributed as either mirabilite or glauberite. It is found, mixed with sodium carbonate, in several beds or "lakes" in the alkali plains of North America, and also at Tarapacà, in Chili. Silliman (*American Journ. Science*, 22, 204) describes an outcrop in Verde Valley, Arizonà, of which he says:—"The deposit crops out boldly in the face of the bank of the river, and seems to extend along a distance of 800 to 1,000 feet. It occurs in a white, chalky-looking formation, and the surface opening is about 10 feet wide. The ranchers of the district carry off cart-loads for use, in place of salt, for their cattle. No systematic openings of the deposit have been made, but it seems to be practically inex-

* Read at a meeting of the Chemists' Assistants' Association, on Thursday, November 30, 1899.

haustible." An analysis by Dunham of a sample from the above bed gave the following results:—

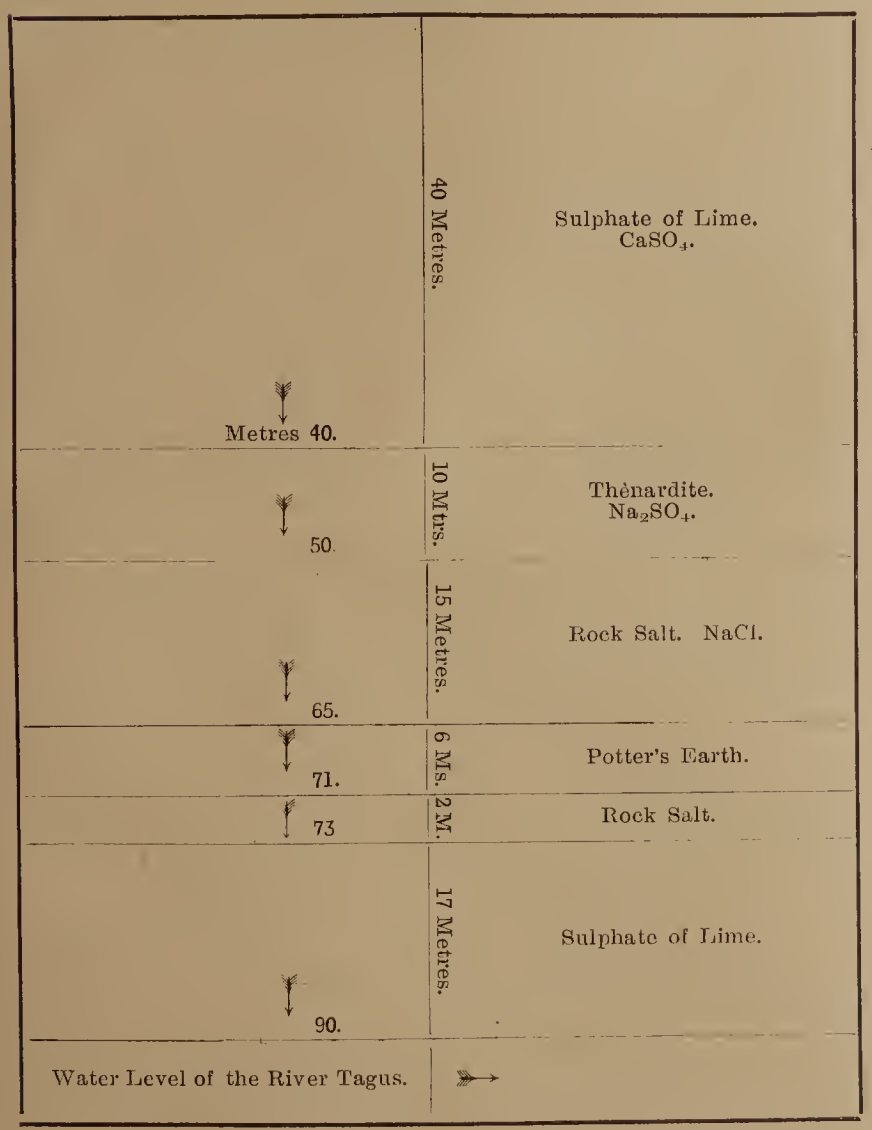
Na_2O,	43·02	per	cent.
SO_3,	56·36	,,	,,
CaO,	0·12	,,	,,
MgO,	0·02	,,	,,
Cl,	0·10	,,	,,
Insol.	0·38	,,	
	100·00		

We will now turn our attention to the large deposit of thènardite in Spain, from which I have been able to obtain the interesting specimens before us.

This deposit, although its existence has been known for some time, has only recently been measured and surveyed. It is situated in the salt mines of Castellar, at Villa Rubia de Santiago, Toledo, Spain. The thènardite had been noticed in the old salt workings, which date back many years, but was lost to view in consequence of a falling in of the galleries, and has recently been rediscovered by a further subsidence.

The deposit, which is about 10 metres in thickness, exists next to the rock salt. The arrangement of the strata will be clearly seen in the accompanying vertical section of the mine.

GEOLOGICAL SECTION OF SALT MINES OF CASTELLAR.



The beds of rock salt are of extraordinary purity, and when ground produce an excellent crystal salt. The deposit is 17 metres thick, more than 2 kilometres long, and of an average width of 500 metres. That is to say, the quantity would be more than fifteen million cubic metres.

From a cañon in the mine issues a stream of mineral water, impregnated with sulphate of soda by its passage through the deposit. This stream flows into the river Tagus, which is near by, and is of sufficient strength and volume to entirely depopulate the river of fish for some distance below that point.

The following is an analysis of the mineral water by the Spanish chemist, D. Fausto Garagaza:—

	Grammes per litre.
Sulphate of Soda	106·7000
,, ,, Magnesia	0·6336
,, ,, Calcium	0·6759
Silica	0·0154
Chloride of Sodium	0·2211
Oxide of Iron and Alumina	0·1619
Total	108·4079

The sulphate of soda contained in this water is obtained by conducting into a reservoir, where the heat of the sun evaporates the liquid, and almost chemically-pure sulphate crystallises out. This is at present consumed by a soap factory at Aranjuez.

The thènardite deposit, as mentioned before, is 10 metres in thickness, and there has actually been measured of it more than two million tons, and it is believed that at least double that quantity remains unmeasured.

The following is an analysis by Garagaza:—

Sulphate of Soda	97·049
,, ,, Calcium	0·699
,, ,, Magnesia	0·566
Chloride of Sodium	0·147
Oxide of Iron and Alumina	0·211
Silica (soluble)	0·014
Insoluble matter and loss	1·314

An analysis recently made of another sample from the deposit showed over 99 per cent. of sulphate.

It is proposed to utilise this immense deposit of practically-pure sulphate of soda in the manufacture of carbonate and caustic soda, which should prove commercially very profitable, as coal, wood, and carbonate of lime are all plentiful in the district. The quality of the sulphate is also excellent for glass-making.

This deposit of thènardite will be the first in Europe to be turned to commercial advantage in the manufacture of chemical products.

AMBROISE PARÉ AND HIS TIMES.*

BY J. GRANT ANDREW, M.B., C.M.

Assistant-Surgeon to the Victoria Infirmary, Glasgow.

The following sketch of the great French surgeon Paré is based on material derived from the classical monograph of Malgaigne and the admirable biographical study of Mr. Stephen Paget. Paré was born in 1510 and died in 1590. So that his life was practically co-extensive with the century. The potentates who ruled the destinies of Europe in his days included, in the order of time, Maximilian, Charles V., and Philip of Spain, over the Empire; Henry VIII., Edward VI., Mary, and Elizabeth, in England; and Louis XII., François I., Henry II., François II., Charles IX., Henri III., and Henri IV., in France; and Paré was Surgeon-in-Ordinary to four of these French kings. Among the more notable of Paré's contemporaries were Luther and Erasmus, Calvin and Knox, Shakespeare and Rabelias, Raphael and Titian, Montaigne, Paracelsus, Servetus, Sylvius, and Vesalius, and his long lifetime touched at opposite points of its course the Battle of Spurs and the battles of Ivry, Flodden Field and the Armada. During the Dark Ages the ban of the Church on the dissection of the human body had arrested pathological research and development in surgery, with the result that the great mediæval surgeons can be counted on one hand. The rediscovery of the literature of the ancients, which partly caused and partly followed the Renascence and the revolt against prescriptive authority, imparted new life to the study of

* Abstract of an Address delivered before the Glasgow Chemists'and Druggists' Assistants' Association on December 1, 1899.

surgery. Paracelsus, with all his charlatanry, was a beneficent iconoclast, and Paré, on the experimental side, was the great pioneer of saner methods of operative surgery and regimen. Paré was born at Bourg-Hersent, in Maine, his father being, according to one account, "coffretier," or maker of wooden chests; according to another, valet-de-chambre and barber to the Seigneur de Laval. Ambroise had a sister, Catherine, who married Gaspard Martin, a master barber-surgeon of Paris. His education was irregular and elementary. He says, quaintly:—"I desire not to arrogate to myself that I have read Galen either in Greek or Latin, for it did not please God to be so gracious to my youth that it should be instructed in the one tongue or the other."

PARÉ'S AMBITION AND ENERGY.

An opportunity which Ambroise had of "assisting" an eminent surgeon from Paris, who came to the village to perform an operation, fired him to try his fortune in Paris, and since his brother-in-law was a barber-surgeon there Paré set himself to learn surgery. There is no record of the circumstances of his student-life beyond the fact that, while still unqualified, he was lucky enough to get an appointment at the Hotel Dieu as house surgeon, where he continued three years, accumulating a vast store of data for future use, one of his teachers being the great anatomist, Sylvius. After leaving the hospital Paré did not settle down to spend his life in a barber-surgeon's shop for a practice to grow up slowly. He had too much ambition and energy for that. It was a stormy age of frequent wars, and Paré resolved to live a double life—with the army in times of war, at Paris in the intervals of peace. Accordingly we find him present at every campaign until 1569, when he ceased to wander, and lived quietly, but industriously, at home, one of the most familiar and best-beloved citizens of Paris. He died about Christmas, 1590. Just after Henri IV. had raised the siege of Paris, which, in respect of the frightful suffering which it caused, has been compared to the siege of Jerusalem by the Romans. We know nothing of the manner of Paré's death.

THE HORRORS OF WAR.

War has always had its horrors, but in this scientific age it is difficult to conceive of the monstrous inhumanities rife in Paré's times. We owe his description of these, and of the humaner methods of treatment which he introduced, to the mere accident that he was attacked in his old age by a preposterous Dean of the Faculty of Medicine, who asserted that Paré's use of the ligature after an amputation was vastly inferior to the old-established use of the cautery. "The book was an idiotic appeal to authority and tradition; the very thing that Paracelsus would have loved to burn. But it has an everlasting merit, inasmuch as it drew from Paré his 'Apologie et Traicte contenant les Voyages faicts en divers Lieulx.' This work, which is remarkable for rich humour, pungent wit, and shrewd observation of the facts of disease, and of men and affairs, gives an account of Paré's campaigning experiences, and of the lessons he drew from them, and casts many instructive sidelights on the manner and customs of medical and surgical practice in the sixteenth century. The thesis of his defence being the superiority of ligaturing and soothing treatment for hæmorrhage and gunshot wounds, etc., to the orthodox methods of the actual cautery and boiling oil. He, naturally, gives much attention to the miseries of the wounded under the prevailing system. One passage will serve as a sample of his quality:—"The soldiers within the castle, seeing our men come on them with great fury, did all they could to defend themselves, and killed and wounded many of our soldiers with pikes, arquebuses, and stones, whereby the surgeons had all their work cut out for them. . . . I had read in John de Vigo . . . that wounds made by firearms partake of venenosity, by reason of the powder, and for their cure he bids you cauterise them with oil of elders, scalding hot, mixed with a little treacle; and, to make no mistake, before I would use the said oil, knowing this was to bring great pain to the patient, I asked first, before I applied it, what the other surgeons did for the first dressing, which was to put the said oil, boiling well, into the wounds, with tents and setons; wherefore, I took courage to do as they did. At last, my oil ran short, and I was forced instead thereof to apply a digestive made of the yolks of eggs, oil of roses, and turpentine. In the night I could not sleep in quiet, fearing some default in not cauterising, that I should find the wounded to whom I had not used the said oil dead from the poison of their wounds, which made me rise very early to visit them, where, beyond my expectation, I found that those to whom I had applied my digestive medicament had but little pain, and their wounds without inflammation or swelling, having rested fairly all night; the others to whom the boiling oil was used I found feverish, with great pain and swelling about the edges of their wounds. Then I resolved never more to burn thus cruelly poor men with gunshot wounds." Paré then relates how he paid court to a surgeon of Turin to discover his secret and sovereign balm for gunshot wounds. He succeeded, and was much gratified to find the recipe, which was to boil in oil of lilies young whelps just born and earthworms prepared with Venetian turpentine, "was like that which I had obtained by chance."

SIXTEENTH CENTURY DRUGGING.

One of the cures upon which Paré dwells with venial pride will have a peculiar interest for pharmacists as an example of the sixteenth-century drugging. By the command of the King, Paré attended M. d'Auret, a Flemish nobleman, who was almost moribund with a suppurating gunshot wound in the thigh. Paré very naïvely remarks that when he saw that the patient was so ill he was very sorry that he had come, for his own reputation. In consultation with the staff of physicians and surgeons who had been treating d'Auret for seven months, Paré prescribed a course of treatment which is only partly indicated in the following extracts:—"For the bedsore . . . a fresh soft bed, with clean shirt and sheets. For the swelling and coldness of the limb hot bricks, sprinkled with a decoction of nerval herbs in wine and vinegar, and to the feet an earthenware bottle filled with the decoction. The thigh and the whole of the leg to be fomented with a decoction made of sage, rosemary, thyme, lavender, flowers of chamomile and melitat, red roses boiled in white wine, with a drying powder made of oak-ashes and a little vinegar and half-a-handful of salt. For the bedsore a large plaster made of the desiccative red ointment and of Ung. Committissae equal parts. . . And for the strengthening of the heart a refrigerant of oil of water-lilies, ointment of roses, and a little saffron dissolved in rose-vinegar and treacle, spread on a piece of red cloth. For the syncope . . . good nourishment full of juices, as raw eggs, plums stewed in wine and vinegar, broth of the meat of the great (stock) pot, the white meat of fowls, partridges' wings minced small, and other roast meats easy to digest, as veal, kid, pigeons, partridges, thrushes, and the like, with sauce of orange, verjuice, sorrel, sharp pomegranates; or he may have them boiled with good herbs, as lettuce, purslane, chicory, buglass, marigold, and the like. At night he can take barley-water, with juice of sorrel and of water-lilies, of each two ounces, with four or five grains of opium, and the four cold seeds crushed, of each half an ounce. . . . For the great pain in his head his hair must be cut and his head rubbed with rose vinegar just warm . . . also a forehead cloth of oil of roses and water-lilies and poppies, and a little opium and rose-vinegar, with a little camphor, all wrapped in a handkerchief, to be held some time to his nose. . . . And we must make artificial rain, pouring water from some high place into a cauldron, that he may hear the sound of it, by which means sleep shall be provoked in him. . . . For the knee, ointment of mallows and oil of lilies, and a little *eau-de-vie* and a wrapping of black wool with the grease left in it." It is evident from this example that Paré possessed one of the chief secrets of success in medical practice—he was a master of minutiæ; but while, probably, some of the details were introduced for the sake of their dramatic or moral effect, Paré did not omit the essentials, which were the opening of the abscess and the administration

of opium, along with careful dieting. This use of opium in an age which esteemed powdered unicorn's horn a panacea and crushed mummy "the sovereign'st thing on earth for an inward bruise" is significant of Paré's bias towards more rational modes of treatment. The last book that Paré wrote was in denunciation of the craze for mummy. "Ambroise will have none of it, 'flesh of decomposed, cadaverous, dead bodies.' He has never seen it do anything but give the patient a pain inside and make him sick. The ancient Jews, Egyptians, and Chaldees never dreamed of embalming their dead to be eaten by Christians. . . . It smells so bad that fishermen use it for bait. . . . Nobody is sure what it really is. Some people believe that mummy is made and manufactured in our own France, and that they take the bodies, by night, off the gallows, eviscerate them, dry them in an oven, dip them in pitch, and sell them for good, true mummy, saying they bought them of Portuguese merchants, who brought them from Egypt." He then tells the story of a friend of his who visited a storehouse of mummies, owned by a Jew, at Alexandria. Asked if the bodies had been brought from the sepulchres of the ancients, "The Jew fell a-laughing and mocked at this . . . saying that it was not four years since he had prepared all these bodies himself, thirty or forty, and they were the bodies of slaves and such-like people. He did not care whence they came, nor what they died of, nor whether they were young or old, male or female, provided he got them, and nobody could tell who they were once they were embalmed, and he marvelled greatly that the Christians were so greedy to eat the bodies of the dead."

Paré as a Writer.

Considering the activity and vicissitude of his life, Paré was a prolific writer. His writings, according to the custom of his time, range over a wide variety of subjects in anatomy, surgery, medicine, obstetrics, State medicine, pathology, pharmacy, natural history, and demonology. Many of his treatises brought him into violent conflict with the Faculty of Medicine, which controlled the whole profession at that time. The interests of the three leading branches of applied medicine were represented by (1) the corporation of barber-surgeons, which had worked its way up from the position of a craft to a quasi-professional footing; (2) the confraternity of surgeons; and (3) the Faculty of Medicine, which stood for the physician proper. These institutions were perpetually engaged in a sort of triangular duel. Paré began his career as a member of the corporation of barber-surgeons. He underwent two examinations, but it is not quite clear whether they were two separate examinations or whether Paré failed the first time he went up. When Paré became distinguished by his skill and his Court appointment, he naturally wished for a better professional status, and he sought to enter the confraternity of surgeons; and they were so eager to have him that they plunged into a labyrinth of irregularities, and, although they made a pretence of ploughing him, he was admitted soon after, and it was understood that the examination was merely formal. His enemies of the Faculty never allowed him to forget that he had been smuggled into the fold; but the great grievance which that body had against him was that he wrote his books in the vernacular, and even when he got some of them turned into Latin they were not propiated, but Paré held his own against them, and sometimes outflanked all their forces.

Paré's Limitations.

While Paré's works contain much sound doctrine on the subjects with which they deal, they also reveal the limitations of the man, which, of course, reflect the limitations of his age. "He had no knowledge of the circulation of the blood, or of the absorbent system, no anæsthetics, no antiseptics, no bacteriology; his understanding of the nervous system was not in advance of his times, and he had neither microscope, nor stethoscope, nor thermometer." Paré believed that the stars influenced the course of disease, that the plague came of itself by the Divine will apart from Nature, as a punishment for the sins of the people, although he endeavoured to trace its natural causation, that maggots in wounds and many other living things were generated spontaneously. He believed in the devil, evil spirits, sorcery, and witchcraft, and in the power of saints to cure disease. He had a firm faith in the royal touch for the king's evil. As an offset to these superstitions, we find that "some of his operations and methods were curiously modern. He understood and practised what we now call massage, he had a good way of producing local anæsthesia, he was opposed to immoderate bleeding, he knew the value of rest and of silence for his patients."

His Private Character.

In his private character Paré presents many engaging aspects. He was sociable, peace-loving, humane, and the friend of the poor. In some respects he was very like his illustrious successor, John Hunter, whose maxim "Why think? Why not try experiment?" was the keynote of Paré's method. "They both of them began life in the country, they saw something of war, and wrote on gunshot wounds. They spent the money lavishly when it came, they were great lovers of animals and their ways. . . . They loved the collecting of specimens, dissecting them, demonstrating them. . . . But there are two points of special likeness between them—first, the constant appeal to experience; next, the love of questioning, comparing notes, getting to know the results obtained by other men. Paré rashly predicted that the surgical advances of his times had left little for posterity to improve upon, and now his own "methods are antiquated, his theories all wrong, his books are the forgotten treasures of a few great libraries. Our methods, our explanations, will also be superseded; our books, many of them, will not even be treasured. He has kept his hold for three centuries by force of character, and that alone."

THE PHARMACEUTICAL EXAMINATIONS IN GERMANY.

The system of pharmaceutical examination and instruction was entirely rearranged after the foundation of the German Empire. The regulations now in force were issued in 1875 by the "Bundesrath," and have authority throughout the whole empire.

A young man, desiring to enter upon a pharmaceutical career must have the certificate of a "Gymnasium" or "Realgymnasium," which is obtainable by passing the "Untersekunda," and entitling him to serve only one year in the army (Einjaehrig-Freiwilligen-Zeugniss). Those who have passed the corresponding examination in a "Realschule," where Latin is not an obligatory subject of instruction, are bound to undergo a special examination in that language. The term of apprenticeship is three years, but it is shortened to two years for students who have passed the matriculation examination of a university (Abiturientenexamen).

The practical and scientific instruction of an apprentice is the duty of his master. In the larger cities like Berlin, apprentices, besides the instruction given by their masters, have the opportunity of systematical instruction by special teachers, and those who are deficient in their knowledge can have recourse to the schools of pharmacy (Pharmazieschulen), which are carried on by some pharmacists in Thuringia and Alsace-Lorraine. In several districts pharmacists have established private examinations of their apprentices in order to ascertain in what respect they are deficient.

Having passed the three years of apprenticeship, the next step is to pass the first examination for assistantship (Gehülfenprüfung). The board of examiners for the "Gehülfenprüfung" is composed of one medical officer (commonly the medical councillor to the president of the province, "Regierungsbezirk," the Regierungsrath, and Medizinalrath) and two pharmacists, one of whom must own or conduct a pharmacy. The members of the board are appointed by the authorities charged with the control of the pharmacies of the district—*i.e.*, in Prussia and Bavaria by the "Regierungspraesident," in Saxony by the "Kreishauptmann," etc. There are seventy-one boards for the assistants' examination in the Empire, in Prussia

one in each "Regierungsbezirk." The examinations are held four times a year.

The assistants' examination is divided into three parts, the written, the practical, and the oral examination.

In the written part the candidate must elaborate three themes—one belonging to pharmaceutical chemistry, one to botany or pharmacognosy, and one to physics. A collection of such themes is published by the Prussian Ministry.

In the practical part of the examination the candidate is required to read, to dispense, and to tax three prescriptions, to make a galenical or chemical preparation, and to test two chemical preparations as to their purity.

In the oral part the candidate must classify several fresh or dried plants and some raw drugs and chemical preparations, explain their derivation, their adulterations, etc., translate a pharmaceutical text from Latin into German, and answer questions about the principles of botany, chemistry, physics, and legislature.

Having passed this examination and obtained the position of qualified assistant (Apothekergehülfe) a period of three years must be spent in practical work in a pharmacy. Half of that period may be passed in a foreign country, and military service must also be got through.

At the end of the three years the assistant is entitled to attend a university, where he passes one and a half year, and his education is concluded by the qualifying examination (pharmazeutische Staatsprüfung), for which candidates present themselves before the special examining boards connected with every university, and with some technical high schools, academies, etc. There are such examining boards in the universities of Berlin, Bonn, Breslau, Erlangen, Freiburg, Giessen, Goettingen, Greifswald, Halle, Heidelberg, Jena, Kiel, Koenigsberg, Leipzig, Marburg, München, Rostock, Strassburg, Tübingen, Wuerzberg, in the academy of Muenster, and in the technical high schools of Brunswick, Darmstadt, Karlsruhe, and Stuttgart.

The members of these boards, comprising a professor of chemistry, a professor of physics, a professor of botany, and two pharmacists (or one pharmacist and a professor of pharmaceutical chemistry) are appointed annually by the central authorities of those federated States, which have a university—*i.e.*, the ministries of Prussia, Bavaria, Saxony, Wuertemberg, Baden, Hesse, Mecklenburg-Schwerin, Brunswick, Alsace-Lorraine, and the joint ministries of the Saxon duchies. The examinations are held twice a year, and they are subdivided into five parts: preliminary examination, pharmaceutical technic, chemical analysis, pharmaceutical sciences, and final examination.

The preliminary part consists in three themes, taken from inorganic chemistry, organic chemistry, and botany or pharmacognosy.

In the technical part the candidate must make two galenical and two chemical pharmaceutical preparations.

In the analytical part he must test a natural or artifical mixture by qualitative and (partly) quantitative analysis and a poisoned or adulterated organic or inorganic substance (food or medicine). All this work is done with doors locked.

The examination in pharmaceutical sciences is an oral one. The candidate must demonstrate at least ten fresh or dried officinal plants, or such plants as are easily confounded with them, at least ten raw drugs, referring to their derivation, adulterations, and pharmaceutical application, and some raw materials or chemical preparations as to their adulterations, ingredients, manufacture, etc.

The final examination, which is oral and in public, is a comprehensive one.

The qualifying document is given by the State ministries above mentioned.

The average number of pharmacists qualified each year is about 600. The number of failures is not published.

As already quoted in this Journal (October 21, 1899), it is now intended to raise the educational standard by requiring the student to take the "Prima," and by prolonging and enlarging the scientific courses.

THE ORIGIN OF THE WORD "PHYSICIAN."

At the meeting of the General Medical Council, on Saturday, December 2, Mr. Brudenell Carter read the following extract, bearing on the origin of the word "physician," from a letter written by Dr. Murray, the editor of the Oxford Dictionary:—

Dr. Murray said: "The word was taken by us from Norman French in the thirteenth century in the form *fisicien* and in its present sense of practiser of the healing art, medicus; the only sense which it had in contemporary French. It has never had any other sense in English, though one or two writers have expressed a desire to abolish this and to convert the word back to the sense of Latin *physicus*, Greek φυσικός, student of nature, naturalist, natural philosopher. Hume did this, but only as an etymological fancy. In French it has been different; *médecin* has successfully ousted *physicien*, and the latter in modern French since the sixteenth century has meant physicist. If you will turn to Du Cange's Lexicon of Mediæval Latin you will find that the regular mediæval Latin sense of *physica* is medicine, and *physicus* equals *medicus*. But in classical Latin and as late as the Latin lexicons come down—*i.e.*, to the fifth century or so, *physica* in Latin literature meant natural science and *physicus* a physicist. What you have to do, then, is to show how Latin *physicus* and *physica* passed between the fourth or fifth and, say, the eighth or ninth centuries, during the very midnight of the Middle Ages, from the ancient to the mediæval and modern sense. This is an inquiry that lies far away behind the scope of an English or even a French dictionary; it is part of the general history of the Latin language during the period of the break-up of the Roman empire and civilisation, for which perhaps no materials exist, and all that can be said is that the change took place and was a very natural and intelligible one. I have little doubt that even in the third century the common peasant of Italy or Gaul thought a *physicus* must know something about the influence of stars and planets and mysterious influentias or influenzas generally and about the position of bones and virtues of herbs, the only practical use of *physica* to him, and so thinking the *physicien* a *medicus* called the *medicus* a *physicus*. Does not the ignorant nineteenth-century Englishman call a drug-seller a chemist for the same reason, and does not the drug-seller find it profitable to call himself a chemist, which he is much less than a baker or a whisky maker is? Well, when the Roman civilisation perished all the literary class (as a class) perished and the peasant survived, and his Latin became the language of the modern world. He did not call in a *medicus* to use his *medicina* to cure his bad *crures* or his aching *caput*, but got a *physicus* with his *physica* (*fisicus* and *fisica* he wrote them when he could write) to attend to his *gampas* (pins or hockey-sticks) or his *testa* (shell or cocoa-nut). The substitution of *physicus* for *medicus* is then only part of the great revolution; but it lies a long way anterior to English and to the Englishmen of the thirteenth century who accepted *physicien* or *fisicien* as quite the fashionable courtly learned title for their own leche or leech. Of course, modern etymologists, going back to the original Latin and Greek sense, are apt to think the words ought to have the original sense, which is to undo history, and pull down the Tower, St. Paul's, and Westminster, to say nothing of Cannon-street Station, in order to restore Roman London. (They do so at Athens and Rome.)"

FUMIGATION FOR PHTHISIS.—Evaporate 20 to 30 drops of the following mixture on a hot plate in the patient's room:—Formaldehyde (40 per cent.), 60; creosote, 15; turpentine oil, 37·5; menthol, 1.—*Wien Klin. Rund.*, **13**, 467, after *Pharm. Centralh.*

PHARMACEUTICAL SOCIETY.

EVENING MEETING.

The second evening meeting of the session in London was held in the Pharmaceutical Society's house, 17, Bloomsbury Square, W.C., on Tuesday, December 12. The PRESIDENT—Mr. William Martindale—took the chair at eight o'clock, and introduced Professor J. Millar Thomson, F.R.S., one of the Society's examiners, who proceeded to deliver an interesting lecture on

Some Relations of Water to Other Substances.

Professor Thomson commenced by dividing the subject matter he proposed to consider in his lecture into the four following heads:—(1) The relation of water when combined as a whole with other substances; (2) Its relation to other substances as a solvent; (3) Its relation to the crystalline form of salts deposited from solution; and (4) Its relation to the colour and composition of certain substances.

Considering the combination of water with substances, Prof. Thomson showed the controlling effect of temperature upon such combinations, more especially when water unites with bases, as in the case of copper oxide; at the ordinary temperature the blue hydrated oxide $CuO \cdot H_2O$ being formed, but if the temperature be raised to the boiling point of water— viz., 100° C., no combination between the base and the water takes place, and the anhydrous black oxide CuO is alone obtained. The similar union of water with salts was touched upon; the heat of combination between anhydrous calcium chloride and water to form the hydrated salt $CaCl_2 \cdot 6H_2O$ being experimentally demonstrated.

Passing to the relations of water to substances as a solvent, attention was first given to the very varied rates at which, and amounts in which, substances dissolved in water; this point being illustrated experimentally and also by means of diagrams indicating the rates of the solubility of different salts, and also certain exceptions and peculiarities to the regular rules of solubility which may be seen in common salt, calcium sulphate, and Glauber's salt.

Professor Thomson then dealt with the question of hot and cold saturated solutions, illustrating the deposit or crystallisation of various salts during the cooling, that is, the passing of a solution from the hot to the cold point of saturation, and indicated some of the various crystalline forms in which the salts were obtained during the process. The effect of the temperature at which the salt is deposited controlling the crystalline form and the amount of water attached to the salt was also dealt with.

After considering the principal questions relating to what may be termed ordinary solution, Professor Thomson pointed out that many salts showing peculiarities in their mode of solution also show abnormalities in their methods of deposition, this giving rise to the so-called states of supersaturation. Flasks containing supersaturated solutions of sodium sulphate and sodium acetate prepared at their temperatures of maximum solubility, tightly stoppered with a cork or with cotton wool and allowed to cool, did not deposit the excess of salt on regaining the ordinary temperature. On being opened, however, the large excess of salt retained by them is suddenly discharged, the whole contents of the flasks becoming solid. The question of the circumstances causing this sudden crystallisation was discussed, Professor Thomson showing experiments proving that it is not due to mere shaking, but to the entrance of minute particles which start the crystallisation. He finally demonstrated that the active nuclei must be either a particle of the same salt as that in solution or of a salt isomorphous with it and of similar chemical structure. The application of these phenomena to the separation of dissimilar salts was also shown, and an account was given of experiments dealing with the action of one or other of the component salts as active nuclei on supersaturated solutions of compound salts.

In connection with the relation of water to crystalline form, it was shown that the amount of water attached to salts varied if these salts were deposited or crystallised at different temperatures, the quantity of water generally diminishing as the temperature rises. This is to be seen in salts such as magnesium or iron sulphates, which on deposition from their solutions at the ordinary temperature give a general composition of $MSO_4 \cdot {}_7H_2O$, but at higher temperatures crystallise with $6H_2O$, or even $5H_2O$. The same is seen on heating copper sulphate to 100° C., when the whole crystalline structure is destroyed and a certain fixed quantity of water passes off from it. Professor Thomson then explained the term "water of crystallisation," and alluded to the various systems of crystals into which each variety of crystal might be classified.

Attention was next drawn to the peculiarly hydrated salts investigated by the late Professor Guthrie and called by him "Cryohydrates," which are definite aggregations of the salt with water, only formed temperatures much below the usual ones at which salts crystallise. Passing to the relation of water to the colour of certain substances, the various changes of colour with change of composition were shown by the properties of various cobalt salts. Thus cobalt chloride or bromide, in their full state of hydration, as $CoCl_2 6H_2O$, red in colour, but on heating became blue, due to the formation of the dihydrate $CoCl_2 2H_2O$. Similar changes were exhibited with cobalt iodide, which shows these changes almost in a more marked manner, dehydrating from $CoI_2 6H_2O$ into the $CoI_2 \cdot 4H_2O$, $CoI_2 \cdot 2H_2O$, and the anhydrous salt CoI_2 as the temperature rises, and exhibiting for each of these states of hydration the various colours of pink, green, yellow, and, finally, black. Pictures were shown painted with these various salts, which, in the fully hydrated condition, give the idea of a sepia sketch, but which on heating change colour, giving the various tints of a spring landscape.

These changes of colour with change of hydration may also be seen with solutions of the salts, as dehydration takes place between the salt molecules and the molecules of water at the various temperatures showing a temporary dissociation, which is accompanied with a change in colour as long as the solution remains at that particular temperature. On cooling they return to the original colour.

The lecture, which was fully illustrated by experiments, was listened to with close attention throughout.

The PRESIDENT said Professor Thomson had given a very interesting lecture, and performed some beautiful experiments, and he was sure that all present were thankful to him for a very pleasant hour. There was, however, one interesting change with regard to water that had not been referred to by the lecturer—namely, the crystallisation of water into snow that had taken place in the atmosphere that day. But he supposed that was an experiment which would be difficult to perform in that room. He asked all present to show their appreciation of the lecture by according a hearty vote of thanks to the lecturer.

This was done by acclamation, and Professor THOMSON replied.

The PRESIDENT then announced that the next evening meeting would be held on February 13, 1900.

The usual pharmaceutical refreshments were provided in the Examination Hall.

BENEVOLENT FUND GENERAL MEETING.

ELECTION OF ANNUITANTS.

A general meeting of the members of the Pharmaceutical Society and of subscribers and donors to the Benevolent Fund was held at Bloomsbury Square, on Tuesday, December 12, for the election of four annuitants on the Benevolent Fund.

Scrutineers were appointed, and, Mr. E. N. BUTT having been elected as Chairman, they proceeded to examine the voting papers.

The general meeting then adjourned until the scrutiny had been completed.

At the adjourned meeting, Mr. WILLIAM MARTINDALE, President in the chair, the Scrutineers presented the following report:—

SCRUTINEERSS' REPORT.

We, the undersigned Scrutineers appointed at the thirty-fifth election of annuitants on the Benevolent Fund of the Pharmaceutical Society of Great Britain, do hereby certify that we have examined the voting papers committed to us, and report the following results:—

Bosley, Emily Jane	6,407
Troke, Charles	6,322
Stangroom, Frederick	5,995
Burrows, Hampden C.	4,282
Holt, Richard Wylde	3,773
Partridge, Thomas S.	897

4,089 voting papers were received, of which number 96 were informal (59 unsigned, representing 189 votes, and 37 incorrectly filled up, representing 130 votes). 7,045 voting papers were issued.

EDWARD N. BUTT, Chairman.

F. Bascombe.	W. B. Nelson.	John T. Wallis.
G. S. Taylor.	F. A. Upsher Smith	W. Pickard.
J. W. Bowen.	J. H. Shacklock.	A. J. Bullen Cooper.
R. Fisher Young.	Harry Wilson.	D. R. Jacks.
E. W. Lucas.	I. Bourdas.	A. J. Wing.
W. Fred Gulliver.	W. Prior Robinson	H. Bate.
Herbert Cracknell.	Henry Wiggins.	

The PRESIDENT then declared the following duly elected annuitants:—

Bosley, Emily Jane.	Stangroom, Frederick.
Troke, Charles.	Burrows, Hampden C.

The PRESIDENT proposed a vote of thanks to the Scrutineers for their services, which was seconded and carried unanimously, and was acknowledged by Mr. E. N. Butt.

Donations to the Library and Museum.

At a meeting of the Library, Museum, School and House Committee, on Wednesday, December 13, the Librarian and Curator presented the following reports of donations:—

TO THE LIBRARY (LONDON).

Royal Institution of Great Britain:—Proceedings, No. 92; List of Members, 1899.

Philosophical Society of Glasgow:—Proceedings, 1898-99, vol. 30.

Royal Medical and Chirurgical Society:—Medico-Chirurgical Transactions, vol. 82.

University College, London:—Calendar, 1899.

University College, Nottingham:—Calendar, 1899.

Mr. M. Carteighe:—Men and Women of the Time, 1895.

Mr. H. Wippell Gadd, Exeter:—Synopsis of the British Pharmacopœia, 1898, 4th edition.

Mr. C. W. Peach, London:—Thomson's London Dispensatory, 1811.

Mr. G. J. Seabury, New York:—Shall Pharmacists become Tradesmen? 1899.

Professor Remington, Philadelphia:—United States Dispensatory, 18th edition, 1899.

Mr. R. T. Baker, Technological Museum, Sydney:—On three new species of Eucalyptus.

Mr. H. G. Smith, Sydney:—On the Crystalline Camphor of Eucalyptus Oil, etc.

Proprietors of Chemist and Druggist:—The Chemist and Druggist, 1899: The Chemists' and Druggists' Diary for 1900.

Kaiserliche Akademie der Wissenschaften in Wien:—Sitzungsberichte, 107 Band, 4.—10. Heft.

Kaiserliche Leopoldinisch-Carolinische Deutsche Akademie der Naturforscher:—Nova Acta, Bd. 71, 74.

TO THE LIBRARY (EDINBURGH).

Mr. A. K. Baxter, Leith:—Priestley on Air, 2 vols., 1790.

Mr. H. Wippell Gadd, Exeter:—Synopsis of the British Pharmacopœia, 1898, 4th edition.

TO THE MUSEUM (LONDON).

Messrs. S. Figgis and Co., London:—Specimen of Suez senna.

Messrs. Jenkin and Phillips, London:—Specimen of Colombian red bark.

Commendatore Thos. Hanbury, F.L.S., Ventimiglia:—Specimens of the fruits of *Diospyros kaki*, *D. virginiana*, *Pyrus sorbus*, *Cydonia sinensis*, and *Ficus* species.

Mr. H. Collier, London:—Ingredients of a Chinese prescription for broken limbs.

TO THE HERBARIUM (LONDON).

Mr. R. J. Mellor, Hemel Hempstead:—Specimen of *Rubus fruticosus* in flower on December 2.

CHEMICAL SOCIETY.

At a meeting, held on Thursday, December 7, Dr. THORPE, LL.D., F.R.S., President of the Society, took the chair, and several new fellows were elected, including Mr. Dudderidge and Mr. E. M. Chapman, Salters' Research Fellow in the laboratories of the Pharmaceutical Society. At the conclusion of the formal business, the Chairman called for a paper by H. J. H. Fenton, M.A., F.R.S., and H. O. Jones, B.A., B.Sc., on the

OXIDATION OF CERTAIN ORGANIC ACIDS IN PRESENCE OF IRON.

This now well-known reaction, the oxidation of organic oxygenated compounds, brought about by means of iron in presence of hydrogen peroxide, has furnished the authors with material for many previous communications during the last two years. The extreme interest and value of the results obtained by investigating the carbohydrates and other compounds in a similar manner has induced the authors to extend their researches to the organic acids, with a view of describing completely the products obtained in the case of all of the important acids. This paper forms the first contribution on the subject. Among the acids already more or less completely investigated are glycollic, lactic, tartronic, glyceric, malic, mucic, pyromucic, picric, acetylene dicarboxylic, acetone dicarboxylic, and benzoic acids. Details will be found in the complete paper to be published in the Journal of the Chemical Society, but it may be mentioned that the action is more vigorous in some cases than in others. With glycollic acid the reaction is so vigorous that the mixture must be carefully cooled during the process. The product is glyoxylic acid. Lactic acid yields a product, pyruvic acid, that is so easily oxidised that special care has to be taken, not only to cool the mixture, but also to add the reagent gradually. An interesting point came under notice in the oxidation of tartronic acid. The mesoxalic acid formed had a melting point of 172° C., contrary to published statements that the melting point is 160° C. Glyceric acid, perfectly pure and freed from traces of glycerin, gave an almost quantitative yield. The oxidation of malic acid affords material for a separate communication. Mucic and saccharic acids have been investigated, but not completely. Pyromucic acid gives a beautiful transient violet coloration, when oxidised. With picric acid a green colour is obtained. The product obtained by the oxidation of acetone dicarboxylic acid strikes a purplish colour with ferric salts, and gives a precipitate with phenyl-hydrazine. There are some acids oxidised as easily without iron as with it. Of those benzoic acid is an example.

Mr. Fenton was then asked to read the next paper, on

OXALACETIC ACID.

When malic acid is subjected to the foregoing treatment it tends to yield carbon dioxide and pyruvic acid with the greatest ease. When, however, sulphuric acid is present and the liquid product is extracted with ether, a substance is obtained that proves, on analysis, to be oxalacetic acid. It strikes a red colour with ferric salts, and is scarcely altered by dilute acids. The yield is 22 per cent. It is slowly soluble in water—though it cannot be described as sparingly soluble—and easily soluble in alcohol. Its slow solubility in ether renders its extraction a tedious process; even the thirty-fifth extraction with ether was found to leave some oxalacetic acid behind. When dried in a vacuum and analysed its formula was found to be $C_4H_4O_5$. On titration this acid acts as a dibasic acid. Contrary to statements made in text-books this substance is quite stable and easily obtained. Water, however, has some action upon it, altering its eutralising power.

Next followed a communication by A. W. Crossley, M.Sc., Ph.D., and H. R. Le Sueur, B.Sc., dealing with "The Determination of the Constitution of Fatty acids, Part II." Ethylisopropyl

acetic acid was the subject of the paper. Its reactions were given, and from these the constitution was reasoned out.

Then a paper was given by R. H. Adie, M.A., B.Sc., and K. C. Browning on the

Reactions Between Sulphuric Acid and Potassium Ferrocyanide.

When strong, pure sulphuric acid is poured on crystals of potassium ferrocyanide they dissolve, but no gas is evolved, even above 200° C. The change brought about may be represented by the equation:—

$$K_4FeC_6N_6 + 4H_2SO_4 = 4KHSO_4 + H_4FeC_6N_6.$$

The presence of water gives very different results, varying with the amount of water present.

When the proportion of water reaches two molecules for every molecule of sulphuric acid present, all the carbon is converted into carbon monoxide. Thus:—

$$K_4FeC_6N_6 + 8H_2SO_4,2H_2O = 4KHSO_4 + FeSO_4 + 3(NH_4)_2SO_4 + 6CO + Aq.$$

The hydrolysis appears to be due to the sulphuric acid rather than to water. As the mixture is diluted the yield of carbon monoxide diminishes in quantity, none being formed when $10H_2SO_4$ $4H_2O$ is the proportion and strength of acid per molecule of potassium ferrocyanide. In this case Everett's salt and hydrocyanic acid are produced. The Everett's salt is formed as a result of the action of potassium sulphate on hydroferrocyanic acid. When this acid is treated with water it yields prussic acid and ferrous cyanide:—

$$\overbrace{H_4FeC_6N_6}$$

$$4HCN{\cdot}Fe(CN)_2 + Aq = 4HCN + Fe(CN)_2 + Aq.$$

It is a most interesting point that air assists the decomposition of potassium ferrocyanide, reducing the time necessary for the completion of the reaction with sulphuric acid from ten hours down to two. Now this explains in a plausible way the instructions given to students in manuals of chemistry to place in the retort fragments of pumice, brick, or porous tile. It has generally been stated that such additions are necessary in order to prevent bumping, but the authors point out that no doubt the air imprisoned in the pumice, etc., is of service in hastening the process.

The discussion was joined in by Messrs Travers and Groves, Professor Ramsay, and the Chairman. The last-named mentioned that some time ago, when preparing large quantities of carbon monoxide by this method, he never got the theoretical yield. He drew the authors' attention to an old paper published by Dittmar, in which it is shown that the strongest sulphuric acid obtainable contains a certain amount of water, the strongest containing one molecule of water to twelve molecules of sulphuric acid.

When Mr. Adie had replied to the various points raised, he followed on with a paper on the

Sulphates of Bismuth.

Several sulphates of bismuth have been described, but the different workers are at variance as to their constitution. There is the normal sulphate $Bi_2(SO_4)_3$, besides two others having the formulæ $BiH(SO_4)_2{\cdot}3H_2O$ and $Bi_2O_3{\cdot}2SO_3{\cdot}2H_2O$, and a mixture of these two obtained by dissolving bismuth oxide in moderately concentrated sulphuric acid. On attempting to prepare definite sulphates by using strong sulphuric acid, $H_2SO_4{\cdot}2H_2O$, the authors found on analysis that the product gave widely varying results, the yield of oxide being 44—59 per cent. They were on the point of abandoning the investigation when it occurred to them that better results might possibly be obtained by starting at the other end with dilute acid. This was done, and with acid having the strength represented by the formula $H_2SO_4{\cdot}12H_2O$, crystals were obtained of the constitution, $5Bi_2O_3{\cdot}11SO_3{\cdot}17H_2O$. When the number of water molecules was lowered to five, $Bi_2O_3{\cdot}4SO_3{\cdot}74H_2O$ was obtained, and three molecules of water gave $BiH(SO_4)_2{\cdot}3H_2O$. The last-named product decomposes at 173° C. with production of the normal sulphate. Crystallisation with strong acid takes place in two stages, the first crop sinking at 240—280° C., and the other at 130° C. down to the air temperature. These two crops were collected separately, when the first proved to be $BiH(SO_4)_2$, corresponding to 57 per cent. of bismuth oxide. The crystals formed below 170° C. had the constitution $Bi_2O_3{\cdot}5SO_3{\cdot}10H_2O$, corresponding to 44 per cent. of oxide. This is a new sulphate of bismuth. Evidently the temperature employed is of importance, as well as the strength of acid. The question of time may also affect the result. The conclusion is that below 170° C. bismuth oxide dissolves in strong sulphuric acid forming $Bi_2O_3{\cdot}5SO_3{\cdot}10H_2O$; with a rise in temperature sulphuric acid and water split off, an acid sulphate separating out. Prolonged heating gives the normal sulphate.

INCOMPATIBILITY AND SOME OF ITS LESSONS.*

BY WALTER G. SMITH, M.D.

Ex-President Royal College of Physicians, Ireland; Physician to his Excellency the Lord Lieutenant; King's Professor of Materia Medica and Pharmacy, School of Physic, T.C.D.

Part II.—General. (*Continued.*)

Heterogeneous Systems,

i.e., either a precipitate formed or a gas liberated.

Sometimes an intentional incompatibility is committed, *e.g.*, all effervescing draughts: seidlitz powders; sodii phosph. efferv., B.P.; sodii sulph. efferv., B.P.; sodii citro-tart. efferv., B.P.; lotio nigra.

Some incompatibilities are trivial and comparatively unimportant, *e.g.*, vegetable astringents (tannic and gallic acids) with iron salts; lead salts and opiate solutions (meconate of lead); ferric chloride and tincture of opium (ferric meconate).

In very dilute solution, *e.g.*, of $HgCl_2$, it is obvious that precipitations may not occur which would happen in stronger solutions.

Of the more important changes which should, as a rule, be avoided, we will notice:

(1) *Action of halogens upon Liq. ammoniæ.*

The reaction between the halogens and the fixed alkalies has been already referred to.

With ammonia the case is different.

(*a*) Free Cl or Br liberates nitrogen gas, and the effervescent solution is colourless:

$$4NH_3 + Br_3 = 3NH_4Br + N.$$

(*b*) A more important reaction occurs with iodine.

When Liq. ammoniæ (or Lin.. camph. ammoniatum) is added to Tinct. iodi (or liquor iodi) the colour of the iodine is discharged, and a black precipitate forms, the so-called iodide of nitrogen.

This is a most unstable substance, and when dry very explosive. Dangerous accidents have occurred through ignorance or carelessness in dealing with it, after collection on a filter. The black precipitate is an iodine derivative of ammonia, and its formula is usually given as NHI_2 or NI_3. But according to Chattaway and Orton, the true formula is $N_2H_3I_3(NH_3, NI_3)$, and they have obtained it in well-defined copper-coloured crystals.

The theory of its formation is:

$$2NH_4OH + I_2 = NH_4I + H_2O + NH_4OI \text{ (hypo-iodite)}$$
$$3NH_4OI = NH_3 + 3H_2O + N_2H_3I_3.$$

Iodide of nitrogen is also liable to be formed when alcoholic solution of iodine is left in contact with white precipitate.

*Reprinted, by permission, from the *Practitioner*. Continued from page 554.

Iodide of nitrogen is analogous in composition to silver fulminate, NAg_3 or $NHAg_2$, but not to fulminate of mercury, $C_2Hg(NO_2)N$, which is a derivative from the nitro-acid, $C_2H_2(NO_2)N$.

(2) *Liberation of an acid gas* (CO_2 or H_2S).

Carbonates are decomposed by :

(*a*) Free acids, except HCN and H_2S.

Examples of such stupid combination are :—Ac. sulphuric dil. with mist. cretæ ; nitromuriatic acid with aromatic spirit of ammonia ; oxymel, or syrup of squill (acetic acid), with carbonates, bicarbonates, spir. ammoniæ aromat.*

(*b*) Acid salts, *e.g.*, cream of tartar, $KH\bar{T}$.

If grey powder (hyd. *c.* cretâ) be rubbed up with conf. sulphuris ($KH\bar{T}$), the pasty mass slowly swells and becomes frothy :—

$$CaCO_3 + 2KH\bar{T} = Ca\bar{T} + K_2\bar{T} + H_2O + CO_2.$$

(*c*) Basic salts, *e.g.*, Bism. subnitras.

This slowly decomposes alkaline bicarbonates, especially if gently warmed.

Soda bicarb	.....	ʒij.
Bism. alb	.....	ʒij.
Sp. ammon. aro...	.....	ʒij.
Sp. chlorof	.....	ʒi.
Aquæ	..... ad	ʒviij.
M.		

After the bottle had been put aside for an hour it burst.

$$BiONO_3 + 2NaHCO_3 = Bi_2O_2CO_3 + 2NaNO_3 + H_2O + CO_2.$$

Bismuth carbonate should be substituted for the nitrate.

If bismuth subnitrate be added to chalk mixture, CO_2 will be slowly evolved.

(*d*) Double citrates, *e.g.*, scale preparations of iron, viz., ferri et amm. citr. ; ferri et quin. citr.

The following prescription could not be dispensed without some effervescence :—

Pot. bicarb	.....	ʒij.
Pot. iodidi	.....	ʒi.
Ferri ammon. citr	.....	ʒij.
Aquæ aurantii	..... ad	ʒiii.
M.		

Sulphides, *e.g.*, CaS, are decomposed by acids, and H_2S liberated.

Potassium chlorate reacts with strong HCl, and Cl gas is set free.

With H_2SO_4, Cl_2O_4 is liberated.

(3) *Liberation of an insoluble acid.*

Free benzoic and salicylic acids are sparingly soluble. Add a mineral acid, *e.g.*, Infus. rosæ acidum, to solution of ammonium benzoate or sodium salicylate, and note the abundant crystalline precipitate.

Neither acetic nor boric acid will cause precipitation.

Some glucosides, *e.g.*, glycyrrhizin, are precipitated from their solutions, viz., ext. glycyrrh. liq., by mineral acids, and an unsightly brown mass produced.

(4) *Mercurials.*

The following points should be noted :—

(i.) Mercurous compounds are more unstable than mercuric compounds, *e.g.*, green iodide of mercury, Hg_2I_2, which has been rejected from the B.P. owing to its instability.

(ii.) Mercuric (per) compounds sometimes assume allotropic forms, *e.g.* :

Mercuric oxide, HgO, red (red precipitate) and yellow forms (both official).

Mercuric iodide, HgI_2 (red and yellow forms).

(iii.) Mercuric compounds readily form double salts, *e.g.*, Donovan's solution (Liq. arsen. et hydr. iod.).

Lister's zinco-mercuric cyanide, $HgCy_2, 4ZnCy_2$;

Mayer's reagent, $HgI_2, 2KI$; Sal. alembroth, $HgCl_2, 2NH_4Cl$.

* Several official preparations contain free acid, viz., acetum scillæ ; infusum rosæ acidum ; liq. ferri acetatis; syr. calcis lactophosph.; syr. ferri phosph. ; syr. ferri phosph. *c.* quin. et strychn. ; syr. limonis ; syr. scillæ.

(iv.) All mercurous (sub) compounds are insoluble.

Both oxides of mercury are insoluble, and an intentional incompatibility is exemplified in Lotio hydrarg. flava, and Lot. hydrarg. nigra formed by action of lime water on the chlorides :—

$$HgCl_2 + Ca(OH)_2 = HgO + CaCl_2 + H_2O.$$
$$Hg_2Cl_2 + Ca(OH)_2 = Hg_2O + CaCl_2 + H_2O.$$

Potash and soda and their carbonates react similarly to lime water.

R. Hydrarg. perchlor.	.....	gr. i.
Liq. Fowler	.....	ʒiss.
Potass. iodidi	.....	ʒi.
Liq. peptici	.....	ʒij.
Infus. Cinch.	..... ad	ʒviii.
M.		

About as bad a prescription as could be devised.

To prescribe corrosive sublimate with arsenic, use Liq. arsen. hydrochlor.

A solution of $HgCl_2$ in glycerin is not precipitated by Liq. potassæ in the cold.

Ammonia behaves quite differently.

With corrosive sublimate it forms "white precipitate" (hydrarg. ammon., B.P.).

$$HgCl_2 + 2NH_3 = NH_4Cl + NH_2HgCl.$$

With calomel, "black precipitate" is formed (not official).

$$Hg_2Cl_2 + 2NH_3 = NH_4Cl + NH_2Hg_2Cl.$$

Borax added to $HgCl_2$ precipitates red oxychloride of mercury.

Calomel is converted into mercuric salt by HCN, and turns black from liberation of metallic mercury :—

$$Hg_2Cl_2 + 2HCN = Hg(CN)_2 + 2HCl + Hg.$$

Calomel is decomposed and blackened by bromide of potassium in presence of a trace of moisture.

$$Hg_2Cl_2 + 4KBr = (HgBr_2, 2KBr) + 2KCl + Hg.$$

This is a dangerous incompatibility, and these two salts should never be prescribed together, for a poisonous mercuric salt is formed.

The following prescription was written for a child (result to child not stated) :—

Potass. brom.	.....	gr. x.
Calomel	.....	gr. iii.
M. Mitte tales iii.		

(*Ph. J.*, Feb. 24, 1894.)

Calomel is decomposed by pure iodide of potassium and blackened, and yellow mercurous iodide is also formed.

Tincture of iodine acts upon calomel in a somewhat complex fashion, with precipitation of red iodide of mercury.

$$Hg_2Cl_2 + 4KI = (HgI_2 2KI) + 2KCl + Hg.$$
$$Hg_2Cl_2 + I_2 = HgCl_2 + HgI_2.$$
$$HgCl_2 + I_2 = HgICl + ICl.$$—(*Ph. J.*, Feb. 24, 1894.)

This is a dangerous and objectionable reaction.

The following prescription was ordered to be painted on a glandular swelling on the neck :—

Tinct. iodi. ʒi. ; calomel gr. xx. M.

Calomel and iodoform left in contact turn scarlet from formation of HgI_2. The reaction possibly is :—

$$CHI_3 + Hg_2Cl_2 = CHCl_2I + HgI_2 + Hg.$$

Corrosive sublimate is, in one sense, incompatible with KI, and mixed in molecular equivalents, red iodide of mercury is precipitated (B.P. process).

But excess or KI quickly forms the colourless solution of double iodide ($HgI_2 2KI$), so that the favourite combination of, say, 1 gr. $HgCl_2$ in ʒvi. of solution of KI (5-10 grains to ʒi.) is quite legitimate and therapeutically efficient.

℞	Pulv. calcii sulphidi	.... gr. xv.	
	Liq. hydr. bichlor.	..... ʒvi.	
	Pot. iodidi	..... gr. xl.	
	Pot. bicarb.	..... ʒiiss.	
	Aq. chlorof.	.....ad ʒviii.	
	M.		

No ingenuity can render this prescription presentable.

(To be continued.)

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THE PHARMACY ACT, 1868, AND "COMPANY PHARMACY."

The use of plain English, free from ambiguity, as recommended by Mr. Glyn-Jones, in connection with the subject of "company pharmacy," is, at the present time, very obviously a pressing necessity. In regard, also, to the general matter of pharmacy law, there is an equal want of definite ideas and of suitable application of abstract principles. Judging from what has recently been said and written in this connection, the inference may be drawn that very few persons, even among the speakers and writers on the subject, have a sufficiently correct appreciation of what pharmacy law means, what is its object, what the extent of its operation, or what is the principle upon which it is based. Taking, for instance, as the Statute of most general importance, the Pharmacy Act, 1868, to which attention has recently been directed by the Companies Bill introduced into the House of Lords last Session, its intention, purport and effect, are very generally misunderstood. Instead of being, as many suppose, a measure creating a trade monopoly, in favour of a class of persons, it is altogether a public measure: its one object is the safety of the public, and every one of its provisions is directed to the attainment of that one object. The Act does not even relate, as its title would indicate, to pharmacy or to the practice of that art; neither does it relate to the trade in drugs or to the materials employed for medicinal purposes; but only to a certain limited number of those drugs and their preparations which are used for medicinal purposes chiefly, together with a few other articles of a dangerous nature that are used for various economic or technical purposes. Those drugs, preparations, chemicals, etc., to which the Act relates, are specified, in a schedule to the Act, as being poisons within the meaning and for the purposes of the Act. All the provisions of the Act relate to those articles, to the conditions under which they may be lawfully sold or supplied in the form of medicine, to the persons by whom they may be sold or supplied, either by retail or as medicine, and to the penalties incurred by disregard of the regulations laid down in those respects. The drugs, chemicals and preparations to which the Pharmacy Act relates do not amount to more than one-tenth part of those constituting the official materia medica of the British Pharmacopœia. Consequently the Act affects only a very small part of the practice of pharmacy, and as regulating the practice of that art it is from the point of view of the pharmacist only a miserably emasculate measure. Even in regard to trade transactions it is but partially effective as a poisons Act, inasmuch as it applies only to a comparatively small number of the poisonous articles employed in medicine.

The persons to whom the provisions of the Pharmacy Act relate are primarily medical practitioners and "persons known as chemists and druggists," both of whom have, in the exercise of their respective occupations, to deal with the articles included in the schedule of poisons Medical practitioners are referred to in the Act only as being specially exempted from its operation; presumably on the assumption that by their professional education and training they will have acquired a knowledge of the nature and use of the scheduled articles, as well as of the precautions to be observed with them on account of their poisonous properties. A further reason for the exemption of medical practitioners is the circumstance that, as the present representatives of the old apothecaries, they claim to be entitled to practice pharmacy as apothecaries were, in addition to their practise of medicine. Chemists and druggists—defined in the Act as persons "keeping open shop for the compounding of the prescriptions of duly qualified medical practitioners"—are the persons recognised by the Act as being authorised to keep open shop for retailing, dispensing, or compounding the articles included in the schedule of poisons. The exercise of their business in that respect is made subject to the condition that they shall be registered as the Act requires. The Act also provides that the necessary preliminary to registration as a chemist and druggist within the meaning of the Act is the passing of an examination for the purpose of obtaining a certificate of competent skill and knowledge for conducting the business of a chemist and druggist in retailing, dispensing, or compounding of poison, and becoming entitled to be registered as, and entitled to use the title of, a chemist and druggist. The Act relates also to persons who are not thus legally qualified: in regard to them it provides that it shall be unlawful for "any person" to sell poisons or to keep open shop for retailing, dispensing, or compounding poisons, or to use the title of chemist and druggist, in connection with that business, unless such person is a chemist and druggist, is registered under the Act and conforms to such regulations as to the keeping, dispensing, and selling of poisons as may from time to time be prescribed by the Pharmaceutical Society with the consent of the Privy Council.

The privileges appertaining to the statutory qualification of the Pharmacy Act, 1868, are like the qualification itself, and the acts to which it relates altogether of an individual nature. Some of the most important of those privileges are necessarily consequences of the qualification, and their conservation is a condition as necessary for the safety of the public as it is in the interest of registered chemists and druggists. In regard to selling, for instance,

no person can lawfully sell any of the articles included in the poison schedule unless he or she—whether master or servant—is a registered chemist and druggist. If the registered keeper of a shop delegates to an assistant the sale of poisons, that assistant must either be a registered chemist and druggist himself or the sale must be carried out under the immediate personal supervision of the keeper of the shop, or of a registered person acting on his behalf as well as in virtue of his own qualification. The qualification that entitles a person to sell poisons also entitles that person to keep open shop for retailing, dispensing, or compounding poisons, also to use or exhibit the title of chemist and druggist in connection with that business. As Lord SELBORNE stated in his judgment, keeping open shop extends to "something more" than performance of the several acts of selling, etc., for which qualification is required, that is to say, the direction and general management of the shop, as well as the control of sales of poison and of the arrangements for dispensing and compounding: these constitute the particular function of the keeper of a shop, and the exhibition of the statutory title points out that he is a legally qualified person. On that account qualification of the keeper of a shop for those purposes is obviously necessary for the Act to be effectual. In the case of a sale of a poison in the first part of the schedule, the keeper of a shop (according to Section xvii.) is the seller, the person responsible for the proper conduct of the sale and the person to whom the purchaser must be known. That section of the Act contemplates the possibility of such a sale being made by "any apprentice" or by a "servant" not necessarily qualified; therefore the person on whose behalf such a sale is made—the keeper of the shop and the master of the apprentice or servant—is obviously the person required by the Act to be a registered chemist and druggist, *i.e.*, the qualified owner of the shop, and there is every reason that Section i. should have the same interpretation. The cogency of the argument that the Act requires qualified ownership is even stronger in regard to the case of dispensing or compounding medicine, for the performance of which the keeper of an open shop is alone responsible, and must, in the nature of things, be especially trusted by the public in that case. In that respect the privilege of registered persons to use the title of chemist and druggist in connection with their business is the only means of distinguishing persons certified to possess the competent practical knowledge of their business necessary for securing the object of the Act. The exclusive right of legally qualified persons to use that title requires no support by argument: that is a necessity—both to prevent the public being misled and in justice to the possessors of the privilege.

Much of the difficulty experienced by the Courts in regard to the question whether the provisions of the Act should apply to a corporate body as well as to individuals has arisen from insufficient consideration of the fact that the object of the Act can be secured only by conserving individual privileges conferred by qualification; that, in fact, proprietary qualification is as essential to the principle of the Act as individual qualification. The absurdity of the argument that a company may do anything that an individual may not do, would not otherwise have remained so long unperceived, nor would judges have been misled by the equally fallacious doctrine that for the purposes of the Pharmacy Act, a qualified servant is as good as a qualified master. A further misleading influence has been exercised by the prominence given to the sale of poisons as a trade transaction, and the consequent mistaken inference that the Pharmacy Act created a trade monopoly. That mistaken view of the matter has been sedulously cultivated by persons interested in company drug stores, until many have been induced to believe that the entire business of a chemist and druggist is subject to the restrictive operation of the Act; thus popular prejudice has been unreasonably excited against its provisions and against legally qualified chemists. These misleading influences must be counteracted by proper explanation of the circumstances to members of Parliament throughout the country, and especial care should be taken to point out that the company drug store, whatever its attractions, is not a suitable place either for the sale of poisons or for the careful and proper dispensing of medicine, because it cannot in the nature of things be directed and controlled by a legally qualified proprietor in the manner declared by the Pharmacy Act to be expedient for the safety of the public.

WHOLESALE PRESCRIBING.

THE *British Medical Journal* of last week has, under this heading, an article on the subject of wholesale prescriptions, in which the practice of prescribing active drugs in the form of proprietary articles is spoken of as a very undesirable one. It is admitted that many of the articles referred to are well and carefully prepared, their composition is known, and it may be added that there is sometimes considerable convenience in the use of them by country practitioners. But the disadvantage attending the general use of such articles is that it cannot well be confined to medical practitioners. These ready-made forms of administration soon become familiar to patients, and are recommended to their friends, with the possible consequence of eliminating demand for the services of the medical man and the pharmacist, even more completely than the lending of prescriptions may do. In the case of such medicinal agents as antipyrine, sulphonal trional, and thyroid gland preparations, there is, moreover, considerable risk attending the amateur medication that is too frequently practised. Our contemporary offers a decided warning against the promotion of a system which tends to substitute for the skilled physician and pharmacist the local grocer who is the distributing agent of wholesale manufacturers. Continuing, the assertion is made that there is no rational check to the sale of these preparations containing medicinal agents as dangerous as any of those included in the poison schedule, and they are used in many instances and recommended to friends "without the slightest thought of the harm they may do." As a consequence, our contemporary adds, "the art of writing a thoughtful and appropriate prescription is lost, and the medical man falls a victim to the wiles of the wholesale medical vendor," a result somewhat similar to that which has been brought home to the chemist and druggist by promoting the sale of so-called "patent medicines."

ANNOTATIONS.

The Death of Mr. E. C. C. Stanford will come as a great shock to his many friends in the world of pharmacy. He had been ailing for some time past, but it was not generally known that he was seriously ill until a few days ago. Mr. Stanford always took a great interest in pharmaceutical matters. He was a student in the Pharmaceutical Society's School, where he won medals for all subjects in 1857, and subsequently he acted as a demonstrator under Professor Redwood. His Major examination certificate was number 480, and he became a life member of the Pharmaceutical Society, his membership dating from 1860. He was also a founder of the British Pharmaceutical Conference, of which body he was President at the Edinburgh meeting in 1892, a Fellow of the Institute of Chemistry and of the Chemical Society, and a Justice of the Peace for the County of Dumbarton. Quite recently, Mr. Stanford had promised to contribute a paper for an evening meeting in Edinburgh, on a new automatic infuser, of which he was to get a working specimen made for exhibition at the meeting. He was very original and ingenious in devising processes and apparatus,and always had some new idea in hand. He was a typical example of a pharmacist applying his chemical knowledge on a large scale outside the line of ordinary pharmaceutical practice. His lecture on the "Economic Uses of Seaweed" before the Society of Arts, in November, 1862, for which the silver medal of that Society was awarded, attracted the attention of the Duke of Argyll, and led to his taking (*P.J.* [2], **4**, 375) up his residence in Scotland in 1863. He had a wide knowledge of the west coast of Scotland and the Hebrides, which he frequently visited in connection with his work on the manufacture of iodine and other products of marine algæ, a collection of which exists in the London Museum of the Society as an evidence of his industry. He had collected many notes on the substances used by the natives of those districts as dyes, and also as medical remedies. He also paid considerable attention to the utilisation of sewage, and tried to introduce the use of seaweed char for that purpose (*P.J.* [3], **3**, 410). He subsequently patented a process for the preparation of algin from seaweeds, for various technical as well as medicinal purposes, the alginate of iron being one of the most tasteless salts of that metal. Mr. Stanford read two papers at the Belfast Conference last year, and may be said to have investigated everything that promised to yield iodine. One of his latest researches was on the iodo-compounds of the thyroid gland, of which he brought out a preparation claimed to contain the full iodine content of the gland in the combination naturally occurring in it, and free from any risk of pathological contamination. He was a Liberal in politics, and took a very active part in public affairs in the county and district of Dumbarton, in which Glenwood, his private residence on the Clyde, a little below Glasgow, is situated. He was a most genial individual, a delightful *raconteur*, and highly popular with all classes. Though not a Scotchman, his enthusiasm and admiration for everything that was Scotch could not be excelled by any native.

The Company Pharmacy Problem is defined in an article published this week (see p. 578 *et seq.*), wherein it is attributed to the action of two classes of registered persons, rather than to the development of joint-stock trading. The abolition of company trading in pharmacy is not held to be sufficient, even if it be necessary, and the remedy suggested is naturally directed at what is held to be the actual cause of chemists' troubles. It consists in placing duly qualified persons in what would be practically the same position as proprietors, in all pharmacies not actually personally conducted by qualified proprietors. That remedy—if applied all round, as it ought to be—would affect registered chemists who own branch shops, as well as corporate bodies, and a Pharmacy Bill is, therefore, the most fitting place in which to introduce the matter. But at present it is a Companies Bill, and not a Pharmacy Bill, that looms large before us; accordingly, the proposition is made that an attempt might be made to deal with corporate bodies, to the extent suggested, in a Companies Bill. What is proposed is much more than qualified managership; the idea is that, in every pharmacy—not personally conducted by a qualified proprietor—there should be a registered individual who, in all his business relations with the public, should occupy exactly the same position as a proprietor. To illustrate that point by familiar examples, he would virtually be in the position of a ship's master whilst his vessel is at sea, or of the lessee and licence-holder of a house of public refreshment. Though actually a paid servant, he would—in relation to the public—appear as the proprietor of the business, and be liable in that respect under all Statutes which affected the individual proprietors of pharmacies. There is little question that this ought to be the law in any case; professional qualification cannot be deputed to unqualified individuals, any more than it can be acquired by corporate bodies. Whilst, therefore, pharmacy law reform is in the air, the article here referred to is a useful contribution to the subject of which it treats, and merits serious consideration.

The Qualified Director Remedy for the company pharmacy evil has been promptly resorted to by Mr. Jesse Boot, presumably as a means of further postponing the day of reckoning which seems likely to arrive when the public fully realises what it risks when it trusts associations of unqualified persons to supply it with medicines. To most chemists, the readiness with which the remedy has been applied may cause suspicion with regard to its effectiveness as a check upon the development of company pharmacy, and judging from statements in the report of the Inspector-General in Companies Liquidation for the year ending December 31 last, the utility of directors may be questioned, for he deliberately states that directors are frequently mere puppets in the hands of the promoters who stand behind them. "Careless and neglectful of duty they may be, and impecunious they often are, but they rarely act with fraudulent intention." Attempts to make directors liable in cases where fraud exists, therefore, may often be futile. Unless it can be proved that a fraudulent promoter has acted in conjunction with another person, he cannot be indicted for conspiracy,since he cannot conspire by himself, and carelessness or neglect of duty on the part of the directors does not bring them within the grip of the law. But if directors are mere puppets in the hands of fraudulent promoters, they are probably none the less so in the hands of other promoters and, even if all companies carrying on the business of a chemist and druggist were compelled to have boards of qualified directors, it is difficult to see how those directors are to exercise any effective control over, or indeed to be of any use in, the conduct of the business.

Free Trade in Poisons does not commend itself to laymen, as a rule, and the opinions expressed by the *Globe*, in commenting on the case against a Goole grocer (see *ante*, p. 574) who had illegally sold laudanum, are welcome as showing that the Pharmaceutical Society is occasionally regarded as something more than a mere trade union. The defendant in the case referred to not only sold laudanum without being legally qualified to do so; he also omitted to label the preparation "poison," or with his name and address. It was perhaps natural that he should infringe the provisions of Section 17 of the Pharmacy Act, inasmuch as to label the preparation properly would have been to acknowledge that he was breaking the law, whilst also providing evidence against himself. The *Globe*, however, regards it as nothing

less than a crime that deadly poisons should be vended in such a reckless manner, and claims that the Pharmaceutical Society has earned public gratitude by taking legal action in the matter. The suggestion is made, by the way, that it hardly suffices to inflict fines in such cases. "When this perilous trade is carried on with full knowledge of its illegality and of its danger, the vendor should have his conscience refreshed by a substantial term of imprisonment." Unfortunately, however, such punishment is not provided for by the Pharmacy Act, even in the case of repeated offences. In conclusion, the *Globe* suggests that all drugs capable of destroying human life should be included in the poison schedule, and that it should be an offence punishable with imprisonment to sell any poison without so labelling it as to give warning of its deadly nature.

THE SALE OF ABORTIFACIENTS is properly regarded as a noxious kind of business, and chemists who may at any time be tempted to make money quickly by resorting to such traffic will do well to note carefully what has happened in the "Madame Frain" case (see *ante*, p. 534c). One of the most striking points about the trial was Mr. Justice Darling's statement that if a woman takes a medicine, believing it to be noxious, with intent to procure abortion, she is guilty of an attempt to commit that crime, although the medicine is absolutely harmless. On the other hand, it was held that a person supplying a woman with something which he knows to be innocuous, but which she believes to be capable of procuring abortion, is not guilty of inciting her to commit that crime, but in such a case an indictment for obtaining money by false pretences might be preferred against the vendors. More important still, however, was Mr. Justice Darling's statement that the crime of which the defendants were convicted was rendered possible because newspapers accepted advertisements of the illegal business, and that, those responsible for the production of such newspapers might possibly if charged, be found guilty of inciting to crime. Books and handbills recommending certain proprietary preparations as remedies for somewhat vaguely-defined complaints might, conceivably, be held to come under the latter ruling, and chemists are warned to have nothing to do with "literature" of the type referred to. It is hardly worth while to sell a box of pills or a bottle of mixture at an infinitesimal profit, at the risk of appearing in the dock charged with a serious criminal offence, and, above all, a chemist's reputation ought to be too high to permit him to stoop to make money by such questionable methods.

THE BENEVOLENT FUND ELECTION was held on Tuesday, December 12, when four annuitants were duly elected on the Fund. The candidate whose name comes first on the list (see p. 585) had applied once before. She is the widow of a member of the Pharmaceutical Society and a subscriber to the Benevolent Fund, who was unable to leave any adequate provision for her support. The second on the list has been a member of the Society for a quarter of a century and a subscriber to the Fund up to the present time. He was formerly Divisional Secretary for East Finsbury, and is now in feeble health and very poor circumstances. The name of the third successful candidate was before the subscribers for the second time. He also had formerly subscribed to the Fund, has suffered from ill-health, and is unable to do anything towards his own support. The fourth on the list has attained the great age of eighty-two, is suffering from senile paralysis, and has no friends or relatives able to assist him. He receives a small amount as sick pay from a benefit society. Each of those four cases was a thoroughly deserving one, and it must be a source of great satisfaction to the subscribers to the Fund that it has been in their power to help four individuals who are evidently so little able to help themselves now, though they have done what they could in that direction in the past —three by subscribing to the Benevolent Fund and one to a benefit society. But the cases of the two unsuccessful candidates are equally deserving, one having subscribed to the Benevolent Fund for twenty-five years and the other occasionally. It is to be hoped that both may secure election on the Fund at no distant date. The fact may be noted, by the way, that nearly three thousand voting papers were not returned, so that there appears to have been a considerable margin left for canvassers to work upon.

THE SPECTACLE MAKERS' COMPANY'S EXAMINATIONS, which have been conducted under the auspices of the Spectacle Makers' Company at the Northampton Institute, Clerkenwell, for the purpose of awarding optical diplomas for qualifying candidates have just concluded. In all, 117 candidates presented themselves for examination, and of these 96 were examined, and 21 postponed their examination. Candidates to the number of 67 were examined in written visual optics, 40 took the *viva voce*, and 79 the practical portion of the examination. Of those who submitted themselves to the test 28 described themselves as opticians, 6 as optical and photographic dealers, 3 as scientific and surgical instrument makers and opticians, 43 as watchmakers, and 16 as chemists and opticians.

THE POISONOUS FUMIGATOR CASE is not to be carried further, we understand, the respondents having decided not to proceed with the appeal. A full report of the case appeared in last week's Journal, and it is unnecessary to refer to it further, except to point out how emphatically the Lord Mayor spoke in regard to the dangerous nature of such preparations as that in question. The fumigator was shown by Dr. Stevenson to contain no less than thirty-seven per cent. of nicotine, and there is no question of that being a poisonous vegetable alkaloid within the meaning of Part I. of Schedule A of the Pharmacy Act, 1868. Nevertheless, the preparation was sold without being labelled with the name of the article, the word "Poison," or the name and address of the sellers. The decision in the case, therefore, can only be described as an eminently proper one.

TARTARIC ACID AS A SUBSTITUTE FOR SALTPETRE, in curing the meat of pigs, has proved an unmitigated failure in a certain country district. According to Mr. A. J. Giles, Secretary of the Federation of Grocers' Associations, the assistant at a co-operative store a short time ago served several village customers with tartaric acid instead of saltpetre for curing the meat of the pigs they killed. Very speedily the outcry came, as the mistake was only discovered when the cure had been done. To still the complaints the store took over the tartared bacon and washed it, in the hope of drying it and selling it to customers. It will be an interesting thing, says Mr. Giles, to know the result of the experiment, also under what head the transaction in tartared pig will appear in the quarterly statement of accounts, which is supposed to be prepared when the dividend is declared to the delighted meeting of members. It would, further, be interesting to know the extent of the loss incurred by the difference in price between the tartaric acid and saltpetre, as well as whether the co-operative society has a special drug department, and dispenses medicines for its members.

THE EFFECTS OF STRAMONIUM SMOKE have proved more far-reaching than was anticipated by a lady who had been in the habit of burning the drug in her bedroom, as a remedy for asthma. She rented a furnished house at Dawlish, and has been sued at Newton Abbot County Court, for damage done to the carpets, bedding, etc., by the smoke. A local chemist gave evidence for the plaintiff, and in the result, the defendant was mulcted to the amount of eighteen pounds and costs.

PHARMACEUTICAL SOCIETY OF IRELAND.

MEETING OF THE COUNCIL.

The monthly meeting of the Council of this Society was held on Wednesday, the 6th inst., at 67, Lower Mount Street, Dublin.

The Vice-President (Mr. Beggs) took the chair, and mentioned that he had been requested to do so by the President, who was unfortunately ill and unable to attend.

The other members of the Council who attended were Messrs. Grindley, Bernard, Ryan, Dr. Walsh, Kelly, Michie, P. L. White (Sligo), Wells, and J. E. Connor (Newry). Mr. Sidney H. Vaughan, President of the Pharmaceutical Society of Queensland, was also present.

The Vice-President said he was sure they all joined in a hearty greeting to their friend, Mr. Vaughan. They all felt that it was both a pleasure and an advantage to have him among them. They heard his address at the evening meeting, but he had something more of importance to say to them.

A conference with Mr. Vaughan then took place in committee.

Correspondence.

A letter was received from the Attorney-General of the Isle of Man enclosing a copy of the Pharmacy Act which had just been passed by the Legislature of that island, containing a provision that the licence of the Pharmaceutical Society of Ireland shall be recognised there.

A letter from the District Inspector of the Royal Irish Constabulary at Athlone stated that Mr. William Doyle, registered druggist of that town, had been fined 20s. and costs for a breach of Section 17 of the Irish Pharmacy Amendment Act.

Mr. Wells said this was the first prosecution under the section mentioned. It was altogether a police prosecution and was for not having a qualified manager in a branch shop kept open for the sale of poisons. There were several other summonses against the defendant, but they were all withdrawn by the police.

A letter was received from Mr. Frederick N. Binks thanking the Council for having appointed him Professor of Theoretical Chemistry.

The Vice-President: I am sure we have got a very good man in Mr. Binks.

A letter was read from the Principal Medical Officer to the Army in Ireland asking to be furnished with the names of any pharmaceutical chemists who would be willing to undertake temporarily the duties of compounder of medicines in one of the military hospitals of Dublin.

Mr. Wells: Anyone who wishes to undertake this can apply to Mr. Ferrall.

Pharmacists as Public Analysts.

The next business was an adjourned discussion on a motion made at the last meeting by Professor Tichborne as to the institution of a degree to meet the requirements of the Local Government Board as regards public analysts.

As Professor Tichborne was absent in London attending a meeting of the General Medical Council, the discussion was postponed to the next meeting.

Donations.

Donations were received from the Agent-General for Queensland of a copy of his 'Guide to Queensland,' from the British Pharmaceutical Conference of a copy of the 'Year-Book for 1899,' from Mr. John Wishart of copies of the 'Botanists' Vade Mecum' and of 'Schedules for Plant Description,' and from Mr. H. Wippell Gadd, M.P.S.G.B., of a copy of the new edition of his British Pharmacopœia Synopsis.

On the motion of Mr. Wells, seconded by Mr. Grindley, thanks were voted to the donors.

Election of Examiners.

On the motion of Dr. Walsh, seconded by Mr. White, Mr. Brown and Dr. Tweedy were re-elected to conduct the Society's Preliminary Examination.

On the motion of Mr. Grindley, seconded by Mr. Connor, Mr. J. Smith was re-elected to conduct the Botany and Materia Medica Division of the License Examination.

On the motion of Mr. Wells, seconded by Mr. Kelly, Mr. J. Guiler and Dr. McKinney were re-elected to conduct the Registered Druggists Examinations in Dublin and Belfast.

On the motion of Mr. Wells, seconded by Mr. Grindley, Mr. W. V. Johnston was re-elected to conduct the Examination for Assistants to Pharmaceutical Chemists.

On the motion of Mr. Grindley, seconded by Mr. Wells, the following were elected members of the Society:—Mr. W. J. Burke, Cashel; Mr. J. T. Chamberlain, Dublin; and Mr. J. Hewton, Ballinasloe.

Mr. F. W. Warren, of Navan, was nominated for membership.

Other business having been disposed of, the Council adjourned.

EVENING MEETING.

At Dublin on Monday, December 11, the usual fortnightly evening meeting of the Society for the discussion of scientific and practical subjects, was held at 67, Lower Mount Street, Mr. W. F. Wells, ex-president, in the chair. The meeting was specially interesting on account of its being the occasion for Mr. P. Kelly, M.C.P.S.I., to deliver a lantern lecture on

The Development of Plant Life From Seed to Fruit.

Mr. Kelly said he purposed making his remarks so simple as might stimulate non-students to take up the study of botany, which had many advantages over other scientific pursuits, in that it was a most fascinating one, and required only a knife and a lens to furnish material from the roadside sufficient to reward the student with an abundance of enjoyment. Mr. Kelly started by drawing an analogy between plant life and animal life. The chief constituents were the same in both. He instanced a cell of yeast, and showed that it was built up of carbon, hydrogen, nitrogen, and oxygen. The origin of life was the task of the philosopher. Some said life was spontaneously generated, while others held that life could only be given from life. Dr. Bastein, M.A., and Fellow of the Royal Society, the highest title that a scientific man could get, tried to prove that life could be spontaneously created. He got a flask and immersed some hay in fluid, sealed the bottle, and boiled it, so that no animalculæ could exist in it, and in course of time he discovered myriads of bacteria had developed, thus proving to his own satisfaction that life was not necessary to get life. Tyndall and Huxley next went to work in the matter, and took up the experiments on the same lines. Tyndall, who was a clear-headed man, saw some of Bastein's errors, and as the result of his searches was bound to confess that life must be got by life. Much had been said for and against Darwin's theory of evolution. Darwin, however, did not deny that things must be created. His theory was a modification of that which already existed. Take pigeons of different types. The original pigeon was the rock dove, and although many classes of pigeons existed, such as fantails, pouters, etc., if these were allowed to remain unattended to they would revert to their original state and become rock doves again. So it was with regard to plants. The theory of natural selection in plant life was carried out by man. If certain plants were to be cultivated specially the seeds were retained and the pollen from other flowers kept away. The same thing obtained in the poultry yard—the weaklings were destroyed and the strong fowl looked after. The herdsman likewise attended to his cattle. It was, as Herbert Spencer remarked, "the survival of the fittest." The brain of a gorilla of twenty stone weighed only twenty-six ounces, whereas

the brain of a human being weighed from forty-eight to seventy-six ounces. Humorous reference was made to the prevailing habit of ladies cycling, and Mr. Kelly said that, like the gorilla, whose brain decreased in weight through not using it, so would the ladies lose the organ of speech if they went on cycling, for while doing so they could not talk very well. Proceeding to the direct subject of his lecture, the speaker showed a lime-light view illustrating the development of plant-life generally. The seed in its embryonic state, barley growing, and a mangrove forest were flashed on the screen, together with transverse sections of roots and stems of plants. He also explained how it was possible to ascertain the age of a tree by counting the rings formed in the wood. The peculiar leaves of the "Pitcher Plant" formed an interesting series of views, and the power of this plant to absorb flies was shown by means of a number of views; a fine section of a rhododrendron was exhibited and its various peculiarities described. Vegetation and fructification formed the second part of the lecture, and Linnæus was quoted as one of the first of the 17th century botanists to make the assertion that there were male and female plants. The carriage of pollen by insects was next described, and some beautiful specimens of the thistle defended from beetles by ants were compared by Mr. Kelly to Ladysmith, with the Boers coming down on the defenders and retiring discomfited. The ants were, said the speaker, amid laughter, like the poor chemist, who got up at all hours of the night and spent his energy in doing good for other people, with very little thanks for his trouble. Cross sections of the fruit of belladonna and digitalis were shown. Cross fertilisation by insects came in for a share of attention, and in connection the lecturer related a laughable story as illustrating the doctrine of natural selection. Ferns and their propagation formed the third and concluding portion of the lecture, which lasted over an hour, and was delivered throughout extempore and without notes, and in a catchy and interesting style. A vote of thanks having been accorded, on the motion of Mr. O'CONNOR, the proceedings closed.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting of the Dewsbury and District Chemists' Association was held on Monday, December 11, Mr. A. FOSTER presiding. A letter was read from the Bradford and District Chemists' Association, directing attention to a resolution passed at a recent meeting (see *ante*, p. 456*a*), and asking the Dewsbury Association to pass a similar resolution. It was explained that the Dewsbury Association had already passed a resolution on the matter, and it was thought there was no need to take further action at present.

A communication was also read from the Council of the Federation of Local Pharmaceutical Associations, directing attention to the fact that at the last meeting of the Pharmaceutical Council there was a wide divergence of opinion between members of the Council on

THE QUESTION OF COMPANY PHARMACY

in connection with a clause to be submitted for embodiment in a Companies Bill. It was of the greatest and most urgent importance that the Council should be informed before next month of the opinion upon this subject, which vitally affected the general interests of chemists. The letter also asked for the views of members of the Dewsbury Association on this question. In the course of a discussion it was mentioned that the meeting of the Association had been put off in the expectation that the policy of the Pharmaceutical Society would be announced at the meeting of the Pharmaceutical Council last week, and some surprise was expressed that this course was not taken.

CHEMISTS' DEFENCE FUND.

Reference was next made to the Chemists' Defence Fund. A letter having been received from Mr. Glyn-Jones stating that five hundred shares required to be taken up. When these had been taken up, the company would be floated. Several members present agreed to apply for shares.

Mr. G. WALKER, Dewsbury, introduced the question of the

CAMWAL RECONSTRUCTION SCHEME.

A letter that was read stated:—"As you are aware, the existing Association can supply only chemists (who are shareholders) and hospitals. It is proposed that C.A.M.W.A.L., Limited, shall supply chemists, hospitals, public institutions, hotels, etc., trade with which is not prejudicial to the retail trade of chemists. In other words, the retail syphon trade in C.A.M.W.A.L. waters will be thoroughly protected to the chemists, as no wine merchant, grocer, or other such retailer can be supplied. In the reconstruction the directors hope to get a Stock Exchange quotation for the shares." In the discussion that took place it was stated that a question had been asked the Secretary of the Association whether those who were shareholders, and not chemists, would be supplied, and the reply was that they would be bound to supply all who were shareholders. It was held that this meant that any wine merchant, grocer, or other retailer who was a shareholder would be supplied, and the opinion was expressed that this was another case where chemists had built up a trade, as they had done with patent medicines, and then had it snatched out of their hands. It was eventually decided to put the matter on the agenda for the next meeting.

CAMBRIDGE PHARMACEUTICAL ASSOCIATION.

At a meeting held in the large theatre at the University New Museum, Cambridge, on Friday, December 8, Mr. Alderman DECK, the President of the Cambridge Pharmaceutical Association, presiding, Dr. E. Lloyd Jones, of Downing College, delivered an interesting and profitable lecture on

Sewer Air

before the Cambridge Pharmaceutical Association. The lecturer pointed out that sanitary science was only in its childhood, and that a great deal had still to be done to improve the unhealthy places that some of our forefathers had left us. He gave a technical analysis of sewer air, pointing out that it was the organic bodies in sewer air that were hurtful, which caused disease, and sometimes death. For instance, cases were known in which typhoid fever had been communicated by sewer air, the sewer air containing a microbe which must have come out of sewage contaminated by the excreta of a typhoid patient. Dr. Jones gave several instances of diseases that had come under his treatment which he had found to be directly attributable to escapes of sewer air into living and sleeping rooms, pointing out how frequently puerperal fever was caused by bad drainage. He also emphasised the fact that the offensiveness or non-offensiveness of sewer air is no criterion of its hurtfulness. An epidemic at Middlesboro' had shown that pneumonia could follow exposure to sewer air, and sore throats, diphtheria, scarlet fever, typhoid fever, anæmia, headache, loss of appetite, and even peritonitis (*e.g.*, epidemic at Wandsworth) might be due to it. It was not advisable to have sewer air escaping at the level of the street. The great moral drawn by Dr. Jones, after he had shown numerous diagrams of faulty drainage, was that private persons should look after their drains and sewers themselves, and not rely on the local authority.

A cordial vote of thanks was passed to the lecturer on the motion of Mr. A. S. CAMPKIN, J.P., seconded by Mr. STURTON.

BOURNEMOUTH AND DISTRICT PHARMACEUTICAL ASSOCIATION.

The members of this Association dined together at the Granville Hotel, Bournemouth, on Friday, December 8, when Mr. J. A. Toone, President of the Association, occupied the chair, and among others present were Mr. S. R. Atkins, J.P., of Salisbury,

member of the Pharmaceutical Society's Council, who was the guest of the evening; Mr. J. Humphrey, London; Messrs. F. E. Bilson, Hon. Sec.; G. E. Bridge, W. Jones, J. H. Morris, W. Bland Botham, J. H. Williams, E. Worth, Lawrence, J. T. Hall, C. F. R. Pars, F. Rye, Taylor, Rose, Aitken, W. R. Atkins, Spinney, etc.

The Chairman, at the conclusion of an excellent dinner, followed by the usual loyal toast, gave the toast of

The Pharmaceutical Society of Great Britain,

He said he had no sympathy with the attacks so often made on it, first, because the Society was not a body of gentlemen who met now and again in Bloomsbury Square, but consisted of chemists all over the kingdom, and they could change or remove the Executive if they did not think they acted wisely. Another reason was that he was convinced that the Society had done excellent work in the past, and that if pharmacists occupied a better position now it was due to the labours of the gentlemen who from time to time represented them on the Council. No doubt they had much to complain of, but it seemed to him that the House of Lords in 1881 deliberately kicked the bottom out of the Pharmacy Act of 1868, and was the body whom they ought to blame most for the decision that a company was not a person within the meaning of the Act, which, therefore, did not apply to a company. A company composed of seven unqualified men might proceed to do what one man could not. Some individual, thinking it would be a good thing to do, took unto himself six other persons more wicked than himself—or, at any rate, not qualified—and formed a company, put over his door that he was a chemist, and perhaps he did not know the difference between strychnine and sulphate of magnesia. This, he argued, was a great hardship on the individual pharmacist who had trained himself and worked for his position. In asking Mr. Atkins to respond to the toast, the Chairman alluded to his happy apprenticeship many years ago to the guest of the evening, and spoke warmly of Mr. Atkins' high qualities and the value of his experience and work on the Council.

Mr. S. R. Atkins, in response, thanked the Chairman for his personal references, and with regard to the Council of the Society, his answer to particularly silly remarks he sometimes heard about it as to what good it was doing for pharmacy was, "What good have you ever done the Society?" and there he left the matter. He spoke strongly in favour of extending full confidence to the Council, which, from his own experience, was a body of men filled with the desire to advance the interests of pharmacists, and of great ability as a whole, and then went on to allude to the anxiety which the position of pharmacy was causing to all concerned in it. They had much to complain of, but the principal topic of the moment was that of company trading, which overshadowed everything else. In what he said, he desired that his remarks should be understood as in no way representing the Council, but as his own views only. At the present moment the Council was not united. It was anxiously deliberating, and would have to do so again and again. Possibly some consensus of opinion might be reached by and bye, but they had not reached it yet. The point was that they, as a Society, might fine an individual unqualified trader for selling scheduled poisons, but that such unqualified person might absolutely contract himself out of the Act by forming himself into a company. He could do that by the unhappy decision of the House of Lords, and he did it. It was now necessary for them to assert again the principles of the Pharmacy Acts—that of individual qualification, individual education, examination, and registration. It was necessary, however, to be frank, and to admit that there were companies and companies. With some they could have no possible contention, and he could not conceive why they could not be brought into line and comply with the law as he should desire the law to exist; that the directors should be man for man qualified; and that the capital of such companies should be kept strictly within that qualification. Companies other than those he desired to see abolished. He felt so strongly entrenched in that position that he was not disposed to stir an inch till he was driven by stress of circumstances, or stress of decisions at law, to do so. What he would do would be to go to the department charged with that particular question and represent to its chief—the Lord Chancellor, or the President of the Privy Council, or the President of the Board of Trade, as the case might be—and state the case frankly and fearlessly, and ask for legislation or consideration. If he were told by that authority that it was too late, that vested interests had grown up so enormously strong that they could not be dealt with, and that such contentious matter could not be launched in the House of Commons without fear of defeat, what would he do next? He would report the result to the Council and ask for fresh powers. If the Council felt unable to come to a decision on a matter of such enormous weight, he would advocate an appeal to the community at large and place the result of the appeal before the authorities, though it might not embody all they desired or felt they had a right to claim. The next line of defence they could take up was that of a qualified directorate. Personally, he did not attach that weight to it that some did, as he looked forward with the greatest apprehension to the development of the co-operative principle, to the syndicate principle, to the combination of capital, in a calling like theirs. He feared that their position would be most gravely imperilled. For something like 200 years the great unpaid work of the community had been done by the great middle class. If that class were destroyed as employers and became merely employés, if they were all to become servants of corporations, companies, and syndicates, their ability to serve the community would go, and the effect on the country itself would be a bad one. He took high ground deliberately in saying that it would be disastrous to the nation. There were scattered all over the country men of education, of character, and of reading, who, with moderate means, were conducting the work of pharmacy on the highest principles, and the abolition of that class would be a serious blow to the country and to pharmacy itself. That took him to the third line, which was to simply leave matters alone and let them drift. But the drifting policy was too late in his opinion. The country was roused to such a state of anxiety and expectation that rendered it imperative that something should be done. He had been amazed at the mass of correspondence that had been sent in and all pointing, with one or two exceptions, to general support of the first position he had shadowed forth. He did not expect there would be absolute agreement, but he would be glad to hear the views of the chemists present representing a town that stood high in the pharmaceutical world.

Mr. W. Jones was then called upon to propose a resolution dealing with

The Company Pharmacy Problem.

It was in the following terms:—

That it should be unlawful for a company to take, use, or exhibit the title of pharmaceutical chemist, or of chemist and druggist, or any other title indicating registration under the Pharmacy Acts, and in all other respects a company should be subject to the provisions of those Pharmacy Acts in the same manner as individuals.

He said it was necessary, not only in fairness to the pharmacist who accepted certain restrictions and conditions, and was granted certain privileges, but for the public good, as the Pharmacy Act entrusted to them the sale and dispensing of poisons. It was for the public good that the pharmacist should be highly trained and highly efficient, and he feared they were bound to go backwards in the near future, if it became no longer worth the while of young men to go in for pharmacy. The medical profession was interested in this struggle, and, he thought, would have something to

say about it. He blamed the Council for not taking the matter up long ago.

Mr. MORRIS seconded the resolution, and described the average chemist as an apathetic beggar. It was largely owing to his apathy that the present troubles had arisen. If they could get the companies abolished it would be a glorious day for pharmacy, but he was afraid they were hoping for too much. The idea of the Pharmacy Acts was qualified ownership, and the idea of qualified managership was absurd and dangerous as a cloak and cover for capital.

Mr. G. E. BRIDGE said he was one of those House of Lords' entities—a limited liability company. He had taken to himself, as a speaker had said, six others and formed himself into a company. His reasons for doing this were partly that he had two excellent servants and was anxious to make them partners, and he considered a joint-stock company the ideal and only condition for partnership. Another reason was that he had a mixed business. He was qualified as a pharmacist himself and gave way to no one in his interest in a love of pharmacy, but he was making a man not qualified for pharmacy, but qualified for mechanical, surgical, and orthopædic work one of his directors. He was dead against capitalists coming in and destroying the trade under false pretences, and that might be met by having a qualified director who had a substantial interest in the firm. The chance of securing more than that had, he feared, been lost years ago. He moved as an amendment that limited liability companies should be legal under such a restriction as he had suggested with respect to a qualified and substantial director.

Mr. BOTHAM seconded this for the sake of argument, but the original proposition met with general approval in the brief discussion that followed.

Mr. HUMPHREY, who was invited by the Chairman to speak, said it was necessary to consider the subject under two aspects—the professional and the trade. With regard to the professional qualification, chemists could not afford to surrender anything. In particular, pharmaceutical titles must be absolutely restricted to individuals who held the qualifications which alone entitled them to use them. No company, whether consisting of qualified or unqualified persons, must be allowed to use those titles, though the qualified individuals constituting any company would, of course, continue to use their titles as at present. With regard to the trade aspect of the company-pharmacy problem, he must remind them that probably nine-tenths of the average chemist and druggist's business had nothing to do with what was protected by the Pharmacy Acts, viz., the dispensing and sale of poisons. How could they expect to protect the rest? It could not be done, and the question of where the capital invested in the business came from was of no consequence to anyone but the parties directly concerned. Whether it was provided by the individual, or borrowed, or furnished by a joint-stock company, did not affect the matter. The point was that the individual in every pharmacy who was responsible to the public for the conduct of the business, especially as regards dispensing and the sale of poisons, must be a duly qualified individual, independent of any control by unqualified persons.

After further discussion, the amendment was put and defeated, whilst Mr. Jones's resolution was carried, only two members voting against it.

The other toasts were "The Local Association," proposed by Mr. W. R. ATKINS and responded to by Mr. BILSON; "The Guests," by Mr. BRIDGE and responded to by Mr. S. R. ATKINS; and "The Chairman," by Mr. S. R. ATKINS. The proceedings were enlivened by several excellent musical items, a violin solo in particular being exceptionally well rendered.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.

A meeting was held at the Liverpool School of Pharmacy, on Thursday evening, the 7th instant. Mr. PROSPER H. MARSDEN, presiding. Two new members were duly elected, viz., Messrs. J. A. Mercer and John Hodgson. Certain votes belonging to the Society, arising from contributions to the Benevolent Fund, were unanimously given to the two local candidates.

A series of

PHARMACEUTICAL NOTES

was then contributed by Mr. T. S. WOKES, Ph.Ch., consisting of difficulties in and peculiarities of certain prescriptions, which had passed through his hands of late.

No. 1. Liberation of iodine took place in the following mixture owing to the action of the ferric chloride on the alkaline iodide—an action there was no means of preventing.

℞ Potass. iodidi ..... ʒiss.
Liq. ferri perchlor. ..... ʒii.
Liq. arsenici hydroch. ..... ʒi.
Sp. chloroformi ..... ʒii.
Aquæ .....ad ʒvi.
Ft. mistura.

This was not taken by the patient, as the doctor on being communicated with countermanded it.

No. 2. A mixture peculiar from the large amount of resinous tincture it contained, but which resulted in a good emulsion on the addition of mucilage.

℞ Tinct. benzoini comp..... mʒ20.
Ox mellis scillæ ..... ʒi.
Vini ipecacuanhæ,
Syrupi tolutani .....aa mʒ80.
Aquæ .....ad ʒviii.
Misce fiat mistura.

No. 3. The peculiarity in this was the large dose of bromide and tincture of henbane, but as only one dose daily at bedtime was ordered, the object of the prescriber was evident.

℞ Potassii bromidi ..... ʒi.
Tincturæ belladonnæ..... ..... mʒ80.
Tincturæ hyoscyami ..... ʒi.
Aquæ camphoræ.....ad ʒviii.
M. ft. mist. Sd. ʒi. horâ somni.

No. 4. This gargle appeared to require mucilage to suspend the myrrh resin, but the amount of glycerin contained proved to be sufficient for the purpose.

℞ Potassæ chloratis ..... ʒi,
Tincturæ catechu ..... ʒiv.
Tincturæ myrrhæ ..... ʒiii.
Glycerini..... ʒi.
Aquæ .....ad ʒvi.
Misce fiat gargarisma.

No. 5. Here the doctor evidently did not mean what he had written.

℞ Suppos. acid. boric, aa gr. xv. Mitte vi. more dictu ut.

What he did want was a pessary containing 15 grains of boric acid, so six of 60 grain size were sent.

No. 6. Rather an out of the way lotion was ordered as follows:—

℞ Amygd. amar. ..... mx
Aquæ rorismarini ..... ʒvi.
Contunde et tere simul dein cola et adde
Hydrarg. perchlor ..... gr. xvi.
Spirit. vini rect. .... ʒii.
Fiat lotio.

The almonds were made into an emulsion which was strained, and the other ingredients added.

No. 7. A pessary of compound tincture of benzoin and cacao butter went very well when made by cold compression.

℞ Tinct. benzoini co..... mx.
Olei theobromæ .....ad gr.lx. (60).

When made by heat the result was not nearly so good.

No. 8.—In this mixture, effervescence was noticed, and as the mucilage was made fresh, this could not be due to any acidity of the gum. The author concluded it was probably due to some reaction between the sodium bicarbonate and the codeine.

R	Sodii bicarbonatis	gr. 80.
	Tinct. cotonis (*sic!*)	m80.
	Tinct. chlorof. comp.	ʒiv.
	Codeinæ	gr. i.
	Mucilaginis	ʒi.
	Aquæ cinnamomi	ad ʒviii.

Fiat mistura.

In conclusion, Mr. Wokes drew attention to some samples of suppositories" made by compression, and also to "linted suppositories," each of which had a tuft of lint, about three inches long, attached to it. These were intended to be used in certain rectal operations, and were made by the process of dipping and subsequent rolling on a slab.

The President said that material had been provided by Mr. Wokes for both thought and discussion. Mixture No. 1 was one he frequently had dispensed at the Liverpool Royal Infirmary, though he had drawn the prescriber's attention to the incompatability. Unfortunately, the knowledge of the chemistry of prescribing among latter-day medical men was very far from accurate—in fact, it could hardly be otherwise, when the demands made upon students by the important subject pharmacy were taken into account. It was presumed that about three months' practice and lectures would supply all the knowledge the student stood in need of! Such incompatibles as salicylate of sodium and hydrobromic acid, sulphate of iron and Fowler's solution, and a mixture of potassium iodide, solution of perchloride of mercury, solution of strychnine, and solution of peroxide of hydrogen were samples of what he had had ordered of late by qualified medical men. Papers like this of Mr. Wokes deserved every praise, they were practical and of great utility to students.

In proposing a vote of thanks to Mr. Wokes for his work, Mr. H. Wyatt, jun., remarked that No. 2 mixture had been through his hands frequently, and he had always used the yolk of an egg to emulsify the tincture of benzoin, making a note on the prescription to that effect. In No. 4 and similar gargles, containing tincture of myrrh, if an equivalent amount of good moist picked gum myrrh be used, rubbing it down to a smooth paste with water, and gradually forming an emulsion to which the spirit necessary and the other tinctures are added last and in small quantities at a time with frequent shaking—a very satisfactory result will be obtained without the use of mucilage.

The effervescence in No. 8, if Mr. Wokes had not proved it to be due to liberated CO_2, would be most likely caused by the expulsion of the excess of air dissolved in the water (in making the bicarbonate go into solution) by the amount of chloroform contained in the tincture. In making chloroform water the same effect is produced if tap water be used, or distilled water which has stood some time and has been exposed to the air. The chloroform suddenly saturating the water drives out the dissolved air with a considerable amount of force. At any rate, in the mixture No. 8, the codeine could not be accused of any action on the bicarbonate whatever the tincture of coto or the other ingredients had to do with it.

Mr. Wyatt next gave a lecture on

Arms and Ammunition.

After briefly sketching the history of firearms down to the introduction of the percussion cap, the lecturer went on to consider the causes of the adoption of rifling in small arms, then the change of shape in bullets to the conical form, after this the advent of the breech-loaders with their necessarily elaborate cartridges, and finally enlarged upon the tendency to reduce the calibre of military rifles to a still smaller one than that in use in the British army at the present time. The high velocity, coupled with flat projectory of the Lee-Metford bullet, was explained as being due chiefly to the use of such a powerful explosive as cordite, of which the manufacture and composition as well as action was dwelt upon. The service rifles of other nations were described, including the Mauser, Lebel, and Mannlicher, and specimens of various types of ammunition ranging from the Snider-Enfield Boxer cartridge and Remington solid drawn case used by the Egyptians under Arabi Pasha, to the latest Mannlicher and Lee-Metford cartridge, with hard-cased bullets and smokeless powder. An outline of the chemistry of explosives brought the lecture to a close, and a vote of thanks was accorded the lecturer.

NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting of the above Association was held on Wednesday, December 6, at the Hotel Metropole, Newcastle-on-Tyne, Mr. C. Ridley, the President, in the chair. Mr. W. Buckley, North Shields, read a paper on

The Extension of the Poisons Schedule.

He said there has been of late years a growing conviction in the minds of the public, as in those of pharmacists, that an extension of Part 2 of the Schedule was most desirable in the interests of the public safety. Scarcely a week passes without some coroner or jury making strong recommendations to this effect, and since the recommendations of the Pharmaceutical Society for the keeping and selling of poisons have become law, the present is an opportune time for approaching the Privy Council with respect to certain additions to the existing list. Mr. Buckley very clearly described the various legislative enactments in the poison question down to the present time. He showed how the Government appeared to view the question of still further increasing the list of poisons as savouring too much of a monopoly for the registered chemists, but showed that whilst chemists, by their training and qualification, were competent to distribute these articles, it was not a matter of £ s. d. for them, as in many instances, which occur daily, do chemists refuse to sell poisons to persons they think unsuitable, or to those who will not conform to the regulations, but also sell lesser quantities than those asked for. These circumstances go a long way to prove that chemists have the safety of the public more in their minds than any pecuniary advantage. Even if all poisonous substances were scheduled, chemists would gain very little by it, for without exaggeration there is no branch of business which demands so much self-sacrifice as that which relates to the sale of poisons by chemists, the same being more of a necessary evil than a source of gain. In conclusion, Mr. Buckley hoped that the Pharmaceutical Council would be able to draft a list of substances which would meet with the approval of the Privy Council.

A good discussion followed, everyone present expressing his views, and ultimately the following resolution was carried unanimously:—

"That in the opinion of this meeting it is desirable, in the interests of public safety, that carbolic acid, strong mineral acids, butter of antimony, acetate of lead, sulphates of copper and zinc, oxalates, and strong solution of ammonia be added to Part 2 of the Poisons Schedule."

A vote of thanks was warmly accorded to Mr. Buckley for the excellent way in which he had handled the subject.

EDINBURGH DISTRICT CHEMISTS' TRADE ASSOCIATION.

The opening meeting of the session was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Wednesday, December 6, 1899, at 11 a.m., Mr. David McLaren, President, in the chair.

Messrs. Charles Stewart and James B. McLaren, Kirkcaldy; W. J. McNab, Gorebridge; and D. W. Nicholson, Leith, were elected members.

Mr. HENRY, Hon. Secretary, reported that replies had been received from Lord Salisbury, the Lord Chancellor, the Duke of Devonshire, Mr. A. J. Balfour, and the Lord Advocate acknowledging receipt of the resolutions passed by the Association in June last.

With regard to the Federation of Associations' five proposals anent company pharmacy, as a reply was asked before the 30th ult., the Committee met and unanimously agreed to reply that the Association saw no reason to depart from the resolutions adopted in June and published in the journals at the time. A copy of the resolution was forwarded to the Federation.

The meeting unanimously approved of the action of the Committee.

The CHAIRMAN then said he had intended giving an address, but owing to illness he had found it impossible to carry out his intention. He had thought of speaking about

PHARMACY IN SCOTLAND DURING THE LAST FIFTY YEARS.

In 1849 there were 49 open drug shops in Edinburgh, and in 1860 these had increased to 53. But he would reserve a fuller statement till another meeting of the Association. In regard to the present situation, one feature was the extreme difficulty experienced in getting apprentices. He had noticed the other day that a certain editor had compared the chemist and druggist to the publican and the grocer. He could not assume that remark to be intended as derogatory to the trade at large, and, therefore, the editor must have been thinking of the fact that these trades are very profitable, and he hoped that meant that pharmacy was going to be more profitable in the future than it had been in the past. As to the question of unqualified men carrying on the business he thought the less they said about it the better. While they were entitled to object to their titles being used by such persons, he thought they should not say too much, for they would only advertise them. He had to ask the indulgence of the meeting, because he did not feel well enough to speak at length.

Mr. LUNAN, in moving a vote of thanks, expressed sympathy with the chairman, and said they would look with interest for the full address at a subsequent meeting. He quite agreed that the only matter they could contend for in regard to company pharmacy was the protection of the qualification. They had nothing to do with the capital by which the business was carried on. He thought they should go forward unitedly to protect the title. On other matters chemists generally did not seem to have made up their minds.

Mr. BOA, in seconding the vote, said he agreed with Mr. Lunan. He also thought it was good advice to say as little as possible about the stores. He could not profess to be up in all the recent proposals as to legislation, but thought they should seek to protect the qualification and the titles.

Mr. NESBIT agreed with Messrs. Lunan and Boa. They should not allow any company or store to assume the title of chemist and druggist or similar titles.

Mr. GLASS said he did not think they could in the present connection demand more successfully than the restriction of titles to persons holding them by examination. He could not agree with the statement that the qualification of the employee became in any sense the qualification of the employer. They might as well say the qualification of a certificated teacher conferred a qualification on a School Board, or that the qualification of a physician conferred qualification on those corporate bodies who employ doctors. They should seek to protect the titles and steer clear of the intricacies which lay in anything beyond that.

Mr. HENRY agreed with previous speakers. They were, as a body, at variance yet on other matters, and he had been astounded by some of the resolutions even yet being passed by some associations. Evidently, a great deal had yet to be thought out. No doubt those who differed were equally sincere, but he thought tact and prudence suggested that they should agree as to protection of titles in the meantime, and allow the discussion on other matters to continue. It was said that if you shake a barrel of apples the good ones will come to the top, and that would doubtless happen with the suggestions now abroad. They should concentrate on titles, and leave the other matters over.

Mr. MCLAREN acknowledged the vote of thanks.

It was resolved to hold a dinner about the end of January, and the President, Vice-President, and Secretary were appointed to carry out the arrangements.

The meeting then closed.

BRITISH PHARMACEUTICAL CONFERENCE.

A meeting of the Formulary Committee was held at 17, Bloomsbury Square, London, on Wednesday, December 6, 1899. Present: Messrs. Martindale, Bird, Martin, Ransom, Wilson, Symes, and Naylor. On retiring from the chairmanship, Mr. Martindale was warmly thanked for his valuable services during the last thirteen years. Mr. Martin was unanimously elected to succeed him. Mr. Naylor was reappointed Secretary to the Committee. It was agreed to invite Mr. Peter Boa, of Edinburgh, and Mr. H. Wilson, of Southampton, to fill the places vacated by Mr. Maben (resigned) and Mr. Greenish (deceased). The Secretary was instructed to convey to Mr. Maben the thanks of the members for the able assistance he has rendered the Committee from its formation. So as to make the future editions of the Formulary as widely useful as possible, it was agreed to include, as far as convenient, formulæ for all preparations which are generally prescribed by physicians for pharmacists to dispense. With a view to accomplishing this, suggestion from members of the Conference and from pharmacists in all parts of the kingdom will be welcomed by the Chairman, Mr. N. H. Martin, Ravenswood, Low Fell, Gateshead-on-Tyne; or by the Hon. Secretary, Mr. W. A. H. Naylor, 38, Southwark Street, London, S.E.

LEGAL INTELLIGENCE.

HIGH COURT OF JUSTICE—CHANCERY DIVISION.

THE SACCHARIN PATENT.

On Saturday, December 9, Mr. Justice North gave judgment in the action of the Saccharin Corporation, Limited, *v.* the Chemicals and Drugs Corporation, Limited. He said it was an action originally to restrain the infringement of eighteen patents, subsequently reduced to twelve, for the production of ortho-sulpho-benzinamine, commonly called saccharin, or of the ingredients used in its manufacture. The defendants denied infringement, disputed the validity of each of the twelve patents on all the grounds commonly set up in patent actions, and also alleged anticipation. Before the action came on for trial, however, the battle-field was very much reduced by arrangement between the parties; one patent only—Monnet's, of 1894—had been discussed, and even as to that, all the grounds of defence were abandoned except one. The defendants admitted the importation and sale in England of saccharin made by a firm in Dresden according to the invention claimed in the patent in question, and dropped all the objections to the validity of the patent, except one, viz., that the invention described was not of sufficient ingenuity or merit to form the subject matter of a patent, having regard to the state of common knowledge at the time. The patent was described to be for improvements in the manufacture of toluene-sulpho-chlorides, the object being to obtain ortho-toluene-sulpho-chloride, which by a subsequent process was converted into saccharin. Previous to the

patent, this was obtained by treating toluene-with sulphonic acid, or rather with a salt of that acid, and then treating it with phosphorus chloride, the result being at least two kinds of toluene - sulpho - chloride, ortho and para, of which the former only was useful. There was some evidence of there being a third kind, termed meta, but any knowledge of it seemed very limited, and some chemists even disputed its existence, The result of the old methods was that only about half of the mass treated was converted into toluene and sulpho-chloride, and only about half of that was the ortho variety, so that the total useful product was only about 25 per cent. of the ingredients used. By the patent now in question it was claimed that by keeping the temperature of the mass between 0° and 5° C., and using a large excess of acid, the whole of the toluene was converted into sulpho-chloride, of which over 60 per cent. was of the useful kind. His Lordship then referred briefly to the published papers, particularly one by Claesen and Wallin, which were put forward as showing the state of knowledge at the time of the patent, pointing out that none of them contained any direction for keeping the temperature as low as 0° to 5° C., and after quoting certain passages from the evidence of Professor Dewar, Dr. Liebmann, and Dr. Passmore on the one side, and of Professor Frankland and Dr. Hehner on the other, he said he came to the conclusion that the invention was of sufficient importance and utility to form the subject matter of a patent. He must, therefore, grant an injunction to restrain the infringement, with costs, and the plaintiffs were entitled to an account of profits.

HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION.

On Thursday, December 7, the members of this Association dined at the Old Cock Hotel, Halifax.

After the repast and the usual loyal toasts, Mr. W. C. Hebden gave "The Town and Trade of Halifax." He said they were blessed with a large number of different trades, and he could say with confidence that every one of them was at present in a most flourishing condition. They had reason to be proud of the town's co-operation, for its Corporation was in the front rank of municipal boroughs for its enterprise, its health management, and its finances. He recalled that it was just about thirty-one years since the Halifax Chemists' Association was formed, and of those then connected with it, Mr. Brierley and himself were the only two present that evening. During its career the Association had been a useful and powerful organisation.

Mr. Cobb, in responding, agreed with Mr. Hebden that Halifax held its own with regard to improvements and the amount of business which was transacted. The drug trade, along with the others, was doing well.

Mr. S. N. Pickard, of Bradford, gave the toast of "The Halifax and District Chemists' Association," and spoke in high praise of its members' business aptitude. He urged upon them to support the Pharmaceutical Society to the best of their power. In the near future they would have to fight for their just rights, and they must be united.

Mr. Brierley, in reply, characterised the Association as a factor for good, which smoothed off the corners of competition.

Mr. Comyns gave "The Visiting Friends," and this was responded to by Mr. Cousins, of Dewsbury, and Mr. Silson, of Bradford.

Mr. F. D. Crossley, of Manchester, proposed "The Pharmaceutical Society," and Mr. C. Fielding responded.

Mr. Gibson gave "The Newly-Elected Officers," on whose behalf Mr. Wilkinson replied.

Finally, "The Past Officers" fell to Mr. W. S. Thompson, to which Mr. Hebden and Mr. Cobb briefly replied.

The enjoyment of the evening was greatly augmented by a number of vocal and instrumental solos, which were all rendered very creditably.

LETTERS TO THE EDITOR.

Ammonia Soap.

The usual text-books on chemistry are so reticent respecting this that I make no apology for pointing out that if four ounces (by weight) of oleic acid be shaken up in a wide-mouthed, stoppered bottle with two and a half fluid ounces of solution of ammonia perceptible evolution of heat follows, and a firm jelly is formed, closely resembling in physical characters sapo mollis B.P. It is readily soluble in 90 per cent. of alcohol, but the solution becomes turbid on dilution with water, apparently because the traces of ammonium stearate and margarate present are less soluble in aqueous than in alcoholic liquids.

Dover, December 4, 1899. J. F. Brown.

Bitter Appel.

In the short African section of my report of progress, for 1899, of the projected Indian and Colonial Addendum to the British Pharmacopœia, printed on page 655 of your last issue, the words *Monœcia monodelphia*, from page 276 of the *South African Medical Journal* for April of this year, doubtless should be *Citrullus vulgaris* Schrad. (= *Citrullus amarus*, Schrad.) of Pappe's 'Floræ Capensis Medicæ.' For the writer of the article in the above Cape Town journal is referring to the Dutch "bitter appel," and Mr. Holmes, after turning up the reference to "bitter appel" in Pappe, pointed out to me when I called at 17, Bloomsbury Square, yesterday, that the words *Monœcia monadelphia* occur within a line or so of the words *Citrullus amarus*, and suggested that the writer in the *South African Medical Journal*, or his amanuensis, had probably also referred to Pappe, and inadvertently had copied the class name instead of the other. Dr. Hewat in proposing the recognition, for South Africa, of the "bitter appel, or wild water-melon," adds: "the pulp of which is a drastic purgative, like that of colocynth, for which it might well be substituted in this country."

Watford, December 12, 1899. John Attfield.

The Company Pharmacy Problem.

I have read with great interest the articles and letters which have lately appeared in the *Pharmaceutical Journal* on "company pharmacy." In your issue of the 9th inst., Mr. Thomas Reade raises the question of the qualification of the managing director only, and suggests that it is "possible for the trade to carry the legitimate drug companies with them, by providing that no company shall practise pharmacy or at least sell poisons, or call themselves chemists unless at least the managing director or the company is a registered man." This, sir, at first sight seems plausible; will Mr. Reade explain why a chemist who wishes to enter a partnership with an unregistered man must needs do so only by means of limited liability company machinery? Under his proposed alteration of the law it will be legal for a company to do what it would be illegal for an individual to do—a registered chemist cannot take into partnership an unregistered man. Why then should a chemist legally be able to take into partnership six unregistered men!

Rochdale, December 11, 1899. Edward Thomas.

What is the Principle of the Pharmacy Act?

If an answer be sought to the question why it was "impossible to infer" that a larger construction should not be put upon the word "person," there is no escape from the conclusion "because qualified ownership is not an essential principle of the Pharma Act." In last week's Annotations, it is stated that this settled law "is founded upon error," and that the Lord Chancellor has clearly perceived that it cannot be relied upon as a foundation The Lord

Chancellor says: "He thought that the learned judges who came to the conclusion that that was the true construction of the Statute were perfectly right." Taking this statement and Clause 2 of the Companies Bill, how is it possible to avoid the conclusion that the Lord Chancellor founds on settled law in seeking a remedy for a legislative defect?

December 12, 1899. "OBSERVER" (13/23).

The Society's Examination.

"Squarer's" opinion, expressed last week in answer to my letter, would be a good deal more valuable if he would previously get an accurate grasp of what he is writing about. First, there is no reference to the practical portion of the Major in my letter; in fact, I believe that the standard is a good one. Secondly, he says depth of physics cannot be entertained as long as our preliminary standard is so low. If he will refer to my letter, he will find that it is now we are entering upon a new era in preliminary education that I recommend a somewhat higher standard than the questions to which I took exception, and I defy "Squarer" to prove that these questions are up to the standard of the two examinations I mention. Let him note—I do not state that the Major papers are not up to this standard. This is a "gross" inaccuracy on his own part. Thirdly, "Squarer" takes it upon himself to compare the Major with the Inter. B.Sc., London. It must be borne in mind that this examination is a compulsory Intermediate, whereas the Major is an honorary Final, two entirely different things altogether, and he admits that the Major standard in botany is somewhat lower than the Inter. Science. Why should it be? This bears out what I was commenting upon. Lastly, our medical friends would very soon strongly object to our adding physiology on to the syllabus. Zoology might be added with advantage, and the subject botany converted into biology.

December 12, 1899. "EDUCATIONALIST" (13/12).

The Reconstitution of Camwal.

The success that the Chemists' Aërated Waters Association has achieved is, I think, entirely due to the fact that the shares are held by the chemists themselves, and being so protected they have taken an interest in it. I see that the company in future intends supplying hotels. I think this is a great mistake, from a chemist's point of view. Why, every public house in a town can call itself an hotel. I hope the chemists will keep the concern in their own hands, and if the hotels want the waters supplied by the Association let them obtain them through the chemists.

December 11, 1899. A SHAREHOLDER (12/44).

Senna—a Suggestion.

This important drug, which has held its own since the time of Alfred the Great, has from time to time received the attention of chemists. No satisfactory results have, however, followed their attempts to isolate its cathartic principle, which does not seem to reside in an alkaloid, but is of a volatile nature, as has been demonstrated. Senna has always been a favourite in my practice. I made a palatable black draught, using tartrate of potass. in place of sulphate of magnesia, covering the taste by extract of liquorice. The purgative quality of senna is materially increased by the addition of sp. ammon. arom. Accidentally this was added to the ingredients in the percolator, instead of to the percolate—the result was an unexpected success. There seems to be an affinity between the active principle of the drug and ammonia. The idea now suggested is, Would it be possible by digesting senna with solution of ammonia and then distilling *in vacuo* that the two volatile principles might come over together? The ammonia could easily be neutralised, and the remaining portion might contain the veritable substance sought for; but, having no apparatus now, experimenting is not possible, nor do I know a pharmacist willing to undertake the trial.

Kew, December 13, 1899. R. GOODWIN MUMBRAY.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Nipple Lotion (A. F.—36/26).—It appears to contain borax and zinc sulphate, dissolved in rose water. The solution is extremely dilute.

Calcium Phosphate in Bread (H. B. R.—37/1).—It is probably as good a plan as any. Mix the phosphate with the salt (say 1 part to 2) added to the flour when making the bread.

Photographic Lamp (T. R. A.—37/3).—If you find the light too powerful, you might try a bulb of obscured glass, or coat the clear bulb with transparent red varnish.

Prescription (P. W.—36/31).—It cannot be dispensed satisfactorily without adding powdered gum acacia, and you are therefore, quite justified in making the addition.

Medicine Licence.—(J. E. J.—37/6).—You must take out a licence if you make or sell medicines requiring the Government stamp.

Spirit Licences.—(J. E. J.—37/6).—Apply for information regarding your first and second questions to the local supervisor, through whom the permission of the Board of Inland Revenue must be obtained if necessary.

Small Sterilising Apparatus (G. L.—37/2).—You do not say for what purpose you require the apparatus, but you will probably get what you require from C. Baker, 244, High Holborn, London, W.C., or from any maker of chemical apparatus.

Tinct. Lithantracis (H. W. M.—36/24).—A correspondent kindly informs us that this is a preparation used at the Manchester Skin Hospital, and prepared, he thinks, by Messrs. Midgeley and Co., St. Ann's Square, Manchester.

Partnership (W. P. C. A.—36/32). — One respectable lawyer ought to suffice; his fee will depend upon the work he has to do. Apply at the local stamp office for information regarding the cost of stamping the agreement.

Books on Mineralogy (J. W.—36/22).—Collins' 'Systematic and Descriptive Mineralogy,' Nicol's 'Elements of Mineralogy,' Ramsay's 'Rudiments of Mineralogy,' and Bauerman's 'Descriptive Mineralogy' and 'System of Mineralogy' are among the books most likely to be useful to you.

Polishes (J. J. B. W.—36/25).—The best brush polish is prepared by dissolving pale orange shellac (6 to 8 ounces to the pint) in methylated spirit or wood naphtha, or a mixture of the two. Ordinary resin and benzoin are sometimes added, but they tend to make the coating brittle. French polish is a similar preparation, containing a small proportion of oxalic acid, say one or two drachms to the pint. For the method of application, see the reply to G. O. P. in the *P.J.* for November 25 last, page 520.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

MALIC ACID IN HIPPOPHÆ RHAMNOIDES.

H. Erdmann has ascertained that the yellow berries of the sea buckthorn contain a large amount of malic acid, together with mannite. The orange-yellow juice of the berries when neutralised with chalk gives a slightly coloured liquor when filtered, most of the coloured constituent remaining mixed with the excess of chalk. On heating the clear liquor to boiling an abundant deposit of white granular crystals separates, consisting of calcium malate, having a composition represented by the formula $C_4H_4O_5Ca + 1\frac{1}{2}\,Aq$. The rotary power of an ammonium salt of the acid was found to be $-2°\ 94'$, showing that the acid is identical with that of service berries (*Pyrus aucuparia*). Examination of the syrupy mother liquor from calcium malate led to the conclusion that the crystals deposited after some time consisted essentially of a calcium compound of mannite.—*Berichte*, **32**, 3,351.

PHARMACY OF MUIRA-PUAMA.

This drug stands in high repute in Brazil as an aphrodisiac. Cæsar and Loretz recommend the following pharmaceutical preparations for use:—*Fluid Extract of Muira-puama.* — Muira-puama wood in coarse powder, 100; alcohol (90 per cent.), 20; glycerin, 10, are mixed and allowed to macerate for two hours, and then percolated with dilute spirit to complete exhaustion; about 400–500 parts of dilute alcohol are required. Dose 2 to 3 Gm., twice or three times daily. To prepare *wine of muira-puama* (1–10), take of muira-puama wood, 100; alcohol (90 per cent.), 25; distilled water, 25; sherry, 950. Macerate for ten days, press, and filter. Dose, 20 to 30 Gm., twice or thrice daily. The fluid extract is the best form for use.—*Pharm. Cent.*, **40**, 611.

PHARMACY OF COLLOIDAL SILVER.

In septicæmia, colloidal silver may be given in the form of pills composed of colloidal silver, 50 centigrammes; milk sugar, 5 Gm.; glycerin and water of each *q.s.* to mass. Divide into fifty pills. Two to be taken for a dose, twice or three times a day before meals. In mixture form it may be dispensed as follows:—Colloidal silver, half to 2 Gm.; distilled water, 50 to 200 Gm.; fresh white of egg and glycerin, of each 0·5 to 2 Gm. A teaspoonful to be taken in a glass of water three times daily, from 15 to 30 minutes before meals. Pills, 3 Mm. in diameter, each containing 5 centigrammes of colloidal silver and 25 Mgm. of milk sugar, are employed in surgical practice for introduction into the cavities of fistulas, and into deep lesions of various organs. In endometritis, Klein has employed it in the form of rods, containing 20 centigrammes of colloidal silver, massed with milk sugar, gum arabic, and glycerin.—*Nouv. Rem.*, **15**, 472, after *Klin. therap. Woch.*

BENZOYL PEROXIDE AS A DISINFECTANT.

The disinfecting value of this body which is obtained—by the interaction of benzoyl chloride, hydrogen peroxide, and sodium hydrate—as a white powder, sparingly soluble in alcohol, glycerin and fatty oils, and but slightly soluble in water, has been experimented with by Carl Frey and L. Vanino, who have investigated its bactericidal power, obtaining the following results with pure cultures of the respective bacteria:—Diphtheria bacillus, killed in fifteen minutes; *Streptococcus* in one and a half hours; *B. coli communis* in fifty minutes; *B. pyocyaneus* in fifteen minutes. *B. prodigiosus* in one hour. *B. proteus mirabilis* in twenty minutes.—*Pharm. Centralh.*, **40**, 209.

OIL OF TROPÆOLUM MAJUS.

A. W. Hoffmann has recorded that on distillation, the garden "nasturtium" yields a volatile oil, consisting solely of benzyl cyanide, and free from any mustard-like odour, although the fresh plant, both by taste and odour, indicates the presence of mustard oil. J. Gadamer explains this as being due to the conversion of the glucoside, glyco-tropæolin, into a cyanide by the action of heat and water. He finds that when the fresh juice is extracted with ether, the ethereal extract gives with alcoholic ammonia, rosettes of crystals of benzyl-thio-urea, melting at 162° C. The glucoside glyco-tropæolin is isolated by precipitating a neutral aqueous extract of nasturtium seeds with silver nitrate solution. The precipitate thus obtained gives with ammonia a crystalline compound, the composition of which is given as $C_6H_5{\cdot}CH_2{\cdot}NCS{\cdot}Ag_2SO_4{\cdot}2NH_3$. It is analogous to the body furnished by sinigrin.—*Pharm. Cent.*, **40**, 281.

POISONING BY BRYONY.

A. S. Auger records a case in which several horses were killed by eating *Bryonia dioica*. The chief symptom was a very marked stiffness, with a gait resembling that in laminitis, but without throbbing of the plantar artery. All recovered under the influence of diuretics, together with mustard and embrocation to the loins, but after the elimination of the poison, the animals showed signs of weakness for some days.—*Vet. Record*, **12**, 254.

BACTERIAL TREATMENT OF SEWAGE.

A second report on the bacterial treatment of crude sewage has been issued by the London County Council. The chemical portion of the report, which is by Professor Clowes, concludes that the bacterial process presents the following advantages: (*a*) It requires no chemicals; (*b*) it produces no offensive sludge, but only a deposit of sand or vegetable tissue free from odour; (*c*) it removes the whole of the suspended matter, instead of only about 80 per cent. thereof; (*d*) it effects the removal of 51·3 per cent. of the dissolved oxidisable and putrescible matter, as compared with the removal of 17 per cent. only as effected by the present chemical treatment; (*e*) the resultant liquid is entirely free from objectionable smell, does not become foul when kept, and maintains the life of fish. The bacteriological portion of the report, by Dr. Houston, includes investigations on the number of bacteria present, and the percentage of liquefying forms, also of the bacteria met with, such as the *B. coli communis* and *B. enteritidi sporogenes*, with a description of several species. The report is illustrated with a number of diagrams and photo-micrographs.

STERILISATION OF WATER BY OZONE.

A number of experimental details on the sterilisation of water for drinking purposes by means of ozone are given by Weyl in a recent communication (*Centr. f. Bak.* xxvi., p. 16). Water from the Spree was pumped through a chamber filled with stones by which the suspended matter was strained off. By means of another centrifugal pump the water was pumped into a second cylindrical chamber, 4·5 metres in height and filled with large stones, through which the water trickled and so became finely divided, meeting the stream of ozonised air introduced below. The ozonised water collected in the lower part of this chamber and thence passed to the reservoir. The plant was capable of treating 3·5 to 4 cubic metres of water per hour (800 gallons). The experiments showed that for a good water 1 Gm. of ozone per cubic metre (220 gallons) was sufficient, but for a bad water 2 Gm. were required for sterilisation, the cost being about one-third of a penny per gramme of ozone. The whole of the machinery was driven by electricity.

THE ASSAY OF THE LIQUID EXTRACT OF IPECACUANHA.

BY H. J. HENDERSON.

Since the publication of the new British Pharmacopœia the process adopted therein for the assay of the liquid ext. of ipecacuanha has been subjected to much adverse criticism. The process would work easily if a certain volume could be taken, and after precipitating with solution of subacetate of lead, a certain volume of the filtrate could be taken which might represent an aliquot part of the original volume. There are many difficulties to be overcome before this can be accomplished, but the solution of the problem lies in this direction. There is one point upon which everyone seems to agree, and that is, that too large a quantity is taken for the assay; 5 C.c. appears to be the most suitable quantity. Wright and Farr were of the opinion that one or two C.c. were ample in the hands of an expert, and so firmly were they convinced of this that they used 5 C.c. in their process.

There appears to be but little difference between the process of Wright and Farr and the No. 3 process of Naylor and Bryant, which was abandoned because it formed such intractable emulsions. The process of Wright and Farr is open to this objection, which is a serious one, and they appear to be fully alive to the fact, for in their paper, read before the British Pharmaceutical Conference last year, they stated that a process has yet to be devised which will work rapidly—an opinion which coincides with my own. With the substitution of an alkaloid standard depending upon titration alone, I do not agree; neither do I consider that the end reaction is so very sharp or precise, and until it has been proved that cephaeline and emetine occur in different samples of Rio ipecacuanha in unchanging proportions, I shall trust to a gravimetric method. Wilson in his paper (*P.J.* [4], **7**, 3) stated that titration appeared to be useless as a means of determining the alkaloids of ipecacuanha.

Wilson's process was the first alternative method for the assay of the liquid extract published, after the appearance of the B.P., 1898. It consisted in the removal of colouring matter, and other substances soluble in ether-chloroform, by first shaking the extract, from which the spirit had been removed, with that solvent in acid solution, the alkaloids being afterwards removed by shaking out in alkaline solution with ether-chloroform. Wright and Farr appear to have misunderstood Wilson's remarks in one place. He does not state that his ether-chloroform washings require any treatment with acidulated water. He entirely overlooks the fact that these washings contain any alkaloid at all. That they do contain alkaloid is an undoubted fact, as pointed out by Wright and Farr, whose experiments on this point are confirmed by my own.

It is probably the presence of the fatty bodies that determines the solution of the alkaloid, as pointed out by Dragendorff in his book on plant analysis as far back as 1884. What Wilson did say was that if the ether-chloroform solution of the alkaloids was treated with acidulated water the ether-chloroform left no residue on evaporation, which would hardly be the case if he was referring to the ether-chloroform washings. He thus indirectly implies that nothing is present in the ether-chloroform but alkaloids. I have never been able to confirm this statement; in fact, my own experience has satisfied me that directly the opposite is the case. It does not follow that because no more colouring matter and substances other than alkaloids are dissolved when shaken with ether-chloroform in acid solution that no more will be dissolved when the same solution is shaken with the same solvent after adding excess of ammonia. Ammonia is a powerful solvent of organic matter, and in the case under discussion a quantity of the ammonia gas is absorbed by the ether-chloroform, and thus enables the latter to dissolve a considerable quantity of matter other than alkaloids. Moss has, however, stated (*P.J.* [4], **7**, 347) that Wilson's process yielded a purer residue than the B.P. method. It is difficult to see how this conclusion was arrived at; if by the volumetric method, then the results obtained by Wilson are against this statement made by Moss. Wilson simply claimed that his process yielded a residue as rich in alkaloid as the B.P. process—1 Gm. of B.P. residue = 36·1 C.c. N/10 acid, 1 Gm. Wilson's residue = 35·75 C.c. N/10 acid, and these are Wilson's own figures. For my own part I do not consider that the residue of the alternative process is as pure as that yielded by the B.P. process, for the following reasons:—1. The colour of the alkaloidal solution is a deep orange, many degrees darker than the corresponding chloroformic solution of the B.P. process. 2. It is less soluble in acids, and yields a darker solution. 3. I have never been able to confirm his volumetric results.

A characteristic feature of Wilson's process is the formation of the most intractable emulsions that I have ever had the misfortune to deal with, many have refused to separate even after standing many days, and were not to be beguiled by warming. Owing to this property the process in my hands has not been so speedy as the B.P. method, and, after giving it a prolonged trial, I abandoned it.

The process No. 4 of Naylor and Bryant is also open to the objection that it forms emulsions, but these are not nearly so intractable, much of the resinous matter having been removed before the ammonia is added. In the majority of instances, however, these emulsions separate very well if the contents of the separator be warmed, but require to stand some considerable time to clear, the lower layer of chloroform having an opaque appearance. It is a general method of assay, and calls for no particular comment, as it introduces nothing novel. Curiously, in the table of comparative results published by the authors (see 'Year-Book of Pharmacy,' 1899, 346), 20 C.c. of the liquid extract, when assayed by the B.P. process, yielded 0·402 Gm. of alkaloid, which contained 0·0646 Gm. of impurity, whilst 20 C.c. assayed by Wilson's process yielded only 0·400 Gm., and contained 0·07465 of impurity. These figures do not confirm Wilson's results. I feel convinced that the liquid extract used by Wilson in his experiments was singularly free from resinous matter.

In the *P.J.* for November 25, 1899, F. H. Alcock publishes a method which, owing to its recent appearance, has not been subjected to an extended trial. I have been able, however, to compare it with the B.P. method, using 5 C.c. in each case. The official method yielded 0·1540 Gm., and Alcock's yielded 0·1560 Gm. The process is very rapid, and if the chloroformic solution of the alkaloids be washed with a little ammoniated water the resulting solution compares favourably with the corresponding solution of the B.P. in colour. Alcock has designed a very neat and rapid process, it emulsifies but little, and yields a residue which corresponds very closely in weight to the residue yielded by the B.P. method. Most workers are agreed that the latter method is very tedious. F. C. J. Bird, however, appears to differ very considerably from the majority in his experiences, as he is reported to have said at the B.P.C. that with the help of a Bunsen's filter pump, and with a little ingenuity, it could be completed in a quarter of an hour. It is much to be regretted that Mr. Bird did not enter more into detail. Mr. Jones made some very weighty remarks at the British Pharmaceutical Conference (see 'Year-Book,' 1899, 351), which deserve the closest attention from anyone interested in this subject.

Although I have never met with a sample of liquid extract of ipecacuanha having an alkaline reaction, yet it is easy to see how such a thing could be possible, and if the liquid extract should contain alkaloids in a free state one would wash the lead precipitate a long time before they were removed, as the spirit in which they were soluble has been dissipated. After adding the solution of subacetate of lead the magma should be subjected to a

careful trituration, as after the removal of the spirit in the preliminary step a considerable quantity of resin and other bodies insoluble in an aqueous menstruum are precipitated. These conglomerate, and mechanically carry down alkaloid, which, being imprisoned, is very difficult to wash out. The official method of assay requires extreme care and a considerable amount of time for its exact performance, and a filter pump is indispensable in washing the lead precipitate. This once done, the process works cleanly and well, yielding a residue which I believe to be purer than that yielded by any other method; certainly more of the extract is ordered to be taken for the assay than is necessary, but a slip of this kind is hardly a serious one, and, speaking generally, the process is far from being so bad as it has been said to be.

MACERATION TINCTURES.*

BY THOMAS DUNLOP.

As is well-known, the B.P. of 1898 reverted to the process of maceration in the manufacture of some of the tinctures. The change has been brought into prominence by an occasional question in the Journal as to whether the finished tincture is to be made up to a definite volume or not. This inquiry may have been prompted by uncertainty arising from the fact that the process is not uniformly conducted, although the instructions given in each case are very definite.

The absence of uniformity of operation has, through increase of volume, weakened several of the tinctures, so that, although the modern tendency is towards standardisation or percentage strength, there has been a marked backward move in this class of tinctures.

Of the thirty tinctures made by mixture or maceration, twelve are directed to be made to the volume of one pint. In the other eighteen one pint of menstruum is directed to be taken, and nothing is said about finished product, no allowance being made either for increase or diminution of volume. In tinctures of asafetida, guaiacum ammoniatum and myrrh we have examples of allowance. In compound tincture of cardamoms and tincture of squill we have examples of no allowance. Allowance is made in tincture of kino with two ounces of drug to the pint, whilst no allowance is made in tincture of catechu with four ounces of drug to the pint. Of the thirty tinctures only one is new, and of the remaining twenty-nine only three were formerly of indefinite volume. One of the freaks of the Pharmacopœia is seen in acetum and tinc. scillæ. In the 1885 Pharmacopœia the former was of indefinite and the latter of definite volume. In the 1898 Pharmacopœia it is the other way about, and yet squill is a drug, every four ounces of which adds fully one ounce to the volume of either of these preparations. In the following table I give the results obtained in making a pint of the respective tinctures, the amount of drugs ordered in each being likely to affect the product either in loss or gain:—

Tincture.	Vol. of Product.		Weight of drugs.		Weight of expressed marc.		Weight of marc spontaneously dried.		Loss of weight in drying.		Weight of Sol. matter.	
	oz.	drs.	oz.	grs.	oz.	grs.	oz.	grs.	oz.	grs.	oz.	grs.
(*a*) Calumb.	18	6	2		2½	30	1¾		¾	30	¼	
Cardam. Co.	20	7	3	55	1¾	30	1¼		½	30	1¾	55
Catechu	21	1	5		2¼	45	1½		¾	45	3½	
(*b*) Gent. Co.	19	2½	3½		3	40	2¼	20	¾	20	½	90
(*c*) Scillæ	21		4*c*		2¾		1*c*		1¼		3	
(*d*) Sennæ Co.	19	2½	7		5¾	90	4¾	90	1		2¼	90

(*a*) Product, plus loss of weight in drying, leaves a deficit of half-an-ounce.
(*b*) Product, plus loss of weight in drying, equals volume taken.
(*c*) Even dried equals moisture free.
(*d*) Product plus loss of weight in drying exceeds volume taken.

* Read at an evening meeting of the Pharmaceutical Society in Edinburgh, December 20, 1899.

As might be expected, the products of tinctures of calumba and gentian co. fall short of the menstrua taken, the amount of soluble matter in the drugs being small and the marcs being incompressible, which was demonstrated in the fact that the expressed marcs were heavier than the original weights of the drugs. On the other hand, compound tincture of cardamoms and the tinctures of catechu and squill being made from drugs containing a large amount of soluble matter, and the marcs yielding readily to pressure, the products are in excess of the menstrua taken. Such being the case, to be accurate it will now be necessary to indicate the strength of tinctures yielding an excess as 1 to x instead of 1 in x as formerly. Compound tincture of senna occupies an intermediate place; a fair proportion of the ingredients used is soluble, but the marc being bulky and absorbent the product falls short of the menstruum taken.

The plea put forward for not "making up" has been that that which is in the marc after expression is the same strength as what has been expressed, the deduction being that to authorise "making up" would tend to foster careless manipulation. I think no practical pharmacist would be blind to the fact that the time required for thorough expression is of less value than the tincture that would be lost through slipshod workmanship. My results were easily got by using an ordinary screw press and in making a pint quantity. With larger quantities and more powerful expression the figures would be increased.

The process thoroughly exhausts the drugs. I found the marc in each case, after expressing and drying, inert, so that what was lost in drying was spirit, the whole of the activity being in the strained and expressed portions. I think, however, the process would be improved by conducting it uniformly (except in the case of tinct. pruni. virg.) on the lines of the percolation process that was official in the 1885 Pharmacopœia, viz.—macerate in three-fourths of the menstruum for the specified time, strain, wash out with three ounces of menstruum, express and "make up" to one pint. This would also prove a source of economy in the manufacture of some of the tinctures of definite volume where at present there is waste through the marc not being expressed. The recovery of residual tincture spirit may be resorted to on the manufacturing scale, but if the Pharmacopœia is to be for pharmacists, then each process should be complete in itself. This suggested modification of the process cannot be looked upon as included in the "details and minor variations" that "are left to the judgment of the pharmacist," as it is distinctly stated that "the solid ingredients are to be placed in the whole of the menstruum"; but it is an adaptation of a *modus operandi* that is at present officially recognised in the manufacture of other galenicals—*e.g.*, extracts of liquorice and opium and syrup of senna.

In advocating definiteness of volume I would direct attention to the fact that the average weight of moisture in the expressed marcs reported on is three-quarters of an ounce, so that where the deficit is not counterbalanced by soluble matter the loss must be due to evaporation, and that "making up" would be quite justifiable. The increased strength of most of the tinctures must also be borne in mind as specially warranting it, whilst it would bring all the tinctures into line, as was the case in the 1885 Pharmacopœia.

As it is, the progress (?) of the age has brought us back to where we were fifty years ago, from which we see that in pharmacy as in other things there is fashion.

Since the foregoing notes were made I have seen Lucas's table, and I am at a loss to know how he accounts for the deficits in the cases of tr. card. co., tr. catechu and tr. scillæ. To have only 0·6 of a difference between tr. pruni virg., which is made from four ounces of a bark with an uncondensed menstruum, and tr. catechu, which is made from four ounces of an almost entirely soluble extract with a condensed menstruum, indicates a discrepancy somewhere.

I have compiled this series of notes to satisfy myself as to what extent the tinctures were affected by the altered process. In submitting them to-night it has been in the hope that they might alike afford material for criticism, and at the same time elicit the experience and opinions of others, sufficient time having elapsed since the publication of the Pharmacopœia for pharmacists to have something to say on the subject.

AN INCOMPATIBLE STRYCHNINE MIXTURE.*

BY THOMAS DUNLOP.

Recently I had the following prescription to dispense:—

℞ Liq. Sod. Arsen.
Liq. Strych. aa ʒss.

A few minutes after the liquors were mixed I observed that the inside of the bottle was covered with a granular deposit. As shaking did not detach this, I set it aside for an hour. At the end of that time there was a loose deposit in the bottom of the bottle and a scum on the surface of the liquid. As the latter prevented decantation, I filtered the liquid, when the precipitate was then seen to be crystalline. I allowed the filter to dry and the bottle to drain, and then washed out the bottle with three successive two drachms of methylated spirit, passing the washings through the filter. This dissolved the precipitate, which, on evaporation of the spirit, was recovered in crystalline form. It weighed fully half a grain.

On examination it was found to be strychnine, which was confirmed by its solubility in various media, by its taste, and by the reaction with K_2CrO_4; only a trace of arsenate and chloride being indicated, these being adherent from the liquid in which it had been precipitated. Having found what the precipitate was, the question arose, What caused it? Squire gave no clue—"incompatibles" being absent from both sod. arsen. and strych. hydro-chlor.; but on reading the B.P. characters and tests of sodii arsenas I found that it "yields an alkaline solution." As I had not observed this incompatibility with 1885 liq. strych. it occurred to me that the excess of acid in that solution would have been sufficient to neutralise the alkalinity of the arsenical solution, and that is so. Experiment proved that it required two and a-half minims of diluted hydrochloric acid to each ounce of the liq. sod. arsen. to produce a faintly acid solution, and this was compatible with liq. strych. hydrochlor., 1898.

This observation suggests an amendment of the formula for making liq. sod. arsen. Meantime, its incompatibility with hydrochloride of strychnine should be noted by dispensers, as otherwise the loss in alkaloid (equals, in this case, fully 28 per cent.) is very serious, and in a coloured mixture it might escape notice, and thus become highly dangerous.

This inquiry also throws some light on Mr. Kidd's note on the dispensing of syr. fer. iod. *c.* liq. sod. arsen. (*P.J.*, [4] **7**, 629.) The opalescence caused in that mixture is *wholly* due to the *alkalinity* of the arsenical solution. When the mixture is made with a neutral or faintly acid solution, there is neither opalescence nor discoloration.

In the "Students' Column" of the *P.J.*, Sept. 30, page 324, under sodii arsenas, in describing the quantitative test, it is stated that "The necessity for adding acetic acid is really due to the fact that, although the official sodium arsenate is acid in constitution . . . it yields an alkaline solution. It is *supposed* that a partial hydrolysis of the salt occurs in aqueous solution with formation of sodium dihydrogen arsenate and sodium hydroxide." *My supposition* previous to that was that the hydroxide was the result of the hydration of some sodium oxide—which may be a variable quantity—present in the salt, and this seems the more probable, because different samples when treated with mercuric chloride test solution do not precipitate in the same degree.

* Read at an evening meeting of the Pharmaceutical Society, in Edinburgh, December 20, 1899.

LIQUOR BISMUTHI.*

BY R. C. COWLEY AND J. P. CATFORD.

This liquor was first included in the pharmacopœial preparations in 1867, and since then each time the Pharmacopœia has been revised the formula has been altered; still it remains unsatisfactory.

The B.P. of 1867 ordered it to be made from metallic bismuth by solution in nitric acid, adding solution of ammonia to this until the precipitate produced is redissolved, then diluting it to the required volume. It contained bismuth ammonium, citrate, and ammonium nitrate.

In the 1885 Pharmacopœia the precipitated bismuth citrate was washed free from nitrate and dried. A definite proportion of this salt could be dissolved in solution of ammonia, and diluted to volume when required. This method possessed many advantages, but these were negatived by the difficulty in dissolving many samples of the salt, and the solution invariably contained more ammonia than would be required to dissolve a freshly precipitated bismuth citrate.

To remedy this defect McEwen published a formula, in which the bismuth oxynitrate is dissolved in nitric acid, and citric acid is added to the solution. This is divided into two equal portions; ammonia is added to one-half, until the precipitate formed is redissolved, and water is added to make the volume equivalent to the volume of the finished article; the other half is now added, which causes a precipitation of bismuth citrate. The precipitate is washed, dissolved in the necessary volume of ammonia, and finally diluted to the required volume. The chief objection to this process is the loss of bismuth experienced, which MacEwen states to be about 3 per cent., and which he allows for by using an additional quantity of bismuth oxynitrate. As a matter of fact, the loss is much greater if ammonia is added to the first half until the liquid just becomes clear, but by using sufficient solution of ammonia to neutralise the whole of the free nitric acid, and, in fact, this quantity, plus sufficient to combine with half the nitric radical in the original oxynitrate of bismuth, the proportion of loss is considerably diminished; any further addition, however, causes solution of the bismuth citrate. The compilers of the 1898 Pharmacopœia, taking into consideration the shortcomings of the 1885 formula, have ordered the preparation of a bismuth citrate, which is dissolved while still moist in solution of ammonia, and let down to the required volume.

On the face of it, this appears quite simple, but often in practice it is most difficult to wash the precipitate free from nitric acid, and when so washed it does not completely dissolve in solution of ammonia. For this reason pharmacists still employ MacEwen's process, or the bismuth citrate as ordered in the 1885 Pharmacopœia. From a considerable number of experiments we have determined that the best proportions are as follows—(*a*) Sufficient of the citric radical to combine with all the bismuth; (*b*) sufficient of a fixed alkali to combine with all the free nitric acid, plus the nitric radical in the bismuth oxynitrate. As previously remarked, this does not apply where ammonia is used.

Comparing this with the pharmacopœial formula, it will be seen that, curiously enough, the latter orders sufficient citric radical to combine with the bismuth, provided the potassium citrate is 100 per cent. pure. The purity of this salt, as given in the B.P., is 98 per cent., but actually, in commerce, the salt is often much less pure. One sample we examined was just under 94 per cent. pure. The total amount of alkali is also insufficient to neutralise the nitric acid. Thus we have the conditions to produce an admixture of basic bismuth nitrate with the bismuth citrate, which will require at least a week's washing to wash it free from nitric acid, or, in other words, to wash out the nitric radical from the basic bismuth nitrate. The washed precipitate will, of course, be incompletely dissolved by ammonia.

* Read before the Liverpool Chemists' Association, on December 14, 1899.

To enter into the rationale of the process, which consists of two steps, we will first consider the conditions under which the bismuth citrate is formed.

If we take 4-milligramme molecules of bismuth oxynitrate—*i.e.*, 0·305 × 4 = 1·2 gramme—and dissolve this in 10 Mgm. molecules of nitric acid—*i.e.*, 2 C.c. of equal parts of nitric acid, sp. gr. 1·42, and water, which is equivalent to a 8 N solution—the simple addition of 4 Mgm. molecules of citric acid—*i.e.*, 0·84 gramme—will at once cause a precipitation of bismuth citrate, without the addition of any alkali; because, although the citric acid is a weaker acid, yet it exceeds the uncombined nitric acid by 4 to 2, and in basicity by 12 to 2; the affinity is influenced by the relative quantity of the reagents used, and by the relative solubility of the resulting compounds.

Next, if we take 3 Mgm. molecules of bismuth oxynitrate—*i.e.*, 0·915 gramme—and dissolve them in a similar quantity of nitric acid to the first, and add 3 Mgm. molecules of citric acid, there is no precipitation until 6 out of the 13 nitric acid molecules are neutralised*—*i.e.*, 10 of the added, plus 3 in combination with the bismuth, or until the citric acid is present in excess of the free nitric acid. This may be shown as follows:—

$$3Bi3NO_3 + 4HNO_3 + 3H_3C_6H_5O_7 + 6KOH =$$
$$6KNO_3 + 2Bi3NO_3 + HNO_3 + 2H_3C_6H_5O_7 + 6H_2O + BiC_6H_5O_7.$$

Bismuth citrate will then continue to precipitate until the added nitric acid is fixed by the alkali. At the point when the tenth molecule of the total nitric acid is fixed, one milligramme molecule of bismuth nitrate still remains in solution, and two more molecules of alkali will suffice to precipitate it in the form of citrate. Thus the final reaction is attained before exact neutrality is reached.

We have previously stated that an equivalent amount of ammonia cannot be used owing to the bismuth going into solution long before the point of neutrality is reached, but if it should be used the quantity required for 70 grammes of bismuth oxynitrate is 160 C.c. of a 10 per cent. solution, or 183 C.c. of 5 N ammonia.

In MacEwen's formula 50 per cent. more nitric acid is employed than in the 1898 B.P. formula. This is not at all necessary; in fact, with the increased proportion of nitric acid the amount of bismuth left in solution is much greater than when the smaller amount of acid is used.

If we convert the B.P. proportions of bismuth oxynitrate and nitric acid into molecular proportions we shall have a working formula, viz.:—

Bismuth Oxynitrate (3·05 × 23)	=	70·15 grammes.
Nitric Acid, sp.gr., 1·42	=	50·0 cubic centimetres = 100 C.c. of 8 N·HNO_3.
Citric Acid		50 grammes.

The equivalent quantity of potassium or sodium carbonate or hydrate, if made into a 5 N solution, will be 206 C.c.

(A pound tin of commercial caustic soda (90 per cent.) will make two litres of 5 N sodium hydrate.)

The equivalent of sodium bicarbonate is 86·5 grammes. Two-thirds of it may be mixed with the citric acid before adding it to the bismuth solution, the two being dissolved in hot water.

The alkaline hydrate need not be adjusted to any definite strength, a fairly concentrated solution may be made, and compared as to neutralising power with the diluted nitric acid (equal parts of strong nitric acid, sp. gr. 1·42, and water), a known volume of which—say 100 minims—with a suitable indicator, when neutralised, will show the volume of alkaline solution for 100 C.c. of acid; to this must be added the alkali required to fix the nitric radical in the bismuth oxynitrate, which will be as 23 to 80 of the free acid.

After precipitating the bismuth citrate by the strong alkali, the thick cream should be diluted with *hot* water to the volume of the liquor it is about to produce; this is well cooled before transferring it to the filter. It will then be in a granular compact state holding comparatively little fluid, the filtrate will be bright, and will not deposit, as it would if filtered while warm. Another advantage is that it does not require much more water to free it from nitrates beyond that necessary to displace the original liquid. The whole of the filtrate should contain not more than 1 per cent. of the bismuth used.

By having regard to the principles involved, equally successful results can be obtained by using the hydrate, carbonate, or bicarbonate of any fixed alkali. It is only necessary to know their real strength in comparison with the nitric acid used, as we have previously stated, and to use sufficient to decompose all the oxynitrate, but not so much as to render the liquid alkaline, or it would affect the bismuth citrate. To guard against this a slight excess of citric acid above the calculated quantity (48·3 grammes for 1 litre) should be used.

The second step is to dissolve the citrate in solution of ammonia. An interesting point in the formation of the ammonio-citrate is that it does not require twice the number of ammonia molecules to dissolve the bismuth citrate, even allowing for slight alkaline reaction required by the Pharmacopœia. 60 C.c. of 10 per cent. liquor ammonia is all that is necessary—*i.e.*, 3 molecules to 2 molecules of the bismuth salt. The ammonia should be diluted with four volumes of water, and poured on the contents of the filter. The Pharmacopœia allows for a loss of 6·5 per cent. of bismuth oxynitrate, but by the above process the loss is practically 1 per cent., so that the final liquid will bear dilution to 1,050 C.c. instead of to 1 litre, as the B.P. states.

The percentage of loss calculated as oxynitrate in the filtrate is as follows:—

MacEwen's process, using 120 gramme molecules to 23 gramme molecules of $BiONO_3$; 101 gramme molecules of NH_3 will make a clear solution with half; if no more be added, an enormous loss of bismuth will result, even as much as 15 per cent. In practice, doubtless an excess of ammonia is used; 126 gramme molecules will precipitate the maximum proportion leaving in solution 6·3 per cent.

B.P. proportion of acid, 80 to 23 (sp.gr. of liquor, 1·070), loss 5·6 per cent.

Ditto using NaOH	loss 1·06	,,
Ditto ,, $NaHCO_3$ (sp.gr. 1·080)	loss 0·72	,,
Ditto ,, $KHCO_3$	loss 1·06	,,

These determinations were all made as sulphide, therefore they are comparative only; lower results would be obtained if weighed as oxide.

The best working formula to prepare a litre of liquor bismuthi is as follows:—

Bismuth. Oxynitrate, 70·0 Gm.
Acid. Nitric (s.g. 1·42).
Aq. Destill. aa 50·0 C.c.
Acid. Citric, 50·0 Gm.
} Bicarbonate Potash, 103·0 Gm.; or, Soda, 86·5 Gm.
{ Or, Solution of *Sub*carbonate; or, Hydrate, *q.s.* equivalent to 128·0 C.c. of the diluted Nitric Acid.

The bicarbonates may be weighed as pure, being fairly constant in purity, but subcarbonates or hydrates, being variable in strength, are best made into solution, 10 to 20 per cent. (soda crystals 30 per cent.), and titrated with the diluted acid. If 128 minims of the diluted nitric acid are neutralised by **x** minims of the alkali solution, then x C.c. of the alkali solution are required. If liq. ammoniæ is to be used, deduct 1-10th or titrate with 115 minims of the acid instead of 128 minims; or if a burette is used, 11·5 C.c. instead of 12·8 C.c. Dissolve the bismuth in the diluted nitric acid by gently warming, add the citric acid dissolved in a little water (and if a carbonate is used two-thirds of it may be mixed with the citric acid); lastly, add gradually the alkali solution, stirring well; dilute with hot water to about a litre, cool, filter, wash free from nitrate. Pour on to the citrate 60 C.c. of liq. ammon. (10 per cent.) diluted to 200·0 C.c. with water; return filtrate (ammoniacal) until all the bismuth citrate is taken up; then dilute to a litre or to the required gravity 1·07.

B

* The solution remains clear until 5 milligramme molecules are added.

A NEW AMERICAN DISPENSATORY.

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. By Dr. G. WOOD, and Dr. F. BACHE. Eighteenth Edition, by H. C. WOOD, M.D., LL.D., JOSEPH P. REMINGTON, Ph.M., F.C.S., and SAMUEL P. SADTLER, Ph.D., F.C.S. Pp. 1999. Price 36s. Philadelphia, U.S.A.: J. P. Lippincott Company.

The 'Dispensatory of the United States,' which was first published in 1833, and has now reached its eighteenth edition, is a heavy and bulky volume of just upon 2,000 pages. Its object has been, as may be learnt from the preface to the first edition, to present an account of medicinal substances in the state in which they are brought into the shops, and to teach the modes in which they are prepared for use.

That the work should have passed through seventeen editions in the course of less that seventy years is sufficient evidence that it has in the past supplied a want that has been felt, and fulfilled the object set forth in the preface.

It may at once be stated that the perusal of the volume leaves no room for doubt that the eighteenth edition will be fully equal in every respect to its predecessors, and that the 'Dispensatory' will remain a necessary adjunct to every pharmaceutical library.

The work is divided into two parts; the first deals with all the drugs and galenical preparations of the United States and British pharmacopœias, whilst the second contains the National Formulary of Unofficial Preparations, and a large number of unofficial drugs and preparations. Elaborate and useful tables complete the work. The mushroom growth of synthetic remedies during the past few years has necessitated a large increase in the second part, upwards of two hundred additional drugs and medicines having been described. The Pharmacopœia of the United States has long been recognised as a most useful volume, and when it is understood that the British Pharmacopœia of 1898, with its new drugs and preparations, receives an equal share of notice and comment, the value of the Dispensatory to the English pharmaoist as well as to the American must be freely admitted.

The chemistry of the volume, for which, presumably, Professor Sadtler is responsible, is in every respect equal to the traditions of the Dispensatory. The descriptions of the various substances, their tests, properties, impurities, etc., have been revised, and in each case a complete and often elaborate treatise is the result.

The pharmacy, which may probably be attributed to Professor Remington, apparently lags a little behind the chemistry, at least if one is correct in including drug assays in that section. Considering the importance that the valuation of drugs by assay has attained during the past few years, the absence of assay processes for many potent or important drugs must be regarded as a defect. On the other hand the English pharmacist will find many useful comments on the preparations of the British Pharmacopœia.

The materia medica appears to be the least satisfactory part of the work, and that is probably due to two causes; in the first place the work is essentially a compilation, and therefore much information that is either difficult of access, or has not been published, finds no place in the Dispensatory; in the second place a pharmacognosist has not found a place on the editorial staff. With some notable exceptions, as, for instance, coca leaves, cinchona bark, ipecacuanha root, etc., the descriptions of the drugs and their commercial varieties are often either deficient or antiquated.

A considerable part of the volume is occupied by accounts of the medical properties and uses of the various drugs and preparations; these are given at great length, but it must be left for one who is well acquainted with that subject to express an opinion as to the value of this section. As a work of reference, the Dispensatory will doubtless continue to be as necessary to the English pharmacist as hitherto.

THE PRESIDENT AND THE COMPANIES BILL.

The President of the Pharmaceutical Society has furnished us for publication with the following copy of correspondence he has recently had with the President of the Board of Trade:—

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN,
17, Bloomsbury Square, London, W.C.,
December 14th, 1899

TO THE RIGHT HONOURABLE C. T. RITCHIE, M.P.,
President of the Board of Trade.

SIR,—I am led to understand that it is proposed to introduce into Parliament next Session a Companies Bill similar to that passed through the House of Lords last Session, and I presume, therefore, that you will shortly be considering the provisions of that measure.

This Society—as representing chemists and druggists throughout Great Britain—is deeply interested in the amendment of the Companies Acts, and a statement from my predecessor* in the presidency of this Society was, in January, 1895, presented to your Department directing attention to the evasion of the provisions of the Pharmacy Acts by the formation of companies, and pointing out that this was prejudicial alike to the interests of the public and to the statutory rights of chemists and druggists.

The statement is printed on page 157 of the report of the Departmental Committee whioh in November, 1894, was appointed by the Rt. Hon. James Bryce, M.P., to inquire into the working of the Companies Acts.

The statement above alluded to was not only published in the Blue Book, but was also mentioned in the report of the Committee itself as offering cogent evidence of the facility with which the Companies Acts could be misused. It was, however, felt by the authorities at that time that the specific amendment of the law which this Sooiety advocated did not come within the scope of the Departmental inquiry.

The Draft Companies Bill which the Departmental Committee had under its consideration, and which is also printed in the Blue Book, was eventually, as you will no doubt remember, introduced by Earl Dudley into the House of Lords in 1896, when Lord Herschell gave notice of an amendment prohibiting the use of professional titles by companies.

This amendment was not considered, as the Bill was—on the second reading—referred to a Select Committee, whioh reported at the end of that Session that it had not completed its labours.

The Bill was re-introduced the following Session (1897), with the same result.

During the Parliamentary Session of 1898 this Society promoted a Bill which subsequently passed as the Pharmacy Act, 1898. This Bill, which was of a non-contentious nature, passed through all its stages in the House of Commons without amendment, and reached the Committee stage of the House of Lords also without amendment. At this point, however, the Lord Chancellor and the late Lord Herschell being of opinion that the use of the machinery of the Companies Acts for evading the Pharmacy Acts should be stopped, attempted to effect the necessary alteration in the law by an amendment of the Bill then before them.

The Lord Chancellor directed attention to the fact that the Pharmacy Acts did not cover the case of drug stores carried on by companies or corporations; and he suggested that the scope of the Bill should be extended so as to deal with these. The Courts had decided, he added, that the word "person" in the Pharmacy Acts meant a natural person, and not a corporation, and the common-sense view of the question required that companies should be treated just in the same way as individuals.

Lord Herschell supported this contention, and quoted a case which had been brought under his notice, in which a man and his

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Michael Carteighc.

family formed themselves into a company, with the object of carrying on the business of a chemist and druggist while avoiding the statutory obligation.

An amendment to the Pharmacy Bill was consequently placed on the notice paper by the Lord Chancellor, but he was induced to postpone dealing with the matter until the following Session.

In withdrawing his amendment and moving the third reading of the Pharmacy Bill, his Lordship is reported to have said:—

> "Undoubtedly the state of the law as disclosed in the inquiry before the Standing Committee is extremely unsatisfactory, and it appears under the circumstances that some amendment of the law is required."

He further said that he had received a number of complaints in respect of these companies, which are practically medical companies; that the question was a very important and serious one; and that he adhered to the opinions expressed by him and Lord Herschell at the Committee stage of the Bill.

The Lord Chancellor, in pursuance of the intention he had conveyed at the third reading of the Pharmacy Act (1898), introduced last Session a Pharmacy Bill, and also a Companies (Medical Profession) Bill, a copy of each of which is in the Appendix hereto; but neither of these was proceeded with.

Meanwhile, the Companies Bill was again introduced, and, for the last time, referred to the Select Committee, which reported on May 18, 1899—the day before the House rose for the Whitsun recess.

The Committee's report disclosed the fact that the substance of the Lord Chancellor's Pharmacy Bill and his Medical Professions Bill had been incorporated in the Companies Bill, and figured as clauses 2 and 3 of that measure. A copy of the two clauses are in the Appendix hereto.

These additional clauses were adopted by the House of Lords, and the third reading of the Bill was passed on August 3, 1899, when the Lord Chancellor referred to the subject in the following terms:—

> "My Lords,—there are one or two observations which, I think, it is desirable I should make to your lordships. There were some clauses introduced in the Bill in Committee having relation to questions which, I think, are very interesting to the medical and pharmaceutical professions. I have received a very large number of communications upon the subject, and I am fully alive to the necessity of guarding very carefully the language by which the intentions of the measure, as manifested by the amended form of the Bill, should be carried out. I am still very strongly convinced that a company ought not to be permitted to do what a private person is prohibited from doing, and that the public must be protected against practising of that sort. It is impossible to resist the propriety of subjecting these companies who are at present carrying on business as chemists and druggists to restrictions such as are proposed in the Bill. I daresay your lordships will remember that cases have been decided—in my opinion, rightly decided—that the language which calls upon a person to qualify in any of the professions does not in turn apply to companies; and that the word "person" in the Acts which form the code upon that subject must be construed as meaning a natural person and not a company. The idea of an ideal personage such as a company practising and undergoing an examination is absurd, and cannot cohere with the language of the Statute. In my view, the learned judges who came to the conclusion that that was the true construction of the Statute were perfectly right, and that decision left the law that a company could be formed to do the very thing which an individual is not permitted to do without examination as to qualifications. I think I may say that the Committee to whom this matter was referred was unanimously of opinion that the formation of companies to practise any profession and who intended really to take advantage of the company machinery to do that which an individual without qualification may not do, should be stopped. As I have said, I have received a large bulk of correspondence on the subject, and in some of the communications which have been sent to me it is suggested that this is an effort to prevent proper enterprise, and so forth. As a matter of fact, I think the writers were not familiar with the state of the law. It is true to say that although a company can do it, and that at present a company cannot be prosecuted for doing it, and a company cannot undergo an examination to enable them to do it, yet if an individual dispenses without qualification you can catch him and prosecute. And it was in view of that state of the law on the subject that the Committee to which this matter was referred came to their conclusion. I must say that I quite agree that if this matter is to come forward, as it probably will in another session, it is desirable that we should guard very carefully the language used, so as not to interfere with any proper vested interest; but, on the other hand, that we should not allow the public generally to be exposed to the dangers of the practising of unqualified persons as dispensers. What I said on a former occasion, that the Committee were practically unanimous, appears to have given rise to controversy. I say so still. It is true there were certain divisions on matters of detail during the investigations, which lasted three years—some members of the Committee went one way and some the other—but they were not important questions. What I said before, and what I adhere to now, was that on the main lines of the Bill, the important matters under the Bill, the measure as now presented, represents the practically unanimous decision of the Committee. I think, my Lords, that it is a subject of congratulation that on such a subject practical unanimity has been attained. At this period of the Session I think it is, perhaps, not worth while that I should go through the whole clauses of the Bill. I have said all that is necessary on the report of amendments to the Bill. I can only add that I believe the Bill will be a very great improvement on the state of the law as it exists at present, and that it will in a great measure check the creation of fraudulent companies, which, I think, is the proper thing to do, and not to enact a penal code against persons engaged in the conduct of such enterprises."

[The Earl of Kimberley and the Earl of Dudley expressed approval of the Lord Chancellor's views, and the Bill was read a third time.]

From the repeated expressions of opinion by the Lord Chancellor that it is necessary, in the interests of the public, to deal with the question of company trading in so far as it relates to medicine and pharmacy, and having regard to the insertion at the last moment of Clauses 2 and 3 in the Companies Bill of last Session, I feel justified in again approaching your Department on the subject. I venture to urge—

> **That inasmuch as a limited liability company could not be examined and registered in accordance with the provisions of the Pharmacy Acts, it should be unlawful for any such company to assume or use any title implying registration under those Acts; and that it is not desirable in the public interest, that any person not registered under the Pharmacy Acts should be permitted to exercise any control over the retailing, dispensing, or compounding of poisons.**

I may add that this represents generally the views of the persons who are entitled to practise pharmacy in Great Britain, and is the essence of the point to which I desire to direct your special attention.

I shall be obliged if you will grant me an interview in order that I may reply to any inquiries you may think it desirable to make after having read the above statement.

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I regret to have had to address you at such great length, but thought that you would prefer to have the history of the present position clearly brought under your notice before seeing me.

I have the honour to be, Sir,
Yours faithfully,
(Signed) WM. MARTINDALE, President.

APPENDIX.

BILLS INTRODUCED INTO THE HOUSE OF LORDS BY THE LORD CHANCELLOR ON MARCH 24TH, 1899:—

A BILL INTITULED
AN ACT TO AMEND THE PHARMACY ACT, 1868.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

(1) APPLICATION OF PHARMACY ACT TO COMPANY.—31 and 32 Vict., c. 121.—A company may carry on the business and use the description of a pharmaceutical chemist or chemist and druggist if and so long only as the business is *bonâ fide* conducted by a manager or assistant being a duly registered pharmaceutical chemist or chemist and druggist, as the case may require, but, subject to this provision, anything which would be an offence under Section fifteen of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

(2) SHORT TITLE.—This Act may be cited as the Pharmacy Act, 1899.

COMPANIES (MEDICAL PROFESSION) BILL, 1899.
A BILL INTITULED
AN ACT TO PROHIBIT THE PROFESSION OR BUSINESS OF A PHYSICIAN, SURGEON, DENTIST, OR MIDWIFE BEING CARRIED ON BY A COMPANY.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

(1) COMPANIES NOT TO ACT AS DOCTORS, ETC.—It shall be unlawful for a company under the Companies Acts, 1862 to 1898, to carry on the profession or business of a physician, surgeon, dentist, or midwife, and if any company contravenes this enactment it shall be liable on summary conviction to a fine not exceeding five pounds for every day during which the contravention happens.

(2) SHORT TITLE.—This Act may be cited as the Companies (Medical Profession) Act, 1899.

CLAUSES INSERTED IN THE COMPANIES BILL, 1899,
BY THE SELECT COMMITTEE OF THE HOUSE OF LORDS:—

(2) No company may carry on the business and use the description of a pharmaceutical chemist or chemist and druggist unless such business is *bonâ fide* conducted by a manager or assistant, being a duly registered pharmaceutical chemist or chemist and druggist, as the case may require, and unless the name of the person so qualified is conspicuously posted in the shop or other place in which the business is carried on, but, subject to this provision, anything which would be an offence under Section fifteen of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

(3) It shall be unlawful for a company to carry on the profession or business of a physician, surgeon, dentist, or midwife, and if any company contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

(COPY OF REPLY.)

BOARD OF TRADE,
Whitehall Gardens, S.W.
16th December, 1899.

SIR,—I am desired by Mr. Ritchie to state that he has received your letter of the 14th inst., with its enclosures, expressing the views of the Pharmaceutical Society of Great Britain that a provision should be inserted in the Companies Bill rendering it unlawful for a limited liability company to assume a title implying registration under the Pharmacy Acts, or for a person not registered under those Acts to exercise any control over the retailing, dispensing, or compounding of poisons.

I am to state in reply that the views of your Society will receive Mr. Ritchie's careful consideration, and that he will bear in mind your willingness to reply at a personal interview to any inquiries he may desire to make on the subject.

I am, Sir,
Yours faithfully,
(Signed) GARNHAM ROPER.

WM. MARTINDALE, Esq.

PHARMACEUTICAL SOCIETY.

EVENING MEETING IN EDINBURGH.

The second Evening Meeting of the session was held in the Society's House, 36, York Place, Edinburgh, on Wednesday, December 20, Mr. PETER BOA (Chairman of Executive) in the chair.

The CHAIRMAN referred to the loss which the Society had sustained in Scotland by the death of Mr. Stanford, of Dalmuir. Most of them would remember him as President of the Conference when it met at Edinburgh in 1892. He moved that they should record their regret at having lost so active a member of the Society, and that a letter of sympathy should be sent to Mrs. Stanford. That having been agreed to,

Mr. THOMAS DUNLOP was then called upon to read a paper on

AN INCOMPATIBLE STRYCHNINE MIXTURE,

which is printed at page 604.

Mr. LUNAN said he had tried mixing solutions of strychnine hydrochloride and sodium arsenate, and got the same result, though his precipitate differed a little from Mr. Dunlop's. He thought the Journal note was correct as to the cause of the alkalinity of sodium arsenate solution. The salt was crystallised from an alkaline solution, and alkalinity might be due to traces of alkali. Such a salt as sodium phosphate behaved in a similar way. No doubt the mixture was incompatible.

Mr. DOTT said the main lesson of the paper was to point out the rashness of doctors in prescribing such mixtures without thinking of the possible consequences. There could be no reason for prescribing those two solutions together, and no care seemed to be taken to ensure the solubility of any compound that might be formed. Commercial sodium arsenate generally contained a trace of carbonate, and he attributed the precipitation to that. He did not think the explanation of the alkalinity given in the *Pharmaceutical Journal* was correct. It was not probable that the salt would decompose in solution as suggested. It should be quite possible to get a pure salt and a neutral solution.

Dr. COULL said this note was interesting, both to dispensers and manufacturers. He thought the sodium arsenate was at fault, and that carbonate when present was due to the process of manufacture. He questioned the statement in the Students' Columns as to the alkalinity being due to disassociation of the sodium arsenate in solution.

Mr. SIMPSON said he was inclined to think the Journal explanation was based on Ostwald's theory of ions, and was the true explanation of the alkalinity. If the alkalinity were due to sodium oxide it could be removed by washing with alcohol, in which sodium arsenate is insoluble.

Mr. J. Rutherford Hill said he had received a note from Mr. Duncan, in which he said the difficulty with Mr. Dunlop's mixture was due to hydrolysis of sodium arsenate into sodium dihydrogen arsenate, and sodium hydroxide, and not to sodium oxide as an impurity. The same happened with other salts, such as phosphates, borates, and acetates, which gave alkaline solutions. Even alcohol-washed salts, which would be free of any accidental sodium oxide, gave similar results. Mr. Hill said these strychnine mixtures were constantly cropping up, and Mr. Dott had indicated the *fons et origo* of the difficulty, in his allusion to the ignorance or carelessness of prescribers. One point against the suggestion that the precipitate was due to carbonate in the arsenate was that Mr. Dunlop found the precipitate to be free alkaloid.

The Chairman said the discussion revealed difference of opinion. Some of the experts should take up and settle the point which the paper and discussion left open—namely, the cause of the precipitate.

Mr. Dunlop, in replying, said this mixture emphasised the danger attending the practice, now so common, of ordering highly-concentrated medicines to be taken in small doses. The old-fashioned method of tablespoonful doses was much safer.

Mr. Dunlop next read a paper on

Maceration Tinctures,

which is printed at page 603.

Mr. Henry said his results with an ordinary screw press were slightly under those of Mr. Dunlop. There had been a discussion in the journals as to whether infusions should be made up to a definite volume, and Dr. Attfield had settled the point in a letter giving a negative answer. He thought that reply would apply also to tinctures. A question of some importance was whether the expressed liquid was of the same strength as that which remained in the marc, and whether the last ounce expressed was of the same strength as the first portion. If that were not so there would be discrepancies in proportion to the pressure employed.

Dr. Coull said there was no doubt that the Pharmacopœia intended that the tinctures should not be made up. Dr. Symes had investigated this matter, and the present plan brought the British Pharmacopœia into line with the Continental pharmacopœias. As to Mr. Dunlop's yield, especially in the cases of catechu and squills, he agreed with Lucas.

Mr. Guyer said he agreed that the Pharmacopœia directions were quite distinct. But there was often variation in the tincture, due to the quantity of moisture. Take, for instance, tincture of orange. It contained a lot of water, especially if the fruit were peeled immediately before making. But if the peel were got from a jam-maker, with an interval of a day or two in transit, the percentage of water would be much less, and the tincture consequently stronger. As to the yield of tincture, he rather agreed with Mr. Dunlop. In the case of cardamoms he had got even higher results.

Mr. Glass said there was always a shortage, due to evaporation, and that varied according to the conditions of filtration as to time and exposure. It was proper that the shortage should be made up. He thought the paper a very practical one, and favoured the idea of a definite volume.

Mr. McDiarmid said Mr. Umney had said he got twenty-one and a half ounces of tincture in making a pint quantity. He wondered if anyone else had ever got such a yield. Personally he had never got anything like the quantities Mr. Dunlop had got.

Mr. Hill said there was a growing tendency to allow the making of all tinctures to pass into the hands of wholesale makers. That was to be deprecated, for it deprived the public of a proper legal guarantee as to the making of pharmaceutical preparations. He suggested that cane sugar might well replace raisins in tinctures of cardamoms and senna, and then they could be much better prepared by the percolation process. By macerating with one half of the menstruum, and then with the other half, pressing and making up a uniform result would be most easily and certainly attained.

The Chairman said the present official method had been adopted to secure greater uniformity, and he thought it did. He could not see how the tincture expressed could differ from what remained in the marc if care were taken. The present process, he thought, was about as good as they could get. In the case of some, such as orange and lemon, they could not get exact uniformity. One point omitted by the Pharmacopœia was that it did not mention an approximate yield. He protested against omitting raisins. It was part of the art of pharmacy to retain the flavour, just as they did with liquors used as beverages for titillating the palate.

Mr. Dunlop replied, and on the motion of the Chairman was awarded a cordial vote of thanks for his interesting communications. Owing to the lateness of the hour the description of additions to the Museum was delayed till next meeting.

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.*

Tinctures—The Process of Maceration.—At the end of the period of maceration the fluid is decanted and the marc expressed. The united liquors so obtained coustitute the finished tincture and dilution to a uniform fixed volume is not directed as in the maceration process of the 1885 B.P. At first sight this omission may not appear to lead to uniformity in the products, but a little consideration will show that whereas the 1885 process produced a *uniform volume* of tincture of *variable potency*, the new process leads to a *variable volume* of tincture of *uniform potency*. Thus, if one macerates for seven days, say 4 ounces of a given drug in 20 fluid ounces of alcohol, agitating frequently, we may reasonably assume that at the end of the period of maceration all the soluble constituents of the drug will have been dissolved and distributed uniformly by diffusion throughout the bulk of the menstruum. Both the supernatant fluid and that imbibed by the tissues of the drug will have attained a condition of equilibrium so far as the distribution of the extractable constituents of the drug are concerned. Neglecting the minor sources of loss, let us suppose that by decantation and expression in an ordinary small screw press, 18 fluid ounces of tincture are obtained from the 20 fluid ounces of alcohol with which we started. Then it follows that we have left behind in the pressed marc 2 fluid ounces of tincture representing a tenth part of the soluble constituents of the 4 ounces of drug. Operating now on larger quantities of the same materials—say twenty times the quantity—and employing the more powerful pressure obtainable by means of a hydraulic press, it would be found that a large proportionate volume of tincture could be obtained. We may assume for the purpose of argument that owing to the more efficient press available and the smaller proportionate loss from other sources in working on large quantities, 19 fluid ounces of tincture would be obtained from each 20 fluid ounces of alcohol, thus leaving only $\frac{1}{20}$th part of the extractable constituents behind. For the reasons already given the strength of the finished tinctures would be the same in both cases, although a larger proportionate quantity would be obtained in working larger quantities. If now the method of dilution to a definite volume according to the 1885 Pharmacopœia were carried out, we should have to add in the first case two fluid ounces of alcohol to every 18 fluid ounces of tincture, and in the second case only one to nineteen, leading thus to a variation in the

* Note.—The series of articles should be read in conjunction with the series referring to the 1885 B.P., and published in the *P.J.* during 1897-8.

strength of the finished tincture corresponding to the dilution necessary to bring the fluids to a constant volume.

The Process of Percolation—The powdered drug is to be uniformly moistened with sufficient of the menstruum to convert it into a damp powder. It is then allowed to stand for twenty-four hours in order that the tissues may swell before the percolator is packed. If the dry drug be packed in the percolator it often happens that the swelling which occurs when the fluid is poured on is so considerable that the contents of the percolator become too tightly wedged and the passage of fluid is rendered impossible. The preliminary soaking also enables the menstruum to permeate the cells, rendering the brittle dry tissue more pliable, and, therefore, more easily packed uniformly in the percolator. At the same time the cell contents are brought into a plastic condition, so that the soluble constituents are more readily extracted by the subsequent percolation with more of the menstruum. The proper packing of the percolator is an operation which can only be learnt by experience. The main points to observe are (1) that the material be uniformly distributed, so as to avoid the formation of channels; (2) that the tightness of the packing should be varied for each material so that, working on a few pints of tincture, a rapid succession of drops, but not a continuous stream, of percolate should be obtained when the menstruum is poured on. Of course with larger quantities a proportionately larger flow is permissible. Then, to quote the officail directions, "pour over, at intervals, further portions of the menstruum, always maintaining a layer of liquid above the materials." The last point is important, because if the liquid be allowed to drain away below the surface of the materials air spaces will be formed in the upper part, so that the succeeding portion of menstruum added will immediately run into and fill up these without passing slowly through the overlying material. If the process be carried out efficiently the last fraction of percolate will be almost, and in most cases quite colourless. The efficiency of percolation as a means of exhausting a drug depends upon the fact that the solid material is being continually acted upon by fresh solvent, which displaces the fluid partially or entirely saturated by contact with the drug. At the end of the process the marc is left saturated by almost pure menstruum, the soluble constituents having been removed by the fluid which has been previously added and displaced. When, therefore, the marc is pressed to recover the imbibed menstruum, the portion of fluid which is still unavoidably left in represents, not an appreciable fractional part of the soluble constituents as in the maceration process, but in most cases a negligible proportion, owing to the fact that these constituents have been dissolved by the percolate which has been displaced by the later portions of menstruum poured on.

Notwithstanding this advantage, the process of simple maceration is still used for preparing many tinctures. The reasons for this may be broadly classified under three headings:—

1. In the case of bulky drugs, like hop, the available quantity of menstruum is insufficient for the accomplishment of the process of percolation.

2. Certain drugs yield a powder which is physically unfit for percolation. Thus calumba and squill powder when moistened form tough and slimy masses which, unless the powder is very coarse, almost entirely prevent the passage of fluid through them Many resins and gum resins partly dissolve in alcohol, and yield an insoluble residue of a sticky tenacious nature which effectually occludes the percolator tube.

3. In other cases the increased labour involved by percolation is not justified by the improved exhaustion effected. Thus, if the solid ingredients of a tincture are of small commercial value and at the same time not potent, as in the case of tincture of gentian, or are used in small proportion, as in tincture of cantharides and compound tincture of lavender, then the proportionate part of extractable materials left in the marc by the maceration is not considered of sufficient value or importance to compensate for the extra time and trouble required for the percolation process. The process of percolation now described in the Pharmacopœia is given in greater detail than in the 1885 B.P. In the latter the drug to be percolated was directed to be previously macerated in three-fourths of the alcohol, leaving only one-fourth for the displacement of the previously added alcohol. This was in most cases insufficient for the purpose, so that the marc was not by any means exhausted.

FLORAL CALENDAR FOR DECEMBER.

Amaryllidaceæ.—*Eucharis amazonica.* Fl.

Araliaceæ.—*Hedera helix* (*P.J.* [3], **12,** p. 537).

Begoniaceæ.—*Begonia* species.

Berberidaceæ.—*Berberis darwinii.* Fl.

Calycanthaceæ.—*Chimonanthus fragrans.* Fl.

Caprifoliaceæ.—*Lonicera standishii.* Fl.

Compositæ or **Asteraceæ.**—*Pctasites fragrans* (*P.J.* [3], *Taraxacum officinale, Bellis perennis, Chrysanthemum* (single). Fl. *Matricaria inodora* (*P.J.* [3], **10,** p. 501).

Cornaceæ.—*Viburnum tinus.*

Cruciferæ or **Brassicaceæ.** — *Alyssum maritimum.* Fl. *Capsella bursa-pastoris* (*P.J.* [3], **15,** p. 503).

Ericaceæ.—*Arbutus unedo.* Fl. *Erica* species. Fl.

Euphorbiaceæ.—*Euphorbia peplus. Poinsettia pulcherrima.* Fl. (*P.J.* [3], **8,** p. 501).

Geraniaceæ.—*Pelargonium* species. Fl.

Graminaceæ.—*Poa annua.*

Hamamelidaceæ.—*Hamamelis virginica.* B.G. (*P.J.* [3], **11,** p. 509).

Ilicaceæ.—*Ilex aquifolium* (fruit) (*P.J.* [3], **8,** p. 501; [3], **12.** p. 537; **17,** p. 509).

Iridaceæ.—*Iris histrio.* Fl. *Iris stylosa.* Fl. *Schizostylis coccinea.* Fl.

Labiatæ.—*Lamium album, L. purpurcum.*

Leguminosæ or **Fabaceæ.**—*Ulex europæus. Acacia* species, B. G.

Liliaceæ.—*Ruscus aculeatus* (fruit).

Loranthaceæ.—*Viscum album* (fruit). (*P.J.* [3], **9,** p. 525, 528; **10,** p. 501.)

Magnoliaceæ.—*Illicium anisatum.* (*P.J.* [3], **7,** p. 609.) *Drimys winteri.*

Monimiaceæ.—*Peumus boldus.* B.G. (*P.J.* [3], **7,** p. 609.)

Oleaceæ.—*Olea fragrans.* B.G. *Jasminum nudiflorum.* Fl.

Orchidaceæ.—*Dendrobium nobile,* etc. Fl.

Primulaceæ.—*Primula obconica.* Fl.

Ranunculaceæ.—*Anemone japonica. Helleborus niger.* (*P.J.* [3], **7,** p. 610; **11,** p. 509.)

Rutaceæ.—*Citrus aurantium.* (*P.J.* [3], **17,** p. 509.)

Scrophulariaceæ.—*Veronica buxbaumii. Linaria cymbalaria.* (*P.J.* [3], **12,** p. 522.)

Solanaceæ.—*Solanum jasminoides.* Fl.

Thymelæaceæ.—*Daphne mezercum* (var. autumnale). (*P.J.* [3], **7,** p. 610.)

Verbenaceæ.—*Caryopteris mastacanthus.* Fl.

Violaceæ.—*Viola odorata. Viola tricolor.* Fl.

Correction.—The result of the calculation given near the end of the paragraph on "Sodii hypophosphis," at page 534, should be 0·4808 instead of 4·808.

PHARMACEUTICAL JOURNAL.

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LONDON: SATURDAY, DECEMBER 23, 1899.

THE LATEST STEP IN ADVANCE.

It is just about twelve months since the subject now chiefly agitating the minds of registered chemists came prominently to the front once more, and the year's record has been one of almost continual discussion of that subject. The numerous arguments advanced and suggestions offered have been duly placed before the readers of the *Pharmaceutical Journal*, and if any registered chemist has not yet considered what the remedy for the existing state of affairs should be, or how that remedy is to be applied, it must be because he is in too prosperous a condition to trouble his mind about such a trifling matter as the company pharmacy problem. At any rate, he can hardly be connected with the Pharmaceutical Society or any of the numerous local pharmaceutical associations which have so recently indicated their views on the subject through the medium of the Federation of Local Pharmaceutical Associations. The opinions of the registered chemists of Great Britain, as voiced by their representative organisations, are—generally speaking—that none but individuals registered under the Pharmacy Acts should be permitted to assume or use the titles protected by those Acts, or to retail, dispense, or compound poisons. The vast majority of registered chemists are in favour of an attempt being made to enforce those views by legislative action; others vary in the degree of faint-heartedness with which they are afflicted, and suggest compromise of one kind or another. They would insist upon every company which carries on the business of a chemist and druggist having a board of directors with a pharmaceutical qualification, or one or more directors so qualified, or a legally qualified manager for each place where the business is carried on. But all are united in the opinion that it is essential in the public interest that every place where poisons are dispensed and sold should be properly controlled by a duly qualified individual.

The latest association to consider the all-absorbing question is the Western Chemists' Association of London, the members of which will doubtless be much better known to their brethren in the provinces a few months hence—after the British Pharmaceutical Conference meets in London. The discussion at the meeting on Wednesday last was opened by Mr. Walter Hills, the immediate past-President of the Pharmaceutical Society. He presented his case in a fair and temperate manner, but it is evident from the report of his remarks (see p. 618), that he is far from taking up an unduly optimistic position. Mr. Hills seems to fear that the *casus omissus* revealed by the decision of the House of Lords in the case of the London and Provincial Supply Association cannot be entirely remedied, and that it is hopeless to look for such amendment of the Pharmacy Acts as would satisfy registered chemists as a class. The prohibition of all company trading in pharmacy is held to be the best and strongest position to take up, but there is apparently little hope in Mr. Hills' mind of any such position being tenable. In that case, he contends, it would be undesirable to oppose any and every proposal recognising the principle of limited liability. The Western Chemists' Association apparently supports him in that contention, having adopted a resolution providing that should the Council of the Pharmaceutical Society become convinced that to restrain all companies from keeping open shop for the retailing, dispensing, or compounding of poisons is not feasible, legislation would be desirable to make it unlawful for companies to assume or use titles implying registration under the Pharmacy Acts, and, further, to provide that all such open shops should be under the sole control of persons registered under the Pharmacy Act, 1868.

At present, however, the Council is far from being convinced that companies cannot be restrained from retailing, dispensing, or compounding poisons. Indeed, as is indicated by the letter recently sent by the President of the Pharmaceutical Society to the President of the Board of Trade (see p. 606), the Council is fufly prepared to insist that—inasmuch as a limited liability company cannot be examined and registered in accordance with the provisions of the Pharmacy Acts—it should be unlawful for any such company to assume or use any title implying registration under those Acts, or for any person not registered under the Pharmacy Acts to be permitted to exercise any control over the retailing, dispensing, or compounding of poisons. The interpretation of the word "control" will naturally vary according to the views held on the subject by the interpreters. But, in the public interest, it must be a real control if it is to be effective. As was pointed out in last week's Journal, in every pharmacy which is not personally conducted by a qualified proprietor, the public interest requires that there should be a registered individual in full charge, and occupying virtually the same position as a proprietor in all his relations as a pharmacist with the public. He should not be controlled or interfered with in the exercise of his professional functions by any unqualified person or persons, and the simplest way of insuring that is to provide that associations of unqualified persons shall not be permitted to do what the separate units constituting the associations are unable to do. But other ways may present themselves to the official mind, and, for the present, we must wait until Mr. Ritchie has given the careful consideration he promises to the Society's views.

ANNOTATIONS.

THE SCHOOL OF PHARMACY will be closed for the Christmas recess from 5 p.m. on Wednesday, December 20, until 9 a.m. on Monday, January 8. The Library and Museum in London will be closed entirely on Christmas Day and December 26, and will also shut at 5 p.m. each day afterwards up to and including New Year's Day. The usual vacation arrangements have been made with respect to the rest of the Society's premises—that is to say, the office will be closed on December 25 and 26, and the House in Edinburgh will not be open on December 25 or January 1. As the January examinations commence in Edinburgh on the 26th inst., and in London on the 27th, the official vacation cannot be regarded as an unduly long one.

SPEAKING OF EXAMINATIONS, it may be of interest to readers of this Journal to learn that no less than 422 persons have entered for the January qualifying examination; 324 have decided to submit themselves to the London Board, whilst the remaining 98 find it more convenient to go to Edinburgh. One might quite reasonably assume that the pharmaceutical outlook is not without some degree of attractiveness, in spite of corporate and municipal trading in medicinal substances, and dispensing by unregistered persons; otherwise so large a number of young men would scarcely be found cheerfully paying fees and hazarding fate on a mid-winter examination. There is, perhaps, the alternative deduction that fear of a coming ten-guinea fee is a more potent factor in augmenting the number of candidates than any real or fancied allurement in pharmacy.

INTENDING CANDIDATES for the "First" examination are reminded that the next examination takes place on Tuesday, January 9, and that entries must be complete on or before Tuesday next, December 26—that is to say, on Boxing Day. At such a time postal delays are not infrequent, and in order to obviate the unpleasantness of being too late, would-be candidates are earnestly requested to send in their applications at once. It is always risky to wait until the last moment before proceeding to comply with the regulations, but in the case of the January "First" examination the risk is enormously increased by the interposition of the holiday season.

EARLY CLOSING of the Library and Museum in London has been decided upon by the Library, Museum, School and House Committee, and in future—until further notice—both departments will close at 6 p.m. every week-night except Saturday, instead of 7 p.m., which was the hour experimentally fixed in January last. It is understood, however, that there will be no alteration in the arrangement whereby the Library is available for use on evening meeting nights until 8 p.m. The action of the Committee is said to be based upon the well-tested fact that the members and students of the Society do not use the Library or Museum in the evening. It would appear that the habits of the modern students differ from those of his predecessor of fifty years ago, and that evening study in the Society's house forms no part of the programme of the pharmaceutical aspirant of to-day, who devotes the mornings of every day to lectures, the afternoons to laboratory practice, and the evenings to—well, non-pharmaceutical pursuits.

PROFESSOR JOSEPH P. REMINGTON asks us to inform our readers that, in the disastrous fire which occurred on November 29, at Messrs. Lippincott's, the plates of Remington's 'Practice of Pharmacy' were saved without injury. A few of the plates of the 'United States Dispensatory' were destroyed. The new issue of the 'Practice of Pharmacy' will be out in a few weeks, and the 'United States Dispensatory' as soon as possible, the paper having been ordered for both books while the fire was still burning.

THE READY METHOD IN PRESCRIBING—*i.e.*, the compressed tablet system of medication—is not viewed with such disfavour by the *Medical Press* as by other organs of the medical profession. A correspondent of that journal has written to direct attention to the injury done to the public and to the medical profession generally by the growing practice of prescribing tablet preparations and proprietary medicines. He thinks medical men have been cleverly hoodwinked by the manufacturers of such articles, and that they have unwisely allowed themselves to drift away from prescribing the well-tried drugs of the B.P. Wherever the fashionable physician goes he is sure to find tablets containing antipyrine, caffeine, sulphonal, thyroid, etc., being taken by patients with as little hesitation as they take their meals. But, though the British Pharmacopœia has been compiled for the benefit of medical men, and they are required to study materia medica and pharmacy, chemists who have studied for years, with the object of compounding medicines, are insulted by prescriptions being sent to them for ready-made mixtures and pocket bottles of tablets, which might just as easily be supplied by a grocer. The remedy suggested by the writer of the letter is a closer study of the British Pharmacopœia and avoidance of the tablet system of medication.

COMMENTING ON THE LETTER, however, the editor of the *Medical Press* remarks that the observer of the progress of events for the past few years must have seen very clearly that the days of universal prescription-writing, and the profits arising therefrom, are numbered. Moreover, it is thought that, generally speaking, the trustworthiness of the infinite variety of coated pills and compressed medicines which are now at the disposal of the public and the medical practitioner, cannot be questioned. In addition, those preparations are said to afford facilities for the administration in minute doses of active alkaloids which the medical practitioner hesitates to order in a prescription—*i.e.*, a prescription of the old-fashioned type. Whilst recognising, therefore, that special cases require special combinations of drugs, which the skilled physician can prescribe and the skilled pharmacist compound, the editor of the *Medical Press* is of opinion that such occasions are now exceptional. In conclusion, he says "the dispensing practitioner and the chemist must see that it has become necessary, and will be increasingly more so, to accommodate their practice to the new system, and no longer place their sole dependence on the one-and-sixpenny mixture or the shilling box of pills. We can see, of course, how disadvantageous it must be to make every patient his own prescriber and dispenser, but to a great extent this has been already done, and it will be quite futile to raise a trade cry against it."

THE QUESTION OF PROPRIETARY *v.* OFFICIAL PREPARATIONS has also vexed the soul of a correspondent of the *Lancet*, who directs attention to the real or supposed dangers of the frequency with which proprietary preparations are prescribed in lieu of the equivalents of the British Pharmacopœia. Apparently he is identical with the individual who has written to the *Medical Press*, for he also says that wherever the fashionable physician goes he finds such preparations are taken by patients with as little hesitation as they take their meals, and he, again, considers that ruinous to the interests of the medical man, the dispensing chemist, and the patient. It is, of course, possible, says the *Lancet*, to argue that the interests of the medical man and the dispensing chemist suffer from the frequency with which the laity attempt to treat slight ailments, without skilled assistance; but the natural tendency of every man to attempt to be his own medical adviser commonly entails subsequent prolonged medical attendance owing to an initial error of diagnosis. "In other words, it might be argued, from interested motives, that proprietary preparations are blessings in disguise—a contention which we should deem unworthy of any professional man. It is perfectly true that many of the advertised preparations cannot in ignorance be used with impunity, and it is the duty of every practitioner to speak with no uncertain voice of

the possible dangers of self-medication. On the other hand, it is probable that the growth of the use of such proprietary preparations by medical men was in the past fostered by the difficulty of remembering the pharmacopœial doses—a difficulty which was evaded by employing proprietary articles." A more absurd reason it would be difficult to give, but probably that is only the *Lancet's* little joke, though our usually sage contemporary appears serious enough when suggesting that careful consideration of the current British Pharmacopœia will show that the suggested hindrance to the employment of official preparations has to a large extent been removed, and that pharmacopœial drugs can now be prescribed with as much facility as proprietary articles.

It is More to the Point that the *Lancet* thinks it scarcely concerns the prescriber whether the average dispensing chemist can compete with the wholesale manufacturer in rendering the results of his labour equally attractive in appearance. "It can undoubtedly be done by a skilfully trained pharmaceutist ; it is for him to determine what profit accrues from the trouble involved. So far as the benefit of the patient is concerned it appears to be the duty of the prescriber to order the remedy demanded by the nature of the complaint, and to indicate the form in which it is to be dispensed ; and, provided that the drugs supplied by the chemist are of the pharmacopœial standard of purity, the prescriber should be perfectly indifferent as to whether the actual preparation sent to his patient is proprietary or official. A prescription which indicates the name of a maker is necessarily an advertisement." With those concluding sentences the majority of pharmacists will doubtless agree, and there is no reason to doubt that they are prepared, at all times, to supply exactly what the prescriber orders. If the prescriber always does his best for the patient, altogether irrespective of the source of what he orders in his prescriptions, the conscientious pharmacist will have but little ground for complaint, and is not likely to complain.

Unqualified Dispensers must be a necessity of the medical man's professional existence if the *Medical Press* is right in stating that the whole fabric of medical practice is based on the employment of unqualified dispensers, and that any modification of existing arrangements would entail what would almost amount to a dislocation. That remarkable statement appears in a note referring to the action of the General Medical Council in deciding not to take any action in regard to the employment of unqualified dispensers by medical practitioners. The question is described as one of far-reaching importance, though the reluctance of the Council to intervene, unless constrained thereto, is thought to be quite comprehensible. But is it in reality? Public opinion may not, as yet, be sufficiently alive to the drawbacks of the present system, to insist on a change, but it is hardly correct to speak of "the bogey of accidental poisoning, trotted out by pharmaceutical agitators for trade purposes," and to say that it has not had the desired effect, nor should it be assumed too readily that medical practitioners are not likely to be molested in respect of their unqualified dispensers for some time to come.

The Subject of Wholesale Prescriptions is again referred to in last week's *British Medical Journal*, where two letters on the subject appear—the first signed by ten leading West End dispensing chemists, and the second by the Secretary of the Chemists' Assistants' Union. In both concurrence is expressed with the view taken by the editor of the *British Medical Journal*, in his comments on wholesale prescriptions (see *ante*, p. 590), and the hope is expressed by the West End chemists that the medical profession will raise its voice against a system of medication detrimental to the interests of the public and of the medical faculty generally.

Sir Richard Thorne Thorne, whose death has occurred quite suddenly, was the principal medical officer of the Local Government Board. According to the *Times*, he was born in 1841, received his medical education at St. Bartholomew's Hospital, and obtained the membership of the Royal College of Surgeons in 1863. In 1866 he became M.B. of the London University, taking a double first class, and for a short time he held some hospital appointments in London ; but about 1870 he accepted office in the Medical Department of the Privy Council, which was afterwards transferred to the Local Government Board. In that capacity he continued for many years to discharge the routine work of the office, in the way of inspections and reports, until 1885, when his mastery of the French language led to his selection as a delegate of the British Government at a first International Sanitary Conference, which was held at Rome, and was followed by others at Venice, Dresden, and Paris. At those conferences Sir Richard took from the first a leading part, and was mainly instrumental in convincing the representatives of other Governments of the futility of quarantine and of the facility with which, notwithstanding the presence of infectious disease, commerce might be liberated from vexatious restrictions which had previously hampered it. He was appointed her Majesty's Plenipotentiary for signing the Sanitary Convention of Dresden in 1893 and that of Paris in 1894. Sir Richard early received the distinction of C.B., and that of K.C.B. was conferred upon him in 1897, soon after he had succeeded the late Sir George Buchanan as the head of his department. He was a Crown member of the General Medical Council, a Fellow of the Royal Society and of the Royal College of Physicians, LL.D. of Edinburgh, Doctor of Science of the Royal University of Ireland, and held numerous foreign distinctions.

Camphorated Oil appears to be the favourite article for public analysts to direct their attention to at the present moment, cases in different parts of the country being reported every week. The reason for that is not far to seek, camphorated oil being a preparation which retailers have been accustomed to make from a number of differing formulæ, no official standard being generally recognised. In the British Pharmacopœia, 1898, however, the term "camphorated oil" is applied as a synonym to linimentum camphoræ, and advantage has been taken of that fact to prosecute retailers all over the country. Without going into the question of the lack of authority of the B.P. as a general standard, it may be pointed out that, even when the preparation is made in accordance with the official instructions—*i.e.*, by dissolving one ounce of camphor in flowers, in four fluid ounces of olive oil—it is necessary to adopt certain precautions if the strength of the preparation is to be maintained at what it is presumably intended to be. Thus, heating should be avoided when preparing the liniment, unless special arrangements are adopted to prevent the volatilisation of camphor during the operation. Again, when finished, the preparation should not be kept in partially-filled bottles exposed to temperatures much above the normal, or loss by volatilisation may occur. In fact, like all other galenical preparations, camphorated oil must be skilfully made and carefully preserved, the pharmacist requiring to bring his scientific knowledge and technical training to bear in dealing with even the most minute details of every operation. Therein should lie the difference between the skilled pharmacist and the mere retailer of medicines.

Influenza and Imperial Fever are both epidemic in Australia, according to a Melbourne correspondent, who thinks it is about a toss-up which prevails most. "Long ere this reaches you," he writes, "you will have had full accounts by cable of the dispatch of our comparatively small, but significant, contingent of "Soldiers of the Queen" to assist the Motherland in her South African troubles. And, if the offer be accepted by the Defence Department of Victoria, Messrs. Felton, Grimwade, and Co., of Melbourne, will have contributed their mite towards the campaign by supplying, free of charge, the medical equipment with all drugs and surgical dressings necessary for our boys in any eventuality that may befall them."

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'FORMULAIRE DE MEDICAMENTS NOUVEAUX POUR 1900,' par H. Bocquillon-Limousin. (Paris: J. B. Baillière et fils, 19, Rue Hautefeuille. Pp. 324. Price 3 francs.)—This useful little summary of the newer remedies, and particularly of those introduced during the past twelve months, is as well up to date as usual. Among the remedies to which space is devoted are acoïne, amylene-chloral, anesine, anytyne, asterol, bronispine, cosaprine, cresamine, dionine, echtol, eunol, guilol, iodipin, melarine, phenegol, pipizoac, quino-chloral, siroline, sugarine, tannocol, tenaline, vasothion, etc. As usual, the monographs contain the names, synonyms, composition, therapeutics, doses, etc., of the substances described.

'INDIGESTION,' by Thomas Dutton, M.D. (London: Henry Kimpton. Pp. 212. Price 3s.).—The fact that Dr. Dutton's work is now in its fifth edition should alone suffice to prove that it has been found useful as a book of reference. It appeals to the general public more than to professional readers, and was originally published with the idea of so educating the public with regard to medical matters that the advice of quacks would be less sought, and the use of nostrums less resorted to. The book appears to have fulfilled its purpose to some extent, and those who require information regarding the causes, symptoms, and treatment of indigestion will find it concisely stated by Dr. Dutton.

'THE PERFECT NEGATIVE,' by Rev. F. C. Lambert, M.A (London: Hazell, Watson, and Viney, Limited. Pp. 136. Price 1s.).—In this book we have a series of chapters on after-treatment of the negative—the part of the photographer's work which is apt to prove most tedious and unsatisfactory to the amateur. The author explains when a plate is fixed, how it should be washed and dried, and the precautions to be adopted when intensifying, reducing, re-developing, etc. In fact, he appears to leave but little unexplained that the beginner in photography is likely to require to know.

'THE PHOTO-MINIATURE' FOR OCTOBER. (London: Dawbarn and Ward, Limited. Pp. 50. Price 6d.).—The subject of the present number of this dainty little monthy is platinotype processes. The properties of platinum prints are described at length, the various methods of producing them are explained, illustrations are given to emphasise what is stated in the letterpress, and the subject of platinotype printing generally is fully dealt with.

THE 'CHEMISTS AND DRUGGISTS' DIARY, 1900' (London: Offices of the *Chemist and Druggist*. Pp. 530. Price 3s. 6d.).—The thirty-second year of publication finds this diary as bulky as ever, and containing the usual mass of solid information buried among advertisements. It is an excellent trade guide, the merits of which are marred to a considerable extent by the manner in which it is produced. But, though a nominal price is placed upon the book, it is virtually given away gratis, and those who receive it have, therefore, but little reason to find fault with it.

THE 'BRITISH JOURNAL PHOTOGRAPHIC ALMANAC, 1900.' (London: Henry Greenwood and Co., 24, Wellington Street, Strand. Pp. 1516. Price 1s. net.).—The principal contents of the present issue of this wonderful almanac include an article on 'Stereoscopic Photography,' by the Editor; about ninety contributions on practical subjects by prominent photographers; a series of pithy 'Practical Notes and Suggestions of the Year'; an 'Epitome of Progress during 1899,' giving a *résumé* of the latest important discoveries and advances; miscellaneous information, many illustrations, and the completest collection of photographic formulæ and recipes ever gathered together in one volume. In its many hundreds of pages will be found a mass of information of use to all photographers, professional and amateur.

'CARR'S CYLINDER REGISTER BOOK,' by J. R. Carr, M.P.S. 52, Nevill Street, Southport, is intended to show at a glance th quantity of gas in stock. The pages are ruled in columns, so that the kind of gas, size and number of cylinder, quantity of gas, and other particulars can readily be recorded.

PYE'S 'SURGICAL HANDICRAFT,' revised and edited by Bertram M. H. Rogers, B.A., M.D., B.Ch. (Bristol: John Wright and Co. Pp. 550. Price 10s. 6d.).—This is a well-known manual of surgical manipulations, minor surgery, and other matters connected with the work of house surgeons and surgical dressers. Eight years have elapsed since the publication of the third edition, and in preparing this—the fourth—considerable alterations and additions have been rendered necessary in order to make the work properly representative of modern ideas and methods. In addition to the various sections on the arrest of hæmorrhage, fractures and dislocations, emergencies, anæsthetics, treatment of the teeth, etc., there are chapters on X rays and the taking of skiagrams; the making of poultices, fomentations, etc., surgical case-taking, and urine-testing. The book is illustrated freely, the wood cuts exceeding two hundred and sixty in number, and a formulary is embodied in an appendix. The formulæ given comprise those for the chief lotions, ointments, liniments, suppositories, hypodermic injections, enemata, sprays, etc., used in surgical practice. Every care seems to have been taken to render the manual of the greatest possible value as a handy work of reference.

THE STATE BOARD OF HEALTH, MASSACHUSETTS, sends its thirtieth annual report (1898-99), a bulky, well-bound volume of nearly nine hundred pages. In addition to a general report, the book treats of water supply and sewage, food and drug inspection, the production and use of antitoxin, diphtheria cultures, examinations for tuberculosis and malaria, etc., etc. The samples of drugs examined during the year numbered 10,638; of those, 2,687 proved to be impure, showing the percentage of adulteration to be 25·3. One sample of "acidum sulphurosum" proved to be a weak sulphuric acid, three samples of alcohol were below the required standard, two of aloe purificata were poor, and three of strong solution of ammonia were below strength. Thirteen out of seventeen samples of distilled water were unsatisfactory, as also were three of bismuth subcarbonate, five of chlorinated lime, thirteen of capsicum, one of chloroform, eighteen of liquorice extract, thirteen of ferri et quininæ citras, twelve of lemon juice, twenty-five of olive oil, six of powdered opium, twenty-seven of tincture of iodine, and fifty-four of tincture of opium.

'BULLETIN DES SCIENCES PHARMACOLOGIQUES.' (Paris: 18, rue du Val de Grâce. Annual subscription, 14 francs.).—This is a new monthly publication, intended to deal with scientific and professional matters. The first number contains sixty-four pages, forty of which are devoted to original articles, reviews, abstracts, and reports of meetings of scientific societies. The remaining twenty-four include articles and notes on applied pharmacology—the use of creosote in tuberculosis, aseptic and antiseptic surgery, the sterilisation of pharmaceutical solutions, etc. The contents of the number (November, 1899) are such as should prove extremely attractive to scientific pharmacists.

MIDLAND CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this association was held at the Exchange Rooms, Birmingham, on the 13th inst., Mr. F. Spear presiding. Mr. John Barclay, B.Sc. (Lond.), F.C.S., read the following

Laboratory Notes.

1. *Small Jaborandi Leaves as an Adulterant of Coca Leaves*:—A sample parcel of coca leaves recently obtained from a London broker was found to consist of from 40 to 50 per cent. of small jaborandi leaves mixed with Bolivian coca, The bulk of the adulterant leaves had the following characters:—From $\frac{5}{8}$ths to $1\frac{1}{2}$ inch in length, from $\frac{3}{8}$ths to 1 inch broad, margin entire revolute, unequal at the base without petiole, oval oblong in shape. A smaller proportion of lanceolate leaves with short petioles, but in other respects similar, was also present, but the characters of the two varieties corresponded generally with those described by Holmes (see *P.J.* [4], **1**, 520), as belonging to *Pilocarpus microphyllus* and *Pilocarpus spicatus* respectively. Both varieties may readily be distinguished from coca leaves, the apex of which is quite different, and which possess the well-known curved line from base to apex at each side of the midrib. It is noticeable that the 1885 Pharmacopœia speaks of coca leaves as being blunt and emarginate, while the 1898 edition mentions the prolongation of the midrib into a horny apiculus. It need hardly be said that the latter description is the correct one.

On extracting the powdered jaborandi leaves with suitable solvents, an alkaloidal residue was obtained, which yielded a crystalline nitrate, and this gave, on the addition of strong sulphuric acid with bichromate of potassium, an emerald green colour, thus answering the official test for pilocarpine.

This adulteration of coca leaves is one which might be missed by the casual observer, but cannot but be regarded as being a highly dangerous one.

2. *The Aqueous Tincture of Opium of Commerce*:—Some uncertainty as to the alkaloidal strength of this tincture appears to exist, and it was therefore thought desirable to endeavour to clear up the matter by obtaining samples from various sources. This was done, and seven samples purchased from leading wholesale houses gave the results shown in the appended table:—

Table Showing Results of Examination of Commercial Samples of "Aqueous Tincture" of Opium.

	1.	2.	3.	4.	5.	6.	7.
Specific Gravity	0·986	0·9855	0·989	0·998	0·968	0·983	0·976
Extractive	3·10	3·22	4·28	5·09	3·48	2·54	4·24
Alcohol by volume	20·71	21·19	21·19	17·17	38·04	22·18	32·98
Morphine	0·681	0·778	0·700	0·967	0·781	0·381	0·739
Comparative colour	17	14	17	19	20·5	19	23

Extractive, alcohol and morphine are given in parts per cent. by volume.

It will be seen that the specific gravity of the samples ranges from 0·976 up to 0·998. The amount of extractive is in one case only 2·54 per cent., while in another it is 5·09. There is also a notable variation in alcoholic strength, one sample containing 38·04 of alcohol by volume, another less than half that, viz., 17·17. The most important point, however, is the percentage of morphine present. This was found to vary considerably, being in one case as low as 0·38, in another as high as 0·97. The majority of the samples, however, approximated to the strength of the B.P. tincture of opium (0·75 per cent.), and it seems desirable that this percentage should be the recognised standard for the tincture. A mixture of three parts of water with one part of 90 per cent. alcohol would appear to be the menstruum most commonly made use of, and the one to be recommended.

3. *Notes on the loss of strength during sixty days of the official Ethyl Nitrite Preparations.*—In view of the well-known fact of the very marked loss of ethyl nitrite which takes place in the spirit of nitrous ether of the British Pharmacopœia when kept in bottles constantly used for dispensing, it was thought desirable to endeavour to obtain some definite knowledge as to the extent of the said loss.

In December of last year four 20 oz. stoppered bottles filled respectively with:—

(*a*) Solution of ethyl nitritis.
(*b*) Spirit of nitrous ether with 10 grammes of bicarbonate of soda.
(*c*) Spirit of nitrous ether.
(*d*) Spirit of nitrous ether.

were taken for the purpose of experiment. On the day in question bottle *d* was placed in a cool, dark cellar, for future reference, whilst on that and on each successive day for sixty days five cubic centimetres of liquid were removed from each of the bottles, *a*, *b*, and *c*, and the strength ascertained by the official process in a nitrometer. During the whole of the sixty days the bottles were kept on the laboratory shelves, and the conditions of temperature, etc., may be regarded as being fairly similar to those under which dispensing bottles would be kept. The results obtained were tabulated, and the accompanying table shows the condition of the solutions on every tenth day. It will be noted that the proportions of ethyl nitrite present in the samples is given in terms of volumes of nitric oxide gas yielded by 100 C.c. of the liquids, which in each case were at the commencement of the experiment well above the strength required by the British Pharmacopœia.

Table Showing Percentage of Nitric Oxide Gas Yielded by Samples every Tenth Day.

	a	*b*	*c*
Dec. 14th, 1st day	929·2	789·8	789·8
,, 24th, 10th ,,	862·3	743·2	721·9
Jan. 3rd, 20th ,,	859·18	702·6	658·3
,, 13th, 30th ,,	843·9	656·3	597·9
,, 23rd, 40th ,,	814·2	619·6	541·2
Feb. 2nd, 50th ,,	804·0	563·0	498·1
,, 12th, 60th ,,	796·0	475·3	416·6

The sample *d* originally of the same strength as *b* and *c*, was found at the end of sixty days' storage in a cool, dark cellar to have a strength corresponding to a yield of 730 centimetres per cent. of nitric oxide gas. It will thus be seen:—

(1) That the liq. ethyl. nitrite of the Pharmacopœia does not suffer any serious diminution of strength during a considerable period, even when in daily use for dispensing purposes.

(2) That the spt. ether nit. of the Pharmacopœia will, under similar circumstances, in sixty days fall from a strength above the maximum requirement down to a point below the minimum.

(3) That keeping the official spirit over a small quantity of alkaline carbonate slightly retards its loss of strength.

(4) That the spt. ether nit. of the Pharmacopœia, when kept in full bottles in a cool, dark place, suffers very little diminution in strength during a considerable period.

The lesson to be drawn from these experiments that under no circumstances should a shop bottle used for dispensing purposes be allowed to contain a quantity of spirit of nitre more than sufficient for use during a period of two months.

In conclusion, Mr. Barclay expressed his indebtedness to his assistants, Messrs. Mann and Barnes, for assistance given him in preparing the paper.

After the reading of the paper, an interesting discussion took place in which the Chairman, Messrs. Selby, Bell, Jessop, and others took part.

LIVERPOOL CHEMISTS' ASSOCIATION.

At a meeting of this Association held at the Royal Institution, Liverpool, on Thursday evening the 14th inst., and presided over by Mr. A. S. BUCK, only a sparse attendance of members put in an appearance, probably owing to the inclement state of the weather and the proximity to the Christmas holidays. After the usual routine business had been transacted, an important paper was read by Messrs. Cowley and Catford on:—

THE ESSENTIAL CONDITIONS FOR ENSURING THE PERFECT, RAPID, AND ECONOMICAL PREPARATION OF LIQUOR BISMUTHI.

The paper is printed in full at page 604.

In the discussion following the reading of the paper, the PRESIDENT referred to the small number of members present, which he hoped would not be considered as uncomplimentary to the authors of the paper, who had contributed in no small degree to the better comprehension and the removal of many difficulties attending the preparation of liquor bismuthi by the process of the present Pharmacopœia.

A hearty vote of thanks to Messrs. Cowley and Catford was proposed by Mr. JOHN SMITH, who had found the prolonged washing of the citrate in the B.P. process very tedious, and who was glad of the very practical suggestion that hot solutions threw down the citrate in granular form and considerably shortened the time required for the elimination of nitrates. He certainly looked upon the poor attendance as scant courtesy to the authors for the time and trouble they had expended in the preparation of this very valuable contribution.

In seconding the vote of thanks, Mr. PROSPER H. MARSDEN said that the specimens of the product of Messrs. Cowley and Catford's improved process were very fine, both as regards clearness, freedom from ammoniacal odour, and from colour, and were superior to most of the liquors found in commerce. The point that the loss of bismuth was reduced should also be remembered.

On being put to the meeting, the vote was passed with a warmth and unanimity which should console the authors for the paucity in the attendance.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

The fourth meeting of the session was held in the Lecture Theatre, at 17, Bloomsbury Square, at 5.30 p.m., on December 8, Mr. H. FINNEMORE in the chair. The minutes of the last meeting were read and confirmed. The CHAIRMAN announced that, as a result of the collection made on behalf of Colonel Gildea's Fund, the sum of £9 7s. 6d. had been forwarded, and a receipt for that amount had been received. There being no business to transact, he called upon Mr. C. W. B. Heslop to read his paper, entitled

INSECTS IN GENERAL,

With Notes on those mentioned in the Pharmacopœia. Mr. HESLOP first dealt with the different forms which insects assume before, reaching maturity, and then explained the general structure of an "imago" or perfect insect, and concluded with descriptions and historical notes on the insects mentioned in the Pharmacopœia. The CHAIRMAN thanked Mr. Heslop for his interesting paper, and mentioned the part insects play in the fertilisation of certain flowers. He invited members to put questions. Messrs. HARRIS and POLLARD responded, and were answered by Mr. HESLOP. Mr. BRIGHAM moved a vote of thanks to the Chairman. Thirty-five members signed the attendance book. The next meeting will be held on Friday, January 12, 1900. Notices will be issued to members in due course.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

A meeting of this Association was held at the Westbourne Restaurant, Paddington, W., on Wednesday, December 20, the PRESIDENT (Mr. J. F. Harrington) in the chair. After the usual preliminary business, the PRESIDENT proceeded to deliver the

Inaugural Address.

He said: There is a very important question before us all, which is to be the subject of discussion to-night, and perhaps you will allow me to refer to that subject in this short address. It is, how are we likely to be affected by the Companies Acts Amendment Bill that is to be introduced into Parliament next year? This is a very important matter, and I think we may succeed in obtaining a clause inserted in this Bill that would be of some advantage to ourselves, but, on the other hand, it is quite possible that a clause may be inserted which, instead of being an advantage, might be the last straw to break the chemist's back. We must bear in mind that this Bill is not a Pharmacy Bill, but, as far as I understand it, is a Bill

TO CORRECT SOME OF THE ABUSES

that have crept up under cover of the Limited Liabilities Act, and there is only a very small portion of it that will refer directly to us. We can only hope, therefore, to obtain any redress of our grievances, or any direct advantages, by clearly showing that the public are not so well served by company pharmacy, and that there is a great danger in allowing a company of unqualified men to sell and dispense poisons. We have every right to demand an alteration in the existing state of affairs, and, first, it would be greatly to the interest and safety of the public that no company should be allowed to use our titles, as by their use—fixing over their doors and on their labels—they induce the public to believe they are entering the pharmacy of a pharmaceutical chemist, or chemist and druggist. If it is impossible for a company to present itself for examination, so it should be impossible for it to use any title implying qualification. I believe you will all agree on this point, that it is desirable to protect our titles. I believe, also, you will agree with me that it is desirable that no company should be allowed to sell or dispense poisons, and that although they have been doing it for the last twenty years or more it is not to the advantage of the public. It would be wasting your time to repeat here all the arguments that have been used. It is sufficient to say that we are compelled to pass a very severe examination before we can go into business and hand these poisons to the public; and yet, if we fail to pass, there is nothing to prevent us making use of the Limited Liabilities Act, and, protected by it, can keep open shop without any qualifications whatever.

THE BEST AND ONLY WAY

to prevent such a thing as this is to put a stop to all company pharmacy, and I think we should use every effort to attain this end by placing our case very plainly before those members of the Government who are likely to have charge of this Companies Bill, but at the same time I am very strongly of opinion that if we are told quite plainly that there is no hope of obtaining all we are asking for, that we should be prepared with some second line of attack. I remember well the fate of our poor suggestions, and while in those suggestions there was nothing we asked for but was reasonable and just, still at the same time I think if we had asked for something less we should have stood a good chance of obtaining some attention that would have led on to substantial advantages. If we can only, through the means of this Companies Bill, obtain even a small measure of success, it will always be open to us at a later period to try what we can do with a new Pharmacy Bill. But what seems to me to be a very great mistake would be to do as some gentlemen have advocated—to nail our colours to the mast, and say we will have all this or nothing.

That it should be illegal for all companies to sell or dispense all scheduled poisons, and that those who are now doing so must stop that part of their business; I say that very desirable as this end is, and not only desirable, but in the name of justice it is right and should be so. Still, if we cannot attain all this, I do not think it good policy to turn on those who refuse it and say we decline to discuss the matter further, and that we decline to accept anything less. That is the position I take. I think we may have, when this Companies Bill is introduced,

A Chance that Will Never Occur Again,

and I am very anxious we should not throw that chance away. I am very much afraid that if we take up the no-surrender position that we shall be quietly put on one side, or the Lord Chancellor's clause be inserted in the form it now is; or, perhaps, what is more likely, we shall be left out altogether. I am afraid I have trespassed somewhat on Mr. Hills' ground, and I hope he will pardon me, but as your Chairman I felt I could not take part in the discussion after it is started, and yet I felt I should like to say a few words on this very important subject, for, as I have said here before, I feel it is the duty of every chemist to speak out boldly and express his opinion on the best course to pursue. There are several other matters I should like to have spoken to you about, but I must put them off for some future occasion.

Mr. Walter Hills was next called upon by the President to open a discussion on the subject of

Limited Companies and the Practice of Pharmacy.

Mr. Hills said: Soon after the November meeting of the Pharmaceutical Council your President asked me if I would open a discussion at a meeting of the Western Chemists' Association on the subject which is now occupying our serious attention—namely, limited companies in their relation to the practice of pharmacy. In acceding to his request, I take the opportunity of saying how pleased I am to meet my fellow members of this Association, and to have an opportunity of discussing this important matter with them. As it was thought desirable, for practical purposes, to offer for your consideration a resolution on which a vote might be taken, I have framed one which I hope may meet with your approval, and, at the same time, one which, whilst offering some practical suggestions for future course of action, should not hamper the Council in its efforts to protect the best interests of all registered persons.

Definitions.

In order to condense my remarks as much as possible, I may say that when I speak of companies I mean limited companies; and when I speak of protection or restriction of practice, I mean that amount of protection or restriction which is indicated by the words: "Keeping open shop for the retailing, dispensing, or compounding of poisons." I am aware that the second clause in the Companies Acts Amendment Bill, 1899, says that, "No company may carry on the business of a pharmaceutical chemist, etc.," except under certain conditions. Whilst I am entirely in favour of this wider definition, I am doubtful if it would, unless interpreted, cover more of practice than is defined in the Pharmacy Act, 1868, and probably more is not intended.

Some Past History.

Before I pass to the terms of my resolution, may I ask you to consider with me for a few minutes the history of the past in so far as it affects the question under discussion; also some of the present conditions wholly or partly arising therefrom. You will remember that before 1868 the practice of pharmacy in this country was unrestricted, though certain titles implying qualification had been restricted to registered persons since 1852. In the year 1868, Parliament, in its anxiety for the safety of the public, passed an Act which, whilst protecting the above and other titles, made it unlawful for any but registered persons to sell or keep open shop for retailing, dispensing, or compounding poisons. Now, I wish to point out that under the 1868 Act persons entitled to keep open shop were not only those who were at that time, or who should become, registered as pharmaceutical chemists, but also those who should pass the examination "provided under the Pharmacy Act, 1852, for the purposes of a qualification to be registered as an assistant under that Act." I mention this because I think if the original ideas underlying the 1852 Act had been made compulsory in 1868, there would have been less subsequent trouble. It must always be borne in mind that Parliament has expressed its opinion that the person who, at the age of twenty-one, has passed what is known as the Minor Examination is competent to keep open shop on his own account; in this respect, therefore, he is on the same level with the pharmaceutical chemist.

A "Casus Omissus" and its Effects.

I think we shall agree that when the 1868 Act was passed the case of limited companies keeping open shop was not contemplated; in fact, it was a *casus omissus*. We shall also probably agree that the idea which our representatives had in their minds at that time was, broadly, that the proprietor of each open shop should be qualified. I say *each*, for though branch shops were not in any way prohibited, it could hardly have been contemplated that qualified proprietors should be permitted to keep an unlimited number of such shops—a tendency very remarkable at the present time. It was also generally believed that the qualified owner, being responsible for the conduct of the business, was also responsible for each sale of a poison, and might himself be the judge as to how far it was necessary to employ qualified assistants to do the physical acts of sale or compounding. We now pass to the important case of the Pharmaceutical Society *v.* the London and Provincial Supply Association. It will be remembered that though the Society was successful in this case in the Court of Queen's Bench, judgment was given against its contention by all the Lords Justices in the Court of Appeal, and by all the Law Lords in the House of Lords. I do not propose to refer to the several judgments, but I wish to point out that more than one of these eminent authorities gave it as his opinion that whilst there was no inherent legal difficulty in making a company liable, it was not necessary for the general purpose of the Act to make it cover a company—as in the case before them, the sale of poison having been made by a registered person, the safety of the public did not in their opinion appear to have been endangered. For instance, Lord Justice Bramwell said that he "would not refuse to include corporations under the term persons if it were clear that without doing so the mischief aimed at could not be prevented. But that was not so here." A few years after this judgment, in 1890, a case involving other considerations was taken to the Court of Queen's Bench, when Mr. Justice Hawkins stated that the law requires that every sale of poison must be made by a qualified person or under the actual personal supervision of a qualified person. In this case, moreover, leave to appeal was refused. Under these judgments, therefore, the public appears to be protected so far as the actual physical sale is concerned, always assuming that when the law is not observed a reasonably easy method of proving its infraction is attainable. Nevertheless, it is contended by us, and I think rightly so, that sufficient provision for the public safety is not thereby secured in accordance with the 1868 Act, unless the "keeping open shop" is also restricted to qualified persons.

A Judgment of Expediency.

There has been, however, considerable difficulty in bringing this important point before the public on the lines we have thought desirable. I am bound to admit that in my opinion the judgment of the House of Lords was one largely of expediency; and, if this opinion is in any way correct, the difficulty experienced by the Council in getting the Pharmacy Act amended in the desired direc-

tion is accounted for. Various attempts, however, have been made, and recent events have led some of us to hope that an amendment of the law to prevent company trading was possible. It is unnecessary to take up your time by referring in detail to what has recently transpired. I have only to remind you of the apparently sympathetic remarks of the Lord Chancellor in the House of Lords, both in 1898 and in the present year. It is also an important advantage that, largely owing to the unwearying efforts of Mr. Carteighe and others, the position of companies with reference to the practice of pharmacy has been considered of sufficient public importance to be dealt with in a Companies Acts Amendment Bill. In spite, however, of these encouraging factors, the clause that has actually been drafted, and already approved by the House of Lords, is one with which we cannot be satisfied; and as the Bill will probably be introduced into Parliament next session it is necessary that we should be prepared with a policy on which there may be some general agreement amongst registered persons. The Council of the Pharmaceutical Society has anxiously considered the question as it now presents itself, and I need hardly say that, though there is an apparent difference of opinion as to the best method of dealing with it, there is in each member of that Council an earnest desire to obtain every possible advantage for those they represent.

The Position of the Lord Chancellor.

Personally I have long been of opinion that Parliament would not attach much importance to the financial aspect of the question, though I must admit that I was so much impressed last year with the remarks of the Lord Chancellor, to which I have already alluded, that I thought it possible the Government would not be unwilling to support us in getting the law amended in the desired direction. I have always maintained that to get the law so amended two factors were necessary—one being the support of the Government, and the other the general support of our own body. When, however, I see the Lord Chancellor's clause, knowing that our wishes have been fully laid before him, I am again doubtful if the prohibition of company trading is a practical object to aim at. The difficulty of dealing with the subject has always been somewhat increased by the existence in the 1868 Act of the so-called "Widows' Clause," and at the present time a further difficulty arises from the fact that not only have companies, more or less of a bogus nature, been formed to keep open shop, but also many of our own members have found it convenient and advantageous to make use of the limited liability principle. Many, probably all, of the latter, being entirely controlled, except financially, by registered persons, are not the least source of mischief to the public; but still they have to be reckoned with in framing a policy which would command general acceptance.

The Suggestion of Prohibition.

Many suggestions have recently been offered by individuals, and many resolutions have been passed by local Associations; but they do not by any means agree in essential particulars, and many of them do not appear to be very hopeful that Parliament will prohibit company trading. I myself scarcely ever hear anyone sanguine of such a result. The prohibition of *all* company trading, which I may call the first line of defence, is undoubtedly the best and strongest, not only from the logical but also from the pharmaceutically popular point of view, and is one which even now may be urged upon the Government, if the Council, or a majority of the Council, with any special knowledge they may possess or obtain, consider such a policy one that will receive a considerate attention by the Government. But I am of opinion that if this line is now adopted it will be necessary, in order to be thoroughly logical, to insist that *no* limited company, although constituted largely of registered persons, should be permitted to "keep open shop." I can certainly conceive a company consisting at its inception entirely of registered individuals, though there must be a minimum of seven persons; but what, I ask, will happen when one of the seven dies? Will the trustee for the widow, though unqualified, be allowed to form one of the company? Moreover, to be strictly logical, no single share, whether ordinary, preference or debenture, should be held by an unregistered person. Still, for the general good, possibly the companies already in existence would be ready to "unlimit" themselves. I need hardly say that I am firmly opposed to any suggestion prohibiting the future formation of companies, whilst allowing those already in existence to continue indefinitely.

The Restriction of Titles.

If, however, our first line of defence is not tenable, are we to oppose any and every proposal recognising the limited principle in pharmacy? I hope not, for two reasons—(1) Because I believe the Government to be in earnest and intend to legislate on the subject, and (2) because, as matters are getting every year more unsatisfactory, we ought at the present juncture to endeavour to get some improvement in the law. We ought then, in my opinion, to insist on the restriction of titles to registered persons. If we do this we shall probably succeed, because it is a strong position to adopt, and one which will, I think, recommend itself to the majority of members of Parliament. Here, however, we may possibly find some opposition, not only from the one-man company, but also from some of our own members who are trading as companies. These would, however, for the general good, perhaps not press their opposition, as they could always use titles in connection with their own names. Some of our friends advise us to restrict our efforts to the protection of titles, but I am persuaded that if the general question is dealt with by Parliament, the trading aspect will be considered the more important one, and will consequently not be permitted to remain in its present position.

The Question of Practice.

Now, however, I come to the most difficult part of the whole question—that of "keeping open shop." I maintain that we have a strong case if we approach the Government and point out that the clause, as drafted in the present Bill, does not in the public interest sufficiently provide for one of the essential principles of the Pharmacy Act, because it does not insist on the qualification in a company of a responsible person, not only to do the physical act of sale, but also to control the open shop, and thus it does not supply in any way the safeguard represented by a qualified ownership. *Inter alia*, it might be pointed out that under the clause as drafted an assistant qualified the previous day and liable to dismissal at a day's notice might be stated to be in full control of a shop owned and managed entirely by unregistered persons forming the company—a condition surely not compatible with the public interest. Many proposals having for their object the provision for this *bonâ-fide* control have been made. I do not propose to tie myself to any particular one this evening. If we could agree to the principle of recognition of company trading, I should be inclined to take the advice of some eminent legal authority on company law, and ask him, with all the facts before him, to frame for our consideration a clause which, with the least amount of probable opposition in Parliament, would make control something of a reality, and so bring companies as nearly as possible into line with qualified individual proprietors. Such a clause should not interfere with the conduct of a company business under the complete control of qualified persons, but should make it practically impossible for a bogus company to keep open shop. Probably we all agree that if companies are allowed to keep open shop, the provision in Clause 2, making "anything which would be an offence under Section 15 of the Pharmacy Act, 1868, if committed by an individual, also an offence if committed by a company," is a desirable one, and one of urgent necessity in carrying out the law. As regards Clause 3 of the Companies Bill, dealing with other professions, I think it very unlikely that it will pass in its present form, as it seems to propose preventing companies doing what an individual is entitled to do. It must also be admitted that though our titles should be equally protected with those of medical practitioners and dentists, their

practice is more uniformly professional than that of pharmacy is, or indeed is likely to be, unless pharmacists have the exclusive right of dispensing medicines.

Points Covered by the Resolution.

The resolution, then, gentlemen, that I have the pleasure to ask your acceptance is the following :—

That, in view of the probable introduction of the Companies Acts Amendment Bill into Parliament next Session, this Association is of opinion that, should the Pharmaceutical Council be convinced that to restrain *all* companies from keeping open shop for the retailing, dispensing or compounding of poisons, is not feasible, legislation on the following lines would be desirable :—

1. To make it unlawful for companies to assume or use titles implying registration under the Pharmacy Acts.
2. To provide that all such open shops should be under the ole control of persons registered under the Pharmacy Act, 1868.

In placing my resolution before you I wish to emphasise these points, which it covers : —

(1) That in adopting the first line of defence, *all* company trading should be prohibited, and

(2) That, if this be found to be impracticable, efforts should be made in the direction of

(*a*) Protection of titles to qualified individuals, and

(*b*) *Bonâ-fide control* of all open shops owned by companies.

Mr. H. Cracknell said it was very difficult to say anything upon the question that had not already been dealt with. He considered it was the duty of the Association not to hamper the hands of the Pharmaceutical Council in any way, and the resolution gave the Council so wide ground for action that he had pleasure in seconding it.

Mr. R. H. Parker recognised the great importance of the question before the meeting, and that it was one presenting great difficulties in its solution. As regards legislature chemists stood in quite a different light now than they did thirty years ago. Then the generous British public would readily grant monopolies, but now there was no chance of that ; the Government would only grant measures framed solely in the interests and for the protection of the public ; still he thought that in respect to the company trading question certain measures would be granted. So far as pharmacy pure and simple was concerned, he was of opinion that chemists were in no danger, because they would always stand individually upon their merits, independently of legislation. The difficulties of the situation lay mostly in the fact that the alteration in the law that chemists want, namely, the stopping of company trading and the limitation of titles to individual qualified persons, would interfere with existing interests, not only outside but also within their own ranks ; for there were companies and companies, and it would be difficult to frame a clause to stop bogus companies without stopping concerns which might fairly claim to be legitimate companies. While advocating the regulation of companies trading as chemists and druggists by means of registration which should ensure that every shop was under the control of a qualified person, he thought it would be unwise to throw overboard the question of qualified ownership because they might lose something they already possess, namely, the fact that at present no unqualified person can open a shop without forming a company. He was of opinion that for the safety of the public qualified ownership was a much more desirable thing than qualified managership, but however much he might be inclined to that view, he thought the wisest course to pursue would be to endeavour to bring limited companies within the pale of the law by insisting that there should be at least one qualified director for each shop owned by a company, and that each qualified director should be told off, so to speak, to one particular shop, which should be under his sole control. With regard to titles, he thought that no name should be used in connection with the business of a chemist except that of a living qualified person. That would interfere with existing arrangements, but it was the only logical position to take up.

Mr. W. Warren was strongly in favour of the individual pharmacist. He could not agree with any regulation of companies because he felt that by so doing it would simply make them thoroughly respectable, and would tend largely to do away with the feeling of distrust which at present exists among medical men with regard to companies.

Mr. Andrews, while of opinion that chemists might fairly claim to have companies prevented from carrying on business as chemists and druggists, did not believe that it was practicable. They might try to prevent little bogus companies from starting as "Store chemists," and he thought an effort should be made in that direction. Still, he was inclined to support Mr. Parker in his contention that every shop should be registered and under the control of a qualified manager. He thought, however, that this registration should not be left to the Pharmaceutical Society, but that it should be carried out by the Government,

Mr. J. C. Hyslop, said it had been stated that the Pharmacy Act of 1868 was passed solely for the safety of the public. That was not quite the case, for there was a balance on the side of the chemists, namely, their recognition by Parliament as the only persons qualified to carry on the business of pharmacists. Chemists had for too long held a hesitating, sentimental, jellyfish kind of position, and he thought it was high time, now that they had a just cause of complaint, to go to the Government and ask for their rights, and to say "That's our position ; that's where we mean to stay." Mr. Hyslop then went on to say that there are three words frequently used in connection with the subject before the meeting which he thought they ought to avoid, viz., Profession, Protection, and Competition, and gave his reasons for thinking so.

Mr. W. S. Glyn-Jones, referring to the remarks made by Mr. Hyslop, said that whatever they might justly consider their rights as pharmacists, the Government only recognised them as a body of men qualified to keep open shop for the dispensing and compounding of poisons, and for the sale of poisons. It was an anomaly, but it was the position at the present time that any person, however unqualified, might dispense medicines, and so long as those containing poison were handed over the counter by a qualified person, the law was fulfilled. Under such circumstances, therefore, all that could reasonably be asked of the Government now was that companies shall be placed under the same conditions as individuals. In one sense it was true that the law expects the owner of a shop to be qualified, but only in so far as he keeps open shop for the sale, etc., of poisons. The ideals, with regard to the practice of pharmacy, of those who founded the Pharmaceutical Society, were not recognised by the Government ; it simply recognised pharmacists as persons qualified to hand poisons to the public. Nothing could be done to remedy that state of things without the help of the Government ; a private Bill would have absolutely no chance of passing. He did think that sometimes it was not right, as Mr. Hyslop advocated, to go for the greater. He thought that an opportunity was lost at the beginning of the year by asking too much. At the present time they could not do better than try to bring companies into line. Personally he would prefer that the words "should the Pharmaceutical Council be convinced that to restrain all companies from keeping open shop for the retailing, dispensing or compounding of poisons is not feasible," in the resolution proposed by Mr. Hills, were struck out, because he did not think that the resolution would be as useful to the Council as it would have been if it had stated whether that meeting held the view that it was feasible to prevent companies from carrying on the business of chemists and druggists. He had a very grave doubt whether that meeting would pass a resolution that it was feasible to go to the Government to ask for the stopping of all companies keeping open shop for the sale of poison. The question then would be what kind of companies they were prepared to allow. If

they admitted that a company may under certain conditions keep open shop, then the regulation of companies would naturally follow. He did not think that the Government would attempt to deal with the question as to how pharmacy is financed, but he maintained that a director of a company kept open shop, and he held that anyone keeping open shop should be qualified, and he would ask the Government to make it legal that where a company keeps a number of shops it should be subject to the same conditions as individuals. He was very much opposed to the qualified managership solution, because they had already in the Pharmacy Act, 1868, a clause that makes it imperative not only that there should be one qualified man in each shop where poisons are sold, but that there should be in every shop as many as needs be. The only difficulty was that, because it is the assistant who is liable, the Pharmaceutical Society sometimes finds it impossible to enforce the law. What was really needed was a short Act to make the employer liable. He was of opinion that effective regulation of companies would do a great deal of good.

Mr. GAUBERT asked if it was not a fact that the Pharmaceutical Society was contemplating introducing a Pharmacy Bill of its own, and if so, would not any action taken in regard to the Companies Bill bind the hands of the Council afterwards?

Mr. KNIGHT then referred to the lost opportunities of dealing with the question, and was of opinion that in the old days the Council should not have considered existing companies, but have gone in for individual proprietorship.

Mr. HILLS, in reply, said that he had been very anxious in framing his resolution not to hamper the members of the Council. They had the best means of knowing what it was possible to obtain, and he thought it must be left to them as to what was best for registered persons. He thought those present would gather from the general tone of his remarks that he was quite in accord with the views of Mr. Parker, Mr. Andrews, and Mr. Glyn-Jones. He thought it was not feasible to restrain companies from keeping open shop, but, at the same time, he thought that it was the best line to take at present because they had already before them a clause which none of them liked, but which would be brought into the House of Commons next year. Mr. Warren had expressed the opinion that the Government should be prevented from bringing in a clause to regulate the practice of pharmacy as at present carried on by companies. He (Mr. Hills) thought it possible that chemists might make things so unpleasant for the Government that it would drop the whole matter in respect to pharmacy. He knew that certain people were of opinion that it would be better to drop the "accursed thing," and that the Pharmacy Act of 1868 should be done away with, but he did not hold that view. The public was protected up to a certain point by that Act; that was to say it had already been decided by Mr. Justice Hawkins that the sale of poisons must be in the hands of qualified persons. The public would not throw away that protection. There was much to be said for the regulation of each shop where poison is sold, but they were not discussing the question that night. Mr. Hyslop had spoken in his usual effective way, and had taken very high ground, but he thought it was untenable. One speaker had stated that their titles were not in jeopardy, but he believed they were in danger. The same speaker had also expressed a fear that if they dealt with the matter now it might interfere with the freedom of the Pharmaceutical Council in any future action. The Council was always wanting a new Act, but to get any new Pharmacy Bill passed it must have the support of the Government, and hitherto it had not succeeded in obtaining that support What the Government would consider in any matter affecting pharmacists would be, "What is for the public safety, and what interferes as little as possible with existing interests?" In any future measures they would have to consider those two points.

The motion was then put to the meeting and carried, a number of members refraining from voting.

ANSWERS TO QUERIES.

Special Notice.—*Scientific, technical, legal, and general information required by readers of the 'Pharmaceutical Journal' will be furnished by the Editor as far as practicable and as early as possible, but he cannot undertake to reply by post, even though stamped envelopes accompany the queries. All communications must be addressed "Editor, 17, Bloomsbury Square, London, W.C.," and must also be authenticated by the names and addresses of the senders. Questions on different subjects should be written on different slips of paper, each of which must bear the sender's initials. Replies will, in all cases, be referred to such initials, and the registered number added in each instance should be quoted in any subsequent communication on the same subject. When formulæ are given without definite weights and measures, it should be understood that all solids are to be weighed and liquids measured. Not more than six plants should be sent for recognition at one time.*

Dry Soap (T. E. J.—37/5).—If you mean a washing powder or "soap extract," that is made from dried powdered yellow soap, 3; dried washing soda, 1. Mix.

Dyspepsia Mixture (E. P. D.—12/17).—Your formula would be improved by the addition of five grains of American scale pepsin to each dose.

Lin. Ammoniæ (W. B. D.—12/37).—The almond oil in the present formula is intended to make the liniment more fluid than formerly. It should be a thick creamy preparation, and will be liable to become less fluid if exposed to temperatures below the normal.

Patenting a Medicine (J. G.—37/10).—(1) Apply to the Comptroller, Patent Office, Chancery Lane, London, E.C.; (2) The cost depends upon the circumstances of the case; (3) By patenting the preparation, registering its name as a trade mark, or selling it under your own name.

"Russia Leather" Perfume (J. D.—37/4).—Extract of rose, 10 fl. oz.; extract of violet, 10 fl. oz.; extract of jasmin 10 fl. oz.; extract of musk, ½ fl. oz.; extract of orris, 10 fl. oz.; oil of neroli, 30 minims; oil of bergamot, 1 drm.; oil of amber (rectified), 1 drm.; oil of birch (oleum rusci), 1 drm.; vanillin, 30 grains; coumarin 30 grains; cinnamein, 1 drm.; oil of bitter orange, 20 minims.

Carnation Sachet Powder (J. D.—37/4).—Finely powdered orris root, 4 oz.; caryophyllin, 10 minims; synthetic oil of jasmin (Schimmel), 4 minims; oil of bitter almonds, 1 minim; oil of Niobé, 5 minims; heliotropin, 5 grains; oil of Neroli, 10 minims; oil of bitter orange, 5 minims; musk, 1 grain. Rub all the perfumes down intimately with a little of the powdered orris, then add the rest of the basis.

Lin. Potass. Iodid. c. Sapone., Tichborne (F. G.—37/7).—This is Professor Tichborne's formula; the liniment is made with a potassium oleate basis (soft soap) instead of the official curd soap (sodium oleo-stearate). It forms a clear transparent jelly when cold. The formula is:—Oleate of potassium, 1½ oz.; potassium iodide, 1½ oz.; oil of lemon, 1 drm.; glycerin, 1 fl. oz.; distilled water, 10 fl. oz. Dissolve the potassium oleate in 7 fl. oz. of water on the water bath. Dissolve the potassium iodide and the glycerin in the remaining 3 fl. oz. of water; mix, and when nearly cold add the oil of lemon. The potassium oleate is made by saponifying oleic acid with solution of caustic potash. The amount of alkali for the sample of acid used being first determined by titrating a little, in alcoholic solution, with standard soda solution.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PHARMACY OF COLLOIDAL MERCURY.

Oscar Werber gives the following recipes for preparations of this form of mercury:—COLLOIDAL MERCURY OINTMENT.—Colloidal mercury, 10; distilled water, 10; prepared lard, 60; white wax, 15; ether, 1·5; benzoated ether, 3·5. Since by continued rubbing colloidal mercury is readily converted into the globular form, the mercury is previously dissolved in the water; the fat and wax are melted together and then mixed with the solution until the ointment shows a uniform dark grey colour; finally the ether and benzoated ether are added. The fine division of the mercury can be noted by the microscope or by the naked eye. The ointment should be kept in a cool place, protected from light. To prevent oxidation it may be filled into gelatin capsules, each containing 2 grammes. EMPLASTRUM HYDRARGYRI COLLOIDALIS is a 15 per cent. colloidal mercury caoutchouc plaster, spread on close white linen; it is of dark grey colour and keeps well. COLLOIDAL MERCURY PILLS (1).—Colloidal mercury, 0·3 Gm. to 1·0 Gm.; kaolin and glycerin, of each, enough to make thirty pills; sprinkle with French chalk. (2) Colloidal mercury ointment, 3 to 6 Gm.; kaolin, enough to make thirty pills; sprinkle with French chalk. This second form keeps soft for a long time; the pills disintegrate in water in less than a minute. A solution of colloidal mercury (1·2 parts to 1,000 of distilled water) and a powder of colloidal mercury for dusting purposes are also used. All these preparations should be preserved in orange glass bottles.—*Pharm. Central.*, **40**, 609.

EUPHORBONE.

A. Orlow extracts this body from euphorbium with petroleum ether. He attributes to it the formula $C_{15}H_{24}O$. It melts at 114°-115° C. By crystallisation from ice-cold alcohol crystals are obtained, which melt at 91° C. Those obtained from petroleum ether melt at 67° C.; by re-crystallisation of those from alcohol the melting point is raised to 114° C. The crystals retain one molecule of alcohol. Heated with water, the sparingly soluble euphorbone yields a substance giving a dark colour with ferric chloride, which is not destroyed by hydrochloric acid; but in an alcoholic solution the colour obtained is discharged. Dried chlorine reacts with euphorbone in chloroformic solution, yielding an amorphous chloro-compound, which yields up chlorine on fusing with alkali. By heating with iodine an amorphous body is obtained, from which the iodine can be recovered by treatment with silver oxide; the residue, however, is not euphorbone. By treatment of the alcoholic or chloroformic solution of euphorbone with a chloroformic solution of bromine, an orange-coloured precipitate is obtained, which is only with difficulty soluble in absolute alcohol. The formula is $C_{15}H_2H_{21}Br_3O$. By heating with alcoholic potash, this bromo-euphorbone is not changed, but it is decomposed by strong nitric acid. The iodine compound does not resemble this. After treating euphorbone with fuming nitric acid, the addition of water throws down a nitrogen containing acid, which is yellow, and dissolves in alkali to a red colour. By treatment with zinc dust in acetic acid and alcohol a water soluble body is formed, very similar to an amide.—*Chem. Zeit. Rep.*, **23**, 174.

OXIDISING ENZYMES.

Woods (*Centr. f. Bak.*, 2 Abt., v., p. 745), draws attention to the fact that chlorophyll by oxidation becomes decolorised and converted into a yellowish pigment, and suggests that oxidising enzymes, which are widely distributed in plants, might take part in the autumnal destruction of chlorophyll, and in the variegation and spotting of leaves. His experiments lead to the conclusion that two groups of oxidising enzymes—oxidases and peroxidases—are normally present in small quantities in the higher plants. Under certain conditions, not well understood, these enzymes either become more active or are produced in larger quantities, causing variegations and various "diseases"; for example, the 'mosaic disease' of tobacco. If the epidermis of a leaf showing yellow spots be carefully removed, and the cells moistened with a 2 per cent. alcoholic solution of guaiac resin, the yellowish cells become intensely blue, while the surrounding healthy cells are much less deeply coloured. Portions of leaves may be ground up with sand and extracted with distilled water and fresh guaiac resin solution in absolute alcohol added. Those enzymes which give a direct reaction with guaiac resin are termed oxidases. Those which require the addition of peroxide of hydrogen are termed peroxidases. Care must be taken that the guaiac resin is fresh and good, the solution should be freshly prepared, and oxidsing agents, such as chlorine and nitrous acid must, of course, be absent from the solution to be tested. These enzymes retain their activity for a long time in the dry state. In aqueous solution the oxidases are destroyed by a temperature of 65°—70° C., acting for five minutes, the peroxidases by five minutes' exposure to 80°—85°C.

ASCENT OF SAP.

H. W. Chamberlain discusses the phenomena connected with the ascending sap, as shown by a long series of experiments performed on a great variety of plants. Among the more important results are the following. After decapitation an efflux of water takes place in some plants but not in others. Root-pressure is stronger in herbaceous than in woody plants. The period of the year has but little influence on the root-pressure when the plant is in active growth. In respect to a daily periodicity, the plants examined could be arranged under three groups: in the first there was no trace of any daily periodicity in the flow of sap; in the second a daily periodicity was manifested, but the times for the maxima and minima were uncertain; in the third group the periodicity was regular and permanent. Variations in temperature have no marked influence on the root-pressure. The ascent of sap is greatly promoted by moistening the leaves, while saturation of the soil acts prejudicially. The larger and more strongly developed the roots, the stronger is the root-pressure.—*Bot. Centralblatt*, **79**, 1899, p. 31; from *Bull. Lab. Bot. Univ. Genève.*

PEREZOL A NEW INDICATOR.

Under the name of perezol, Duyk suggests the use of pipitzahoic acid, derived from *Perezia adnata*, a common Mexican plant. The acid occurs in the rhizomes of the plant, from which it is easily extracted by toluene or benzene. From those solvents it is deposited, on evaporation, in orange yellow crystals, which are purified by recrystallisation. The yield is about 5 per cent. As an indicator a 0·5 per cent. alcoholic solution is recommended. This is extremely delicate towards alkalis, both fixed and volatile, giving a mauve rose tint with the slightest trace of free alkali; the action is very sharp, even in extreme dilution. Thus, distilled water boiled in a glass vessel, will give a distinct reaction, from the trace of alkali dissolved from the glass. In ordinary drinking water, the alkaline-earthy carbonates present give a marked reaction; so does saliva. Alkaloids react with perezol with great delicacy, rendering it valuable for the titration of those bodies by the alkalimetric method. Perezol, sensitised by the addition of the faintest trace of alkali, is immediately decolorised by free acids; carbonic acid, and organic acids, react in this way like the mineral acids. Boric acid, however, acts as a base towards the indicator, except in the presence of glycerin, when it has an acid reaction. Borates, acetates, carbonates, and bicarbonates have an alkaline reaction; ammoniacal salts are neutral towards it.—*Annales de Chim. Analyt.*, **4**, 372.

THE B.P. PREPARATIONS OF IPECACUANHA.

BY R. GLODE GUYER.

Recently, when a stock of liquid extract of ipecacuanha was re-assayed, its strength was found to be only 1·528, whereas its original strength about two months previously was 2·08 per cent. In consequence of this very pronounced reduction in the strength of the total alkaloid in the liquid extract, an examination of the wine, prepared from the same liquid extract about a fortnight before, was also estimated, and was found to contain only 0·0250 per cent. (second estimation 0·0248), against the 0·10 per cent. of the B.P.

In order to have some confirmatory evidence, a small stock of liquid extract, prepared from Carthagena root, standardised to contain 2·1 per cent. of total alkaloid, was assayed; and it had also depreciated to the extent of 5 per cent., its alkaloid value only being 1·525 per cent. This result, as will be seen, is exactly parallel to the case of the liquid extract prepared from the Rio root. In consequence of these examinations, three samples of the wine were collected from three of the best retail pharmacies in London, each of whom are known to keep a competent laboratory chemist.

Their examination proved most interesting. In each case there was a marked decrease in strength from the official standard:—(*a*) 0·0788 per cent.; (*b*) 0·0384 per cent.; (*c*) 0·0348 per cent.

A further set of samples of ipecacuanha wine was collected from three of the leading manufacturing pharmacists. These had a distinctly better value than those purchased from the retail pharmacies, as the following results will show:—(*a*) 0·0882 per cent.; (*b*) 0·1022 per cent.; (*c*) 0·077 per cent.

Even here there was only one sample which could be classified as being up to the B.P. standard.

A sample of liquid extract, collected from a provincial wholesale house, was examined and came up to the B.P. requirements of alkaloids, yielding 2·018 per cent. of total alkaloids.

Reference here might be made to Naylor and Bryant's Paper, 'Y.B.Ph.' 1899, p. 347, where it will be noticed that they examined three trade samples, where neither of the samples came up to the B.P. standard.

It is of interest to note that there was a marked physical difference between the wines sold by the retail pharmacist and the wholesale. The former were all brilliant, and of a lighter colour compared with the latter, which were opaque and dull, and in one case decidedly muddy. Apparently, the wine as sold by the retail pharmacist was carefully filtered so as to be brilliant, whilst the wholesale manufacturer evidently has simply mixed the required proportion of the liquid extract with the wine without subsequent filtration. In the case of the samples from stock, which led to this investigation, they also were filtered. Whether the process of filtration has any depreciatory effect upon these galenicals or not I have not been able as yet to confirm, the above idea being purely a deduction from observation; or whether the depreciation is the result of age also remains to be solved. Possibly that may be the cause.

Judging from personal experience, the stocks of a wholesale firm are, as a rule, of a very recent date compared with those kept by a retail pharmacist. If the percentage of the total alkaloids varies with the age, then one would, as a rule, expect the samples collected from a retail business to be weaker in alkaloids than those sent out by wholesale firms.

A well-known London firm, whose sample proved deficient in alkaloids, was written to, and they had their stocks examined, and found that they had depreciated in alkaloidal value on keeping. It is only at the request of others who have experienced a similar decrease in the strength of these important preparations, that these notes are published, with the hope that they may put our fellow-craftsmen on their guard, and that perhaps others, who have more leisure and opportunity, may be led to examine their stocks and to make further investigations.

PRACTICAL NOTES AND FORMULÆ.

Teething Syrup.

Citric acid, 50 centigrammes; cocaine hydrochloride, 10 centigrammes; simple syrup, 10 Gm.; syrup of saffron, 10 Gm.; tincture of vanilla, 10 drops. A little to be rubbed on the gums for painful dentition.—*Bull. de Pharm. de Brux.*, **43**, 279, after *Odontologie.*

"Glacier" Ointment.

This ointment, sold as a remedy for the inflammation of the skin known to Alpine climbers as "snowburn," is composed, according to Lorenz, of equal parts zinc oxide, starch, lanoline and cold cream.—*Pharm. Central.*, **40**, 267, *Südd Apoth. Ztg.*

Fluid Extract of Convallaria Majalis.

Morguliss takes exception to the preparation of this extract from the root, as recommended in the U.S.P., since that portion of the plant contains but very little glucoside. He advocates the following method:—100 parts of freshly gathered flowers, at once dried between 30—35° C. and finely powdered, are moistened with 35 parts 95 per cent. alcohol and 5 parts water and allowed to stand for a time. The moistened mass is now allowed to macerate in a percolator with another 40 parts of the same menstruum for two days. Then 85 parts are allowed to percolate through and set aside, using more menstruum, if necessary. The drug is then exhausted by further percolation with 500 parts of alcohol, 95 per cent. This last alcoholic percolate is then mixed with 5 parts glycerin and the alcohol evaporated off. The residue is evaporated, at a temperature of not over 50° C., to 10 parts, mixed with the reserve, and made up to 100 parts with alcohol, 70 per cent. Wobbe, on the other hand, recommends in preference the following method: 100 parts of dried flowers are moistened with a mixture of glycerin, 10, water, 15, alcohol (90 per cent.), 25, and then exhausted in a percolator with a mixture of equal parts of alcohol and water. The first 80 parts are reserved, the remainder is evaporated to a thin extract; this is dissolved in water, 40 parts, filtered and evaporated to 20 parts; this, mixed with the 80 parts of reserve, gives 100 parts.—*Oesterr. Zeits. für Pharm.*, **53**, 369 after *Farmazeft.*

Sealing Wax Insoluble in Spirit.

For sealing bottles and flasks containing alcoholic fluids a sealing wax prepared according to the following recipe is recommended:—Carnauba wax, 1, hard paraffin, 1, are melted together; then, with constant stirring and heating, a mixture of red lead, 5, whiting, 2, is mixed in till a thick fluid is formed.—*Pharm. Central.*, **40**, 245.

For Colouring Gold Green.

The following solutions are employed:—(1) Potassium nitrate, 12; iron sulphate, 4; zinc sulphate, 2; alum, 2; water, 20. (2) Potassium nitrate, 3; ammonium chloride, 12; verdigris, 9; iron sulphate, 3; water, 30. Solution No. 1 gives a pure green tint; No. 2 gives more of a reddish opalescent colour. To deepen the red add to this 1 to 2 parts of copper sulphate in solution. To colour the object it may be immersed completely in the solution or painted with a brush and then warmed till it becomes dark, then while hot, it is immersed in acetic acid and rubbed till clean.—*Pharm. Centr.*, **40**, 364, after *Journ. der Goldschmeidek.*

Plaster Paper

T. Koller suggests that cigarette paper painted with the following solution be used as a substitute for court plaster:—Salicylic acid, 1; gum arabic, 45; water, 55; glycerin, 2-3.—*Pharm. Centralh.*, **40**, 576.

LABORATORY NOTES.

BY E. W. LUCAS.

Filtering under Pressure (Fig. 1).—Much time is saved in the course of analysis by keeping a vacuum filter always ready. The ordinary apparatus, however, cannot be used for very small quantities, as it entails too much loss of material. The apparatus figured is intended for filtering into small test tubes direct, thus avoiding transference of the filtrate.

(A) is an ordinary wide-mouthed bottle of the capacity of about 8 ounces. It is provided with a rubber stopper (B) perforated with two holes. Through one of these is inserted a tube (C), bent at right angles, which is connected to the filter pump. Through the second hole is passed the stem of a funnel (D).

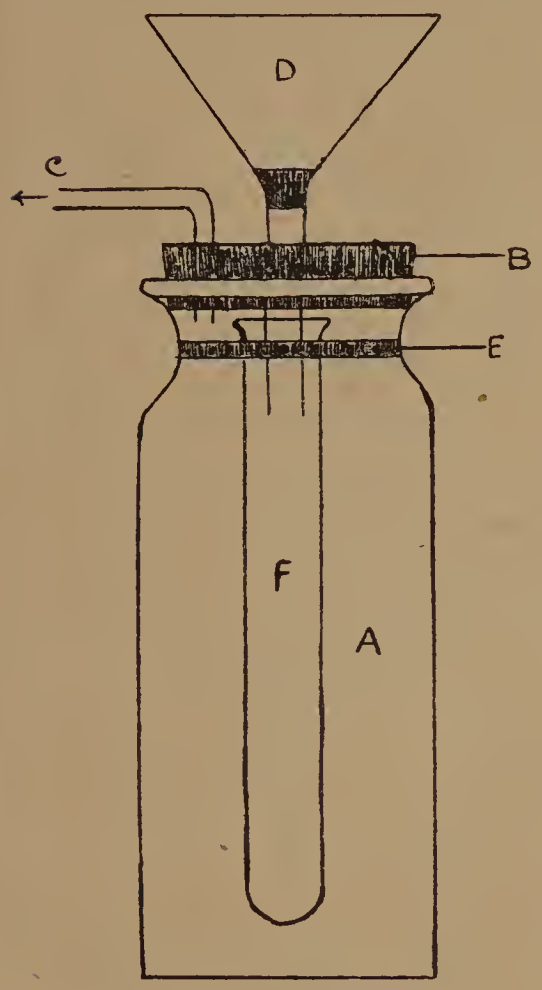

Fig. 1.—Filtering Apparatus.

A very shallow cork (E) is previously pushed well down the neck of the bottle. It is perforated with a hole large enough to take the test-tube (F), which should hang loosely by its lip.

The filter paper having been damped and pressed closely to the funnel, the liquid is poured in and the pump set going. At the close of the operation the rubber stopper is loosened, and the test-tube containing the filtrate removed by the finger.

Filtering Material.—When dealing with very small quantities the author prefers to use a conical plug of bath brick. It may be made to fit perfectly by winding with a few strands of silky asbestos. This will, of course, stand any pressure, and is very readily washed.

Pressure Gauge.—A simple pressure gauge is improvised by connecting the tube C with a T piece, the upright limb of which dips into mercury, the other end being connected to the filter pump. It is rarely necessary to use a vacuum of more than six inches, but if required the bottle may be blocked up so as to increase the length of the mercurial column.

Heating Ether Flasks in Fat Determinations (Fig. 2).—An ordinary 2-lb. paint can, with push-down lid, is chosen, and a hole cut in the centre of the lid about 2 in diameter. Round this is soldered a flange 1 in. deep (A). Two pieces of metal piping are also soldered to the side of the can, half an inch from bottom and top respectively.

The flask should fit comfortably within the can, as shown by the dotted line. The cork, which must fit tightly into the flange, is perforated so as to take the neck of the flask—the exact diameter being found with callipers—and sliced in half (B).

To fit up, the neck of the flask is placed inside the flange, the two halves of the cork adjusted as indicated in the sketch (C), and pushed home. On pressing down the lid the joint is made practically steam tight.

When making a determination, the flask is partially filled with ether or other volatile solvent, and connected to the reflux condenser, the *lower* pipe of the can being connected by composition

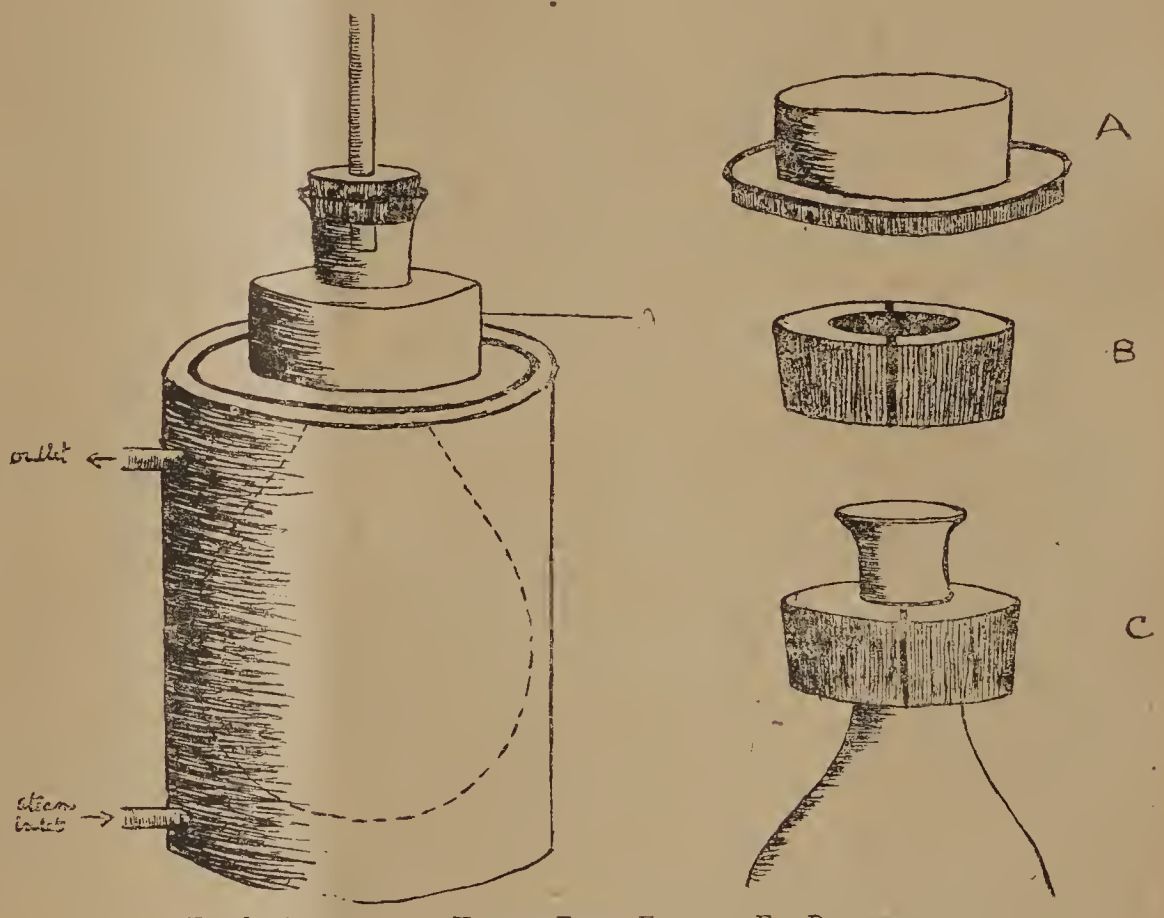

Fig. 2.—Apparatus for Heating Ether Flasks in Fat Determinations.

piping to a small boiler placed at some distance to avoid danger of fire in case of leakage. If the can is filled with hot water, the steam, having to blow through before escaping by the upper pipe, is generated under slight pressure, and keeps the water boiling, so that distillation proceeds rapidly.

The apparatus is easily disconnected by levering up the lid and removing the two halves of the cork when the flask is set free. Its chief advantage lies in its simplicity, small cost, and the almost complete freedom it provides from risk by fire.

A can provided with only one side hole, for the escape of steam, makes an exceedingly useful water bath, as the neck is held rigidly in an upright position, so that boiling may proceed vigorously without danger of fracture from bumping.

Paraform for Warts.—Meuse recommends paraform in the treatment of warts, and also papular syphilides. It is said to be specially useful in palmar psoriasis. Its action extends deeply into the skin. It is applied in the form of a collodion composed of paraform, 8; collodion, 27, to be painted on the surface thrice daily.—*Dermatol. Centralblatt*, through *B. M. J. Epit.*, **2** [99], 80.

CHEMICAL SOCIETY.

A meeting was held on Thursday, December 21, the President Dr. THORPE, LL.D., F.R.S., in the chair. The SECRETARY read a copy of a letter of congratulation that was recently sent to Dr. Emil Fischer on the completion of the twenty-fifth year of his doctorate. The reply was also read, wherein Dr. Fischer thanked the Society for the compliment, and paid a graceful tribute to the Chemical Society as the oldest in the world, and a model to all the rest.

The CHAIRMAN then asked Dr. Perkin, LL.D., F.R.S., to read a communication concerning

The Refractive and Magnetic Rotatory Power of Some Aromatic Hydrocarbons.

This paper occupied the greater part of the evening, and dealt with the following aromatic compounds, among others :—Benzene, toluene, xylene, ethyl benzene, and propyl benzene. Most of these hydrocarbons were obtained in the purest possible condition from their pure sulphonic acid salts. Where this was not done the method of fractional distillation was resorted to. The number of workers in this field of research appears to be limited, but previous work, especially that of Gladstone and the author, has shown that there is as a rule a correspondence between the magnetic rotation and the refractive power of substances. The author has found in the case of mixtures that abnormal values are often obtained for which he cannot at present give an explanation. An improved instrument for ascertaining these values has been devised by Dr. Perkin, and by means of lantern slides and the apparatus he explained the various working parts.

The CHAIRMAN said that the paper recalled an investigation, carried out some years ago by the late Mr. Roger and himself, into the determination of the viscosity of mixtures of substances whose viscosity was known. If, as seems likely, there be a common underlying cause which affects the various physical constants of bodies, then the consideration of the results obtained in the determination of one set of constants should bear comparison with other constants of the same body. The viscosity numbers obtained were often higher or lower than theory required. As Dr. Perkin's work has been attended with similar results, it would be of interest if he would investigate the same mixtures of substances as were used in the viscosity experiments and ascertain whether abnormal results were also obtainable in determining their refractive and magnetic rotatory power, and Dr. Thorpe pointed out the necessity for studying all the same physical constants from the same point of view. Thus, Dr. Perkin took equal volumes of liquids in making the mixtures for his experiments. It would probably be better to take equimolecular proportions.

Dr. GLADSTONE spoke at some length, In the course of his remarks he made the statement that benzene resembles water in being an utterly abnormal liquid. This apparently paradoxical remark is explained by the fact that in these liquids the molecular aggregation at one temperature is different from that at other temperatures.

After the author had replied, the CHAIRMAN called for a paper, by H. Jackson, B.A., on the

Condensation of Glycollic Aldehyde, and the Formation of α- and β-Acrose.

This investigation, which was carried out in the Cambridge laboratories where Mr. Jackson is a Demonstrator, was an outcome of the work done by Mr. Fenton on the carbohydrates. The paper drew forth remarks from Mr. Fenton and Dr. Groves.

ANALYTICAL NOTES.

QUANTITATIVE DETERMINATION OF SANTONIN.—For the determination of santonin in santonica, J. Katz recommends the following method :—10 Gm. of the finely powdered flower heads are extracted in a Soxhlet for two hours with ether 0·720, and the ether distilled off. The residue amounts to about 2 Gm. of a dark green, resinous extract. This is heated under a reflux condenser for from 15 to 30 minutes, with a solution of 5 Gm. crystallised barium hydrate in 100 C.c. of water. It is allowed to cool and saturated, without previous filtration, with carbonic acid gas, till the liquid reddens litmus paper. Without delay, the precipitated barium carbonate is filtered off, and twice washed with about 20 C.c. of water. A faint yellow liquid is obtained, which is evaporated to 20 C.c. on the water bath, then 10 C.c. of hydrochloric acid (containing 12·5 per cent. HCl) is added, and the mixture allowed to stand for two minutes, not longer, on the water bath, and after cooling is run into a separator, the residue in the basin is dissolved in 20 C.c. of chloroform, and transferred to the separator, the whole mixture being thoroughly shaken up. After separation, the chloroform layer is run through a filter previously moistened with the same solvent; the shaking out is twice repeated, each time employing 20 C.c. of chloroform. The mixed chloroformic solution is distilled and the residue heated for ten minutes under a reflux condenser with 50 C.c. of 15 per cent. alcohol. The hot solution is now filtered into a tared flask, filter and flask being twice washed with 10 C.c. of 15 per cent. alcohol. The mouth of the flask is now covered with a watch glass and allowed to stand for 24 hours in the cold. The flask with contents is weighed, and the contents filtered through a tared filter of 9 Cm. diameter, any turbidity of the filtrate, due to minute particles of resin, being disregarded ; the flask and filter are washed with 10 C.c. of alcohol, 15 per cent., the filter is then dried in the flask and the two weighed together when dry, to determine the weight of the santonin ; a correction of 0·006 Gm. of santonin is added for each 10 Gm. of filtrate obtained. For the titration of the santonin, the solution in 15 per cent. alcohol is evaporated; the residue dissolved in absolute alcohol, and, after the addition of 3 drops of phenol-phthalein 1/10N KOH solution is added till a pink colour, permanent for ten minutes is attained ; 20 C.c. of 1/10N KOH is added and the solution boiled, 50 C.c. cold water is now added, whereby the red colour is intensified; the solution then titrated back with 1/10N HCl; the number of C.c. of 1/10 KHO used up from the original 20 C.c. employed, multiplied by 0 0246, gives the weight of santonin. A blank experiment with the same flask with identical reagents should be made, without any santonin, to determine the amount of alkalinity derived from the glass of the flask under these conditions, and the necessary correction made on the above results. In the determination of the tincture of santonica, the extraction with ether is unnecessary. From 50 to 100 C.c. of the tincture is evaporated and treated direct with the the baryta as previously described. In toxicological experiments the acidified mass is extracted with chloroform and then treated with baryta and the process followed as above.—*Archiv der Pharm.*, **237**, 245.

REACTION FOR SALOPHENE.—Goldmann states that on heating salophene with a 2 per cent. solution of NaOH a blue colour is produced, due to the action of atmospheric oxygen. A layer of fluid vaseline on the solution prevents the reaction.—*Berichte der Deuts. Pharm. Ges.*, 1899, 112.

DETERMINATION OF ALDEHYDE IN ETHER.—Hermann Blaser recommends for the detection of small traces of aldehyde, the use of a solution of fuchsine 1 : 100,000, which has been bleached by exposure to sunlight, in preference to the solution bleached by sulphurous acid.—*Pharm. Centralh.*, **40**, 607.

A SCIENCE CRIPPLED BY WORDS.*

BY WALTER BRYAN, A.M., M.D.

Instructor at the Brooklyn College of Pharmacy.

No one will question the great advances in all the natural sciences which have been made within the last two decades—advances caused by a demand on the part of the public for greater conveniences of life and for more exact knowledge of things, and resulting in a great wave of investigation and analysis. The consequences of the stimulus given to scientific investigation by the interest of the whole people in each new line of discovery, and the practical applications and possibilities of such discoveries in each department of natural science have been to cause each ambitious investigator to work under high pressure to outshine his predecessor, and to specialise his work down to the most minute detail, and to make it of as much practical benefit as possible. Our knowledge of botanical science has advanced hand in hand with the sciences, and an immense mass of details, all important, since each exemplifies some general law (a great man once said, "There are no little things"), has been accumulated. Each detail, receiving its special defining name, has been properly classified and distributed for reference.

In their great zeal for scientific accuracy original workers in botany have so frequently gone outside of the English language for special words signifying newly-discovered or re-observed technical details, that a work on botany of the present day bristles with adopted foreign words, principally Greek and Latin in derivation, to such an extent that a student to read such a work must be familiar with at least three languages.

Botanical technical words fall naturally into two groups—those which identify plants, and those which describe them. Thus we find on page 257 of the U.S. Pharmacopœia, 1890, the official description of spearmint as derived from *Mentha viridis*, natural order *Labiatae*; these are placed in the first group and called words of identification. Following them is a description in part as follows: "Leaves about 5 Cm. long, subsessile, lance-ovate, acute, serrate, etc." The words subsessile, lance-ovate, etc., I should call words of description, or descriptive words. Now, whereas the descriptive words in many sciences—notably that of chemistry—have been accumulated in accordance with a definite plan of word-building which enables them to be easily memorised, there is no such system in botanical descriptive wording. Furthermore, these descriptive words used in botany far out-number proportionately those of any other science, and year by year they still accumulate, and the older words are used with new and confusing meanings. Some words, like "sperm," vary in meaning according to the idea of the particular authority in botany who defines in the preface to his book the particular meaning of the word as used by him.

Little confusion results from this lack of method in the use of old words and the choice of new ones among professional botanists, though many find it difficult to keep in mind their entire botanical vocabulary for immediate use. But the effect upon the student plunged from the clean, clear, descriptive words of chemistry into the maze of botanical description is at first to amaze, then to stupefy, and finally to demoralise the forces of mind; memory, staggering under unreasonable burden, balks and refuses further tasks.

I believe that the limit of capacity to remember isolated words is reached long before the limit of remembering facts or cohering sequences of facts. It is conceded that memory for isolated words is more highly developed in youth, and grows gradually weaker as we reach maturity, although the faculty of remembering facts or logical sequences of facts progressively becomes stronger till old age begins.

The average vocabulary of the well-educated man is estimated at from 3,000 to 5,000 words; the average student can hardly claim more than three-quarters of this figure. Gray, in his 'Manual of Botany,' gives a glossary of more than seven hundred botanical descriptive words which require special technical definition.

In one text-book of botany I counted on 24 pages of text (out of a total of 123 pages devoted to morphology) 155 botanical descriptive terms, few of them related to each other, most of them requiring a special effort of the memory to recall them, unassisted by any association of the word beyond a translation from Latin or Greek.

In Gray's 'Structural Botany' there is a glossary at the end of the book containing over two thousand words, with a definition for each.

These words are the terror of students of botany—not merely in colleges of pharmacy, but everywhere. It takes from five to ten years to learn these botanical terms completely. My experience of several years as a teacher of botany to boys, young men, and adults, has given me positive evidence of the extreme difficulty experienced by students in learning to define and remember these foreign words. If this maze of foreign terms were indispensable we would suffer in silence, or attempt a remedy through a congress of English-speaking peoples, who might lay down a systematic method of forming such words.

In these days of trusts, of liquid air, and a hundred other time and labour-saving devices, it seems wrong in precept to devote a great deal of time and labour to studying out the meanings of so many difficult words unless we can get practical results from such study. If we can find other simple English words to express the exact meanings of the difficult foreign ones, and thus save time and labour to all who study plants, is it not our duty to take that step?

The subject of botany—the study of plants—is curious, interesting, fascinating; plant life-processes have a certain definite similarity to our own; their reproductive actions especially imply their possession of intelligence, but the study of the meanings of thousands of words borrowed from Greek and Latin terrifies and repels the searcher for knowledge. The most widely-used text-books of botany of the present day contain many hundreds—some contain thousands—of these words, environing the subject like frowning fortresses, each of which requires to be taken by assault; and the average student wearies of the unending task before he has carried one-tenth of them. This overburdening of a science and crippling of its usefulness I believe to be an evil. I think that all educated men—pharmacists and students of pharmacy in particular—are interested in it, and I believe that there is a remedy for it

It is possible to make the study of botany easy by substituting for the difficult Greek and Latin descriptive words their English equivalents, and thus simplify by doing the exact opposite of the work done by scientific word-experts when they translated our familiar English words into strange and unfamiliar Latin and Greek. We will be obliged to do this unless we are satisfied to exclude from botany all who have not studied the classics.

As if the descriptive words in botany were not in themselves sufficiently difficult, the authorities have caused most of them to be pronounced with the emphasis placed upon some unimportant syllable. Thus: "Pentamerous" arises from the Greek root "pent," meaning five; and "mer," measure; together signifying five-parted. Manifestly, to express the meaning of the word clearly, it should be pronounced penta-merous; but it is pronounced pen-tam-erous, as though "tam" or "am" were the important syllable. This false system of pronouncing words, not only in botany, but in many other sciences, is certainly misleading.

The remedy proposed is to cut out most of the foreign technical words in botany, using English words in their place, and to pronounce all remaining foreign words in botany with all the emphasis placed so as to separate the component word-roots, as in epi-gynous, penta-merous, etc., etc. By means of such a method botany could be taught and learned without loss of accuracy of description, and with an immense gain in comprehension on the part of the student.

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* Read before the Kings County Pharmaceutical Society, and reprinted from the *Pharmaceutical Era*.

The prime object of a word is to communicate an idea. To be of value to a practical man words must approximate to certain tests:

1. They must be simple.
2. They must be easily remembered.
3. They must express one fact.
4. They must be, so far as possible, in the homc language.

Most of our botanical terms are complicated, they are hard to remember, and they are as far as possible in a foreign language, and they have been multiplied without regard to the capacity of the human memory. I deny that these foreign descriptive words are in themselves of any use to the student of botany. I affirm that they do great harm by annoying, worrying, and discouraging all those who love plants and desire to study them, and those students whose life-work will be to dispense the curative substances derived from them.

The plea has been advanced in defence of this profuse application of the dead languages in botanical description that they, remaining stable, furnish an unchangeable universal technical language, and thus facilitate international intercourse.

It is time that Latin and Greek furnish a changeless technical language for plant *identification*, but the terms of *description* are not universal; many of them are embodied by the Germans, among others, in their home language, in the form of compound words, without any loss of scientific accuracy.

Let me read some technical words taken from the U.S. Phara copœia, with their English equivalents:—

Acute—sharp.
Acuminate—sharper (or sharpest).
Annulate—ringed.
Attenuate—thinned.
Awn—bristle.
Bilabiate—two-lipped.
Calyx—cup.
Clavately—clawed.
Conchoidal—shell-like.
Contorted—twisted.
Cordate—heart-shaped.
Coriaceous—leathery.
Crenate—scalloped.
Crenulate—finely-scalloped.
Digitate—finger-cleft.
Emarginate—notched.
Filiform—thread-like.
Floret—flowerlet.
Foliaceous—leaf-like.
Fusiform—spindle-shaped.
Glabrous—smooth.
Glaucous—downy.
Indehiscent—non-splitting.
Inflorescence—flower-cluster.
Involucre—spiral.
Laminate—layered.
Ligneous—woody.
Lyrate—lyre-like.
Mucronate—hard-tipped.
Peduncled—stalked.
Pedicel—stalklet.
Pentangular—five-angled.
Pericarp—fruit-rind.
Mesocarp—fruit-rind.
Pinnately—feather-like.
Pinnatifid—feather-cleft.
Pubescent—hairy.
Quadrangular—four-angled.
Rhachis—mid-stalk.
Reniform—kidney-shaped.
Reticular—netted.
Rhizome—substem.
Rugose—wrinkled.
Serrate—saw-toothed.
Sessile—sitting.
Sphero-tetrahedral—four surfaced spheroid.
Trifoliate—three-leaved.
Truncate—flat.
Undulate—wavy.
Etc., etc.

To these could be added a list of a thousand dispensable words from any standard text-book or from the Dispensatory.

There are, of course, many technical terms which are so useful that it is wise to retain them in their present form. Prefixes like that in sub-class and post-fixes (suffixes), like oid in ovoid, are too useful and convenient to discard. Careful discrimination by associated minds would seem to be required in carrying out the scheme of substitution outlined above, and which I am convinced would effectively and permanently augment the general knowledge of botany and the public interest in it.

If the Pharmacopœia can be called the druggist's Bible, we may similarly term the Dispensatory his Dictionary. In the Dispensatory are accurate botanical descriptions of the characters of plants, parts of which may be used as drugs. These descriptions, which are so complete as to include the means of botanically identifying a plant by its flower, fruit, seed, etc., are made up principally of these foreign descriptive terms, a glossary or unabridged dictionary being indispensable, since half of these terms have no meaning to the average pharmacist.

It seems not desirable to insist that a student be familiar with all of these terms unless we give him four full years in college on the subject of botany alone.

Nevertheless each department in a college is expected to teach its students to read standard works intelligently; and I think that this requirement is fulfilled so far as a college teaching, a course consisting of several branches, can fulfil it by teaching our students the principal botanical descriptive words, and indicating the means of finding the technical definitions of those less frequently used. That a student must learn every botanical technical word in the Pharmacopœia is a point beyond argument. That a student shall learn within the time of his college course every technical botanical term is, at the present average of human understanding, an impossibility.

There is no question of the difficulty of learning botany. Every student of the subject has experienced it. I have heard it spoken of a thousand times, and in every instance the student has told me that the facts were easily grasped, but that the immense mass of strange words placed a ban upon the memory which is unheard of in any other science.

Within the last two years there has been adopted in a metropolitan college (with a class of 600 students) a new text-book of botany, which has omitted some of the hardest technical words, with a distinct gain of grasp of the subject on the part of the students, and with a gratifying absence of that fear and hatred of the subject which has been in the past a matter of open comment.

I am not a caterer to popularity, but I do believe that when a science dealing with Nature's laws and methods arouses persistent and dogged dislike and hatred in the minds of successive generations of students, there is something radically wrong, and this wrong is not with the plants that the Almighty made, but perhaps with the labels man has placed upon them, in such myriads as to hide the plants themselves.

That there exists at the present time the beginning of a reaction against word-slavery is manifest in scientific text-books on biology published within the last two or three years. There appears to be a tendency to cut out all biological terms invented at random and to start afresh on a systematic basis, so that the biological, technical words might so far as possible branch from a few original word-roots. Another tendency appears to be to cut down the amount of time devoted in the preparatory schools and colleges to the classics, and to increase correspondingly the work in the sciences. Can we, in view of this, require from our students a classical vocabulary in the guise of botanical nomenclature?

Gentlemen, let us be in line with the times. Let us have the courage to cast off the dead wood of foreign burdensome words. Let us turn the searchlight of common-sense upon every botanical term that hides a truth behind a foreign compound word.

What the future will bring forth no man knows. What discoveries may be made when once the great public mind grasps universally the truths of the plant world, now hidden behind these black-word shadows, is beyond our ken. Let us do our part to make as clear as can be made the facts about the plants that give us food, that make oxygen for us, and that cure us of our sicknesses. Let us remove from our text-books, our Dispensatories, and our Pharmacopœia foreign words, and let us tell the plain truths we know in plain English.

If it were possible to reach the committee in charge of formulating the next Pharmacopœia, and convince it of the desirability of substituting English words for foreign ones wherever possible, the step would, I believe, attract a tidal wave of reaction against the unnecessary use of foreign words, not only in botany but in other sciences as well.

I beg to present this summary:—

(1) That the modern discovery of an immense mass of botanical details has caused the accumulation in our language of an inordinate number of botanical descriptive words.

(2) That these descriptive words are taken practically at random from the Greek and Latin languages.

(3) That the inordinate number of these words and their strangeness in our language severely overtax the average memory, obscure the subject, and constitute a serious obstacle to the successful study of botany.

(4) That most of these words can be discarded and English words

substituted without loss of accuracy in description, and with a gain of the time spent in describing and memorising these words.

(5) That botany, thus divested of its chief difficulty, can be more readily assimilated and practically applied by the student and pharmacist.

(6) That the first step towards a remedy for this excessive use of foreign words lies in the substitution of English descriptive words for the foreign botanical terms in the U.S. Pharmacopœia.

MEDICINE AND PHARMACY IN CENTRAL CHINA.

One of the most interesting and instructive books of travel that has appeared for some time past is 'The Yangtze Valley and Beyond,' by Mrs. J. F. Bishop (Isabella L. Bird), F.R.G.S., dedicated by permission to the Marquess of Salisbury, and published by Mr. Jno. Murray, of Albemarle Street. The authoress, who is the widow of John Bishop, M.D., is intimately acquainted with many forms of philanthropic work at home and abroad, and especially with medical missions. So far back as 1892 she was elected the first lady Fellow of the Royal Geographical Society, and she is the only lady who has had the honour of reading a paper before that Society. Her account of the Hangchow Medical Mission hospitals and the dispensaries attached to them will be of interest to our readers. Those beneficent institutions have been the means of producing much goodwill towards foreigners, and over 14,000 new patients, afflicted with all manner of torments, are annually treated there. The services of Dr. Main and his coadjutor, Dr. Kimber, are in request among officials, from the highest to the lowest. Mandarins of high rank, attended by their servants, are treated in the paying wards, and occasionally leave donations of 100 dollars, in addition to their payments. Officials of every rank in the Chekiang province send to the British doctors for advice and medicines.

The men's and women's hospitals are of the latest and most approved European type. They are abreast of our own hospitals in lighting, ventilation, general arrangement and organisation, and the facility of obtaining the celebrated Ningpo varnish, really a lacquer, which slowly sets, with a very hard surface, reflecting much light and bearing a weekly rub with kerosine oil, greatly aids the sanitation. The purity of walls, floors, and bedding is so great as to make one long for a speck of comfortable dirt! The men's hospital buildings consist of four roomy and handsome general wards, eleven private paying wards, accommodating from one to three patients each; a range of rooms for the ward assistants, who are practically male nurses; students' rooms, rooms for three qualified assistants, a lecture-room, with an anatomical (in lieu of the unattainable human) subject, which cost a thousand dollars; a reception-room for mandarins, the principal's private room and medical library, a fine consulting-room and operating theatre, bathrooms, a room for patients' clothing, done up in numbered bundles, after it has been washed; wardrobes for the clothing lent them while in hospital, a cashier's office, a large bottle-room, extensive storage, and an office for out-patients. Adjoining is a fine lofty room, where any non-patient passers-by, who are either tired or curious, can rest or smoke, amusing themselves with the transactions of the other half of the hall, which is a large and attractive "drug store," fitted up in conventional English style, where not only medicines but medical requisites of all kinds can be procured by non-patients and foreigners. It has been remarked in the official consular reports that missionaries unconsciously help British trade by introducing articles for their own use which commend themselves to the Chinese; and this drug store has created a demand for such British manufactures as condensed milk, meat extracts, rubber tubing, soap, and the like; condensed milk having "caught on" so firmly that several of the Chinese shops are now keeping it for sale.

The women's hospital has head and junior nurses and a dispenser, and is equally efficient and admirable. There are risks and difficulties, however, in the treatment of out-patients, as Chinese medicines are administered bulkily, a pint or a quart at a time, and patients do not understand our concentrated and powerful doses. Hence, dangerous and grotesque mistakes are continually made, such as the following:—

Patient: "Doctor, when I took the medicine you gave me yesterday it made me very sick; it has given me diarrhœa and a severe pain in the stomach; my fingers and toes also feel very numb."

Dr. Malcolm (looking at the bottle): "Why, you have already almost finished the eight-days' medicine (arsenic) that I gave you yesterday. The wonder is that you are alive at all."

Patient No. 2 enters: "Where is the old boss of this shop? I want some foreign devil medicine to cure malaria."

Doctor: "Allow me to tell you I am not a devil. You had better go home, and when you can come and ask respectfully for medicine we will give it you."

Patient No. 3 enters, holding out her hands, and asking the doctor to find out her disease by "comparing her pulses." D.: "Tell me what is the matter with you?"—P.: "My bones and muscles are sore all over." D.: "What was the cause of your trouble?"—P.: "It was brought on by a fit of anger." D.: "How long have you had it?"—P.: "From the time the heavens were opened and the earth was split" (*i.e.*, a very long time).

The arms and shoulders of this woman were covered with pieces of green plaster, given her by the Chinese doctors. She proposed to throw these away, and "to publish the doctor's name abroad" if he cured her. So she received medicine, with very full directions about taking it; these were not enough. She asked a string of questions, such as if she must heat it before taking it, if she must keep the bottle tightly corked, if she must take it along with anything else, and, lastly—P.: "Shall I abstain from eating anything?" D.: "No." P. (greatly disappointed): "What! Shall I not forbid my mouth anything at all?" D. (jokingly): "Yes. Do not talk too much, do not revile your neighbours, do not smoke opium, do not scatter lies." The doctor, getting worried, reiterates the directions, tells her not to ask any more questions, and shows her out; but she returns in a few minutes, and asks if the medicine is to be swallowed or rubbed on the outside!

When describing Chinese Hangchow mention is made of the signboards of the various trades. The shape and the different colours of the letters and face of the signs indicate different trades. The designing is a very important matter, as it may affect the luck of the shop. The name of the shopkeeper comes first, but in the case of a firm a word of good omen is substituted for the names, with a character signifying union. In both cases the characters are followed by words of good omen, suggesting wealth, prosperity, and increase. An old signboard is a valuable piece of property, and if the business is sold fetches a high price, like the goodwill of a long-established business at home. An old established druggist's sign has sold for as much as 3,000 taels (about £450).

The writer of the book contrasts the business methods of our rivals with those of our own, and not to our advantage. She remarks that if Englishmen were to give to the learning of the Chinese language and of Chinese requirements and methods of business a little of the time which is lavished on sport and other amusements, there might possibly be less occasion for the complaint that large fortunes are no longer to be made in Chinese trade.

From ignorance of the language, and reliance on that limited and abominable vocabulary known as "pidgun," the British merchant must be more absolutely dependent on his Chinese compradore than he would care to be at home on his confidential clerk. Even in the British banks it seems impossible to cash a cheque without calling in the aid of a sleek, supercilious-looking, richly-dressed Chinese, who looks as if he knew the business of the bank and was capable of running it. It is different at the Yokohama Specie Bank, in which the alert Japanese clerks manage their own affairs and speak Chinese.

BRITISH PHARMACEUTICAL CONFERENCE.

Research List.

The following subjects are suggested for investigation. The Executive Committee hopes that members will undertake to work at some of those questions, or others that may occur to them. New subjects have been added to the list to replace those worked out. The Committee will be glad to receive questions that may have presented themselves as desirable for investigation.

Plant Analysis.

(1) CASCARA SAGRADA.—What is the nature of the various resins contained in this bark? (See 'Year-Book of Pharmacy,' 1893, p. 131, from 'Comptes Rendus,' cvx., pp. 286-288.)

(2) CIMICIFUGA RACEMOSA (*Actæa racemosa*).—Further information is needed on the chemical nature of the constituent or constituents to which the rhizome of this plant owes its activity. (See 'Year-Book of Pharmacy,' 1885, p. 149.)

(3) EUPHORBIA PILULIFERA.—Required, a report on the chemistry of this drug.

(4) ASTRINGENT DRUGS AND PREPARATIONS. — The various methods employed for the estimation of tannin in these give very discrepant results. Required, a thorough research into the comparative merits of these processes.

(5) MEZEREON BARK.—What is the chemical nature of the *acrid principle* of this bark?

(6) ARNICA.—What is the active principle, and what are the relative proportions of it in the root and flower?

(7) CHAMOMILE.—Research on the *bitter principle* contained in the flowers of *Anthemis nobilis*. (See 'Bulletin de la Société Chemique de Paris' [2], xli., p. 483.)

(8) CASTOR OIL.—A research, having for its object the isolation of the purgative principle, either from the oil or the seed.

(9) TARAXACUM.—Little that is definite appears to be known regarding the active principles of taraxacum root. A research is required to clear up the point. To what constituents are the cholagogue and diuretic properties due?

(10) FUCUS VESICULOSUS.—The medicinal virtues have been attributed solely to the presence of iodine and bromine. It is not improbable that it may also contain some organic constituent of importance. A complete chemical investigation is required.

(11) LOBELIA INFLATA.—Further investigation of the active principles of this drug is required.

(12) DAMIANA is reported to contain a bitter substance, resins and volatile oil. The liquid extract of the leaves being now extensively used, a thorough systematic examination of this drug is desirable.

(13) PROXIMATE ANALYSES of the following drugs are needed:—*Cereus grandiflorus*, *Citrullus colocynthis*, and *Cassia fistula*.

(14) PAPAVER RHŒAS.—An examination of the red colouring matter of the petals is required.

(15) SENNA FRUITS.—A comparison of the constituents of the leaves and the fruits would be of interest.

(16) ASH.—What are the percentages of ash that should be found in the following drugs in powder:—Anise, fennel, cinnamon, cassia, coriander, cubebs (fruit and fruitstalks respectively), gentian, liquorice, guaiacum resin, jalap, myrrh, nux vomica, black pepper, mustard (black and white respectively), squill, senna (*Cassia angustifolia*, *C. acutifolia*, and *C. obovata* respectively), rhubarb root (*R. rhaponticum*, *R. palmatum*, and *R. officinale* respectively?

(17) SALIX NIGRA.—In what respect do the constituents of this species vary from those of other willows?

Chemistry.

(18) GLYCERIN.—Required, a good method of estimating this substance, applicable, if possible, to pharmaceutical preparations.

(19) QUININE.—Results obtained in the titration of this alkaloid suggest the possibility that it is di-basic, and not mono-basic. (See 'Year-Book of Pharmacy,' 1894, p. 351; 1898, p. 424.) Further work is needed to clear up the point.

Materia Medica and Pharmacy.

(20) STANDARDISATION.—It is suggested that the Pharmacopœia preparations of aconite, stramonium, strophanthus, Calabar bean and colchicum should be standardised. Processes of assay are required.

(21) ALEXANDRIAN AND EAST INDIAN SENNAS.—The two sennas of the British Pharmacopœia are permitted to be used indifferently. Do preparations of the leaves of the two varieties of senna differ? If so, to what extent?

(22) EXTRACTION OF DRUGS BY PRESSURE.—This mode of extraction (see Dr. Symes's suggestions in the 'Year-Book of Pharmacy,' 1888, p. 356) is likely to produce good results with a number of drugs. Required, a series of experiments in this direction, showing the effect of the process on the quality and yield of extracts as compared with the corresponding products obtained by the ordinary modes of xtraction.

(23) STANDARDISED PREPARATIONS.—Report on commercial specimens of official standardised preparations.

(24) EFFECT OF CULTIVATION, SOIL, CLIMATE, AND TIME OF COLLECTION ON MEDICINAL PLANTS.—Compare the proportions of active constituents of indigenous plants grown in different districts, and the effect upon these constituents by time of collection.

(25) CAPSULES.—The quality and quantity of medicines in capsules. (See 'Year-Book of Pharmacy,' 1875, p. 285.)

(27) MISPRONUNCIATION OF LATIN PHARMACOPŒIA NAMES IS COMMON.—It is suggested that a short prosody be compiled for purposes of reference.

(28) STANDARDISED TINCTURES.—Is it possible to standardise any of the pharmacopœial tinctures which owe their activity to the presence of one or more resins?

(29) COMPRESSED DRUGS AND COATED PILLS.—Required, a report on the strength and quality of the compressed drugs and coated pills of commerce.

(30) KINOS.—A comparison of the characters of the official and other commercial kinos, including the Cochin, Malabar, and Eucalyptus varieties, is much needed.

(31) ERGOT.—The determination of the proportion of alkaloid extracted from ergot by the official processes for the various preparations.

(32) SYRUP OF GLUCOSE.—A series of experiments is required to show whether the official syrup of glucose is a satisfactory pill excipient as regards its composition and official application.

(33) TEREBENE.—To what extent do commercial samples of terebene correspond with the characters and tests of the 1898 Pharmacopœia?

(34) CANNABIS INDICA.—A preparation which can be relied upon containing the active principle of the drug is still a desideratum.

(35) LIQUID EXTRACT OF COCA.—What percentages of cocaine and ecgonine are present in the official liquid extract?

(36) PODOPHYLLUM RESIN.—Much of the podophyllin in the market is of foreign manufacture, and does not answer the requirements of the official resin. An examination of commercial specimens would be of value.

(37) FOXGLOVE LEAVES.—These are directed to be gathered from plants of the second year's growth. The radical leaves of the first year's growth have been stated to be efficacious. A comparison of the constituents of each variety would be of interest.

(38) PLASTERS.—What advantages have plasters (such as belladonna, etc.), prepared with a basis containing rubber, over those made with a resinous or lead plaster basis only, and would the formulæ of the official plasters be improved by the addition of rubber as one of the ingredients,

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.*

Sodii Nitris.—The conversion of nitrate of sodium into nitrite by loss of oxygen can be effected by heat alone, but the change is facilitated by the employment of reducing agents. Lead constitutes a useful reducing agent because it forms an oxide which easily separates from the fused layer of nitrite. Lead as an impurity may be detected by the formation of a precipitate of lead sulphate when dilute sulphuric acid is added to a solution of the suspected salt. The determination of actual $NaNO_2$ in the commercial salt is effected by the measurement of the nitric oxide in the manner described under Spiritus Ætheris Nitrosi. 68·58 Gm. (one mol. wt.) of sodium nitrite will yield 22·32 litres of nitric oxide measured 0° C. and 760 Mm. pressure.

$$\therefore \text{ 1 Gm. pure } NaNO_2 \text{ will evolve } \frac{22{\cdot}32 \times 1{,}000}{68{\cdot}58} \text{ C.c. of nitric oxide}$$

$$= \frac{22{\cdot}32 \times 1{,}000 \times (273 + 15{\cdot}5)}{68{\cdot}58 \times 273} \text{ C.c. at } 15{\cdot}5^\circ \text{ C.}$$

$$= 343{\cdot}9 \text{ C.c.}$$

Standardised Tinctures.—These include—

Tincture of Belladonna and *Tincture of Nux Vomica*, obtained by dilution with alcohol of the previously prepared and standardised liquid extracts.

Tincture of Opium.—The opium is effectually disintegrated by trituration and maceration with hot water, a volume of 90 per cent. alcohol equal to that of the water being subsequently added. This is found to be the most effectual way of exhausting the opium, and does not involve the necessity of previously drying and powdering the drug. A portion of the resulting liquor is evaporated to remove the alcohol, and the residue assayed in a similar manner to that directed under opium, an explanation of which will be found in the Students' Columns.

Compound Tincture of Camphor and *Ammoniated Tincture of Opium* are prepared from the foregoing sample of tincture, so as to avoid the necessity of individually assaying them. The strength of all three remains practically the same as in the 1885 Pharmacopœia.

Tincture of Jalap.—This will be slightly stronger than average specimens of the unstandardised 1885 tincture.

Tinctures of Cinchona (simple and compound).—An explanation of the assay process will be found in the Students' Columns under Extractum Cinchonæ Liquidum.

Unguenta.—These formulæ have been subjected to a very thorough revision, and the proportion of active medicament to fatty vehicle very much simplified. At the same time the fatty vehicles have been altered in many cases on the lines suggested in the article dealing with the 1885 B.P. ointments in the Students' Page, *P. J.*, April 9, 1898. By classifying the ointments according to the fatty vehicle it will be found, broadly speaking, that those medicaments which are intended to have a local or surface action are compounded with paraffins, while those which are intended to be absorbed are combined with lard or other animal or vegetable fat. The formulæ omitted comprise :—

Unguentum calaminæ
Unguentum elemi
Unguentum potassæ sulphuratæ
Unguentum sabinæ
Unguentum simplex
Unguentum terebinthinæ

The new formulæ are :—

Unguentum aquæ rosæ
Unguentum capsici
Unguentum cocainæ
Unguentum hydrargyri oleati
Unguentum hydrargyri oxidi flavi
Unguentum paraffini

The ointments containing alkaloids are now made on the uniform plan of solution in oleic acid and combination of this alkaloidal oleate with lard. This is done in order to effect the uniform distribution of the alkaloids. Nitrate of mercury ointment has been subjected to some alterations in the details of the process which have not given universal satisfaction. With regard to the action of nitric acid and mercuric nitrate on oil, refer to the articles dealing with oleic acid and the fixed oils already given in the Students' Columns. The chief alterations in strength will be found in

Unguentum acidi salicylici
Unguentum olei eucalypti
Unguentum hydrargyri nitratis dilutum
Unguentum staphisagriæ
Unguentum sulphuris

Vina.—The wines of aloes, opium and rhubarb are now omitted from the Pharmacopœia. They had fallen in disuse probably because of the impossibility of masking the taste of such nauseous drugs by the use of sherry as a menstruum. The student should refer to the remarks already made on these preparations (*P. J.*, April 9, 1898, p. 354). A test has been introduced for detecting salicylic acid in orange wine and sherry. It is sometimes used for preserving inferior qualities of wine, but the necessary proportion is so small that the ferric chloride reaction is not sufficiently distinct in presence of the colouring matter when the reagent is applied to the wine itself. In order to separate the salicylic acid advantage is taken of the fact that it is volatile in steam. When the wine is distilled, the first portion of distillate is rejected, since this contains the bulk of the alcohol of the wine. The remainder of the distillate containing the greater part of the salicylic acid will still probably be too dilute to give a distinct reaction with ferric chloride. Concentration by evaporation is inadmissible because the salicylic acid will volatilise as well. From its aqueous solution, however, the salicylic acid may be extracted by agitation with ether owing to its much greater solubility in this solvent. After separation the ethereal layer may be evaporated (since salicylic acid does not volatilise at temperatures below the boiling point of ether and in the absence of aqueous vapour), and the residue tested by ferric chloride. This evaporation is best conducted in a white porcelain dish, so that the colour, if any, which is produced on the addition of the reagent shows up distinctly by contrast with the white porcelain. The reason for rejecting the first portion of the distillate, which will contain most of the alcohol of the wine, is that the separation of salicylic acid by ether from dilute alcohol is much less complete than from water only. Hence this alcoholic fraction is collected separately and the remaining portion of the distillate used for the test. Ipecacuanha wine will be much more uniform in strength than the 1885 preparation, since it is now made by dilution of the standardised liquid extract. Quinine wine is now made with the soluble hydrochloride in place of the sulphate of quinine, which needed some citric acid to dissolve it.

Zinci Acetas.—The behaviour of solutions of this salt when treated with sulphuretted hydrogen should be carefully noted, as it sometimes leads the student astray in qualitative analysis. When the gas is passed through the solution a white precipitate of zinc sulphide is obtained. This is because the zinc sulphide is insoluble in acetic acid, although readily soluble in, and hence not precipitated in the presence of, dilute mineral acids. By the action of sulphuretted acid on a neutral metallic salt free acid is always formed in proportion to the sulphide precipitated. Owing to the

* NOTE.—The series of articles should be read in conjunction with the series referring to the 1885 B.P. and published in the *P.J.* during 1897-8.

insolubility of zinc sulphide in acetic acid the formation of the precipitate is possible in the case of zinc acetate—

$$\begin{matrix} Zn & 2C_2H_3O_2 \\ | & \\ S & H_2 \end{matrix}$$

With the other common salts of zinc, the formation of zinc sulphide under these conditions does not occur, owing to its solubility in the acid which would be set free as a consequence of the reaction. Thus with the sulphate and chloride—

$$\begin{matrix} Zn & SO_4 \\ | & \\ S & H_2 \end{matrix} \qquad \text{and} \qquad \begin{matrix} Z & Cl_2 \\ | & \\ S & H_2 \end{matrix}$$

In the ordinary course of analysis hydrochloric acid is added before sulphuretted hydrogen is passed through the solution.

Zinci Oxidum.—The solubility of zinc oxide and hydroxide in excess of ammonia is used to detect metallic zinc, particles of which may be present through imperfect combustion of the metal in preparing the oxide by this method. The presence of these metallic particles is particularly objectionable in zinc oxide which is used, either in the form of dusting powder or ointment as an application to abrased surfaces. The solubility of zinc hydroxide in excess of ammonia is due to the formation of a soluble double salt; the reaction is also utilised in analysis to separate zinc from the iron group, the hydroxides of which do not form any soluble double salts with ammonia.

Zinci Sulphocarbolas.—The formation, reactions and relationships of phenol sulphonic acids have been dealt with in the article on sodium sulphocarbolate (q. v.). The sodium and zinc salts both give a violet colour with ferric chloride, but are easily distinguished by the behaviour of their solutions towards ammonium hydrosulphide.

Zinci Valerianus.—This salt is subject to gross sophistication, often consisting of other zinc salts powdered and mixed with sufficient valerianic acid to communicate the characteristic odour. Although the Pharmacopœia refers to the salt as zinc iso-valerianate it can hardly contemplate insisting upon the use of a chemically pure salt. This would be most difficult to obtain because the commercial amylic alcohol from which it is derived always contains more or less isomeric or homologous alcohols. When the amylic alcohol is distilled with oxidising agent the distillate will contain all the acids corresponding to these alcohols. Hence the purity of the acids depends upon the purity of the amylic alcohol employed. If this be first shaken with strong brine the lower homologues methyl, ethyl, and propyl alcohol are dissolved by the brine, while the amyl alcohols separate as an oily layer. This oily layer is then fractionally distilled, and the fraction coming over above 125° C. will consist chiefly of iso-primary amyl alcohol

$$\begin{matrix} CH_3 \\ \diagdown \\ \quad CH - CH_2 - CH_2OH \\ \diagup \\ CH_3 \end{matrix}$$

. When this is oxidised it yields the corresponding acid

$$\begin{matrix} & & CH_3 \\ & \diagup & \\ CH - CH_2 - COOH \\ & \diagdown & \\ & & CH_3 \end{matrix}$$

. The percentage of ash is a good criterion of quality. For one molecular weight of zinc valerianate $[Zn(C_5H_9O_2)_2 = 265{\cdot}53]$ yields one of zinc oxide $[ZnO = 80{\cdot}79]$.

$$\therefore \text{ 1 gramme will yield } \frac{80{\cdot}79}{265{\cdot}53} \text{ grammes ZnO.}$$

$$= 0{\cdot}3043 \text{ or } 30{\cdot}43 \text{ per cent.}$$

The lower homologues such as zinc acetate and butyrate will be found to give a higher percentage of ash, and a simlar result would be shown by a sample adulterated with zinc oxide or sulphate. A lower ash would only be shown by the higher homologues of zinc valerianate, or a sample containing an undue proportion of water The formula for the anhydrous salt is given in the Pharmacopœia, but zinc valerianate crystallises from water with one molecule of water. A salt of this formula, $Zn(C_5H_9O_2)_2,H_2O$, will yield 28·51 per cent. oxide: hence probably the official allowance of 26–30 per cent. of ash. The moistening with nitric acid is done to facilitate the combustion of the last traces of carbon. When distilled with sulphuric acid the distillate will contain the acids corresponding to the zinc salts present. Butyric acid is the next lower homologue of valerianic acid, and if any zinc butyrate be present the acid will produce a precipitate in copper sulphate solution owing to the insolubility of copper butyrate.

INSTRUCTION IN DISPENSING.

One of the most serious arguments advanced by pharmacists in their attack upon the practice of allowing medical men to dispense their own medicines is the utter inadequacy of the instruction provided by our medical schools in that department. Some half-dozen attendances in the dispensary is usually all that is demanded of the student, and as the dispenser in chief has his hands full of other work it can easily be imagined that the future practitioner escapes with a modicum of practical teaching. Even a diligent student, under the most favourable circumstances, cannot be expected to obtain much insight into the practical details of pharmacy, nor do we see how it can be otherwise. To allow every tyro to educate his hand by assisting in the dispensing department of public institutions would be to court disaster.

There is really only one way to learn dispensing other than by putting in time with a retail chemist, and that is in the surgery of the busy practitioner, but this unexceptionable way opportunity was virtually wiped out of existence by the General Medical Council when the abolition of the old-fashioned apprenticeship was decreed. It is still open to the senior student, it is true, in his last year, to avail himself of this opportunity; but the fact remains that but an infinitesimal proportion of the general body of students do avail themselves thercof, and as a rule the newly-qualified man has to learn it as best he may on commencing practice. It seems to be forgotten that dispensing is an indispensable department of the practice of medicine, even though the practitioner may not take up a class of practice in which dispensing is admissible. A practical knowledge of pharmacy is a necessary step to writing good workable prescriptions, and the decay in the standard of prescription-writing which characterises the present generation of medical men is directly attributable to their want of instruction in this department.

The result is seen in the ever-increasing disposition to have recourse to ready-made preparations of which the manufacturing chemist is yearly becoming more profuse. In France, where dispensing has always been more or less tabooed, the empire of the specialty is absolute, and prescribing proper is a lost art. We are not concerned to deny that dispensing "pays," but that fact—if fact it be—is rather another argument in support of the contention that better provision should be made for teaching it. What with doctors who have never learned to dispense, and unqualified dispensers who have had no practical training in their duties, it is something to be thankful for that accidents are so rare, and disaster so infrequent. Room ought to be made in the curriculum for the subject, and we would appeal to the members of the General Medical Council to see that the subject receives the attention it deserves.—*Medical Press.*

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PHARMACISTS AS TRADERS.

THE recurrence of cases under the Sale of Food and Drugs Acts, in which the defendants are charged with supplying medicinal preparations not in accordance with the British Pharmacopœia standards, brings prominently forward the question of what the position of registered chemists should be with regard to those standards. The defence usually raised in the cases referred to is (1) that the British Pharmacopœia is not a legal standard under the Sale of Food and Drugs Acts; (2) that the preparation was made strictly in accordance wtth the official formula, but has deteriorated on keeping; (3) that it has been sold in the same condition as that in which it was purchased; (4) that the Pharmacopœia includes no proper standard for the preparation in question; (5) that the purchaser has not been prejudiced by the sale of the preparation. Any of those points may be raised in defence and, if skilfully argued, may result in the case being dismissed. But, from the strictly pharmaceutical point of view, it is a question for serious consideration whether—in the event of any medicinal preparation sold by a registered chemist being really deficient in strength or quality—the defendant would not act more wisely to plead guilty and promise to do his utmost to avoid getting into similar trouble in the future.

There is not the least doubt that the British Pharmacopœia ought to be regarded by everyone engaged in the practice of pharmacy in this country as the official standard for all drugs and preparations referred to therein, when those drugs and preparations are intended for medicinal use by human beings. It is quite true that the Pharmacopœia is not a legal standard under the Sale of Food and Drugs Acts, and that it is only a standard under the Pharmacy Act, 1868, in so far as concerns the compounding of official medicines. But pharmacists, as professional men, should be the first to recognise the desirability of having all medicinal articles in accordance with "one uniform standard and guide," so that medicines may be dispensed consistently in whatever part of the British Empire the prescriptions may be presented. They should, therefore, make it an article of faith to consider the British Pharmacopœia as the invariable standard for all drugs and preparations used for medicinal purposes and referred to in the book. It is safe to assume that the great majority of registered chemists are of that opinion, and that they take every care to guard against any departure from that standard. But accidents may occur, even in the best regulated establishments, and, if ever a chemist should occupy the unfortunate position of a defendant in a case under the Sale of Food and Drugs Acts, it will be as well that he should meet the difficulty in a proper professional spirit, rather than as a mere trader.

In the first place that line of conduct requires the abandonment of any idea of pleading that the Pharmacopœia is not a proper standard; it is morally so, if not legally, and the pharmacist, as a professional man, simply cannot afford to have it thought that he ever supplies drugs and preparations for medicinal purposes, other than in strict accordance with the Pharmacopœia. Neither can he, with justice to his professional reputation, urge in extenuation of an offence that a preparation was originally made in strict accordance with the official formula, but has since deteriorated. The idea of such a thing being possible should be scouted by anyone who has the least respect for his professional status and technical skill. It should be impossible in the ordinary course for any pharmacist to use or sell an inferior medicinal preparation; if deterioration cannot be prevented, the preparation should promptly be taken out of stock, and replaced by something more satisfactory. Similarly, it is difficult to see how any conscientious pharmacist can plead before a magistrate that defective medicinal articles supplied by him—and for which there are official standards—were purchased from a wholesale house and sold in the condition in which they were received. Even though the exigencies of business should compel the retail chemist to purchase ready-made what he ought to prepare himself, it is none the less incumbent upon him to sell all medicinal articles with a personal guarantee. If he must buy certain preparations which he ought to make, as a professional man he is confronted with the obvious duty of testing what he purchases before handing it over to the consumer. There is no escape from that position for a self-respecting individual, and a due acceptance of it will save registered chemists much trouble besides going far towards securing for them that recognition which many of them are—somewhat unreasonably—inclined to claim as an inherent right. Public recognition is the reward of work done or services rendered in the public interest, and it implies something more than merely passing a qualifying examination and securing registration as a chemist and druggist.

With regard to the fourth and fifth grounds of defence, it may not be unreasonable for registered chemists to urge them if the facts thoroughly justify such a course. Some public analysts are apt to read into the British Pharmacopœia more than is to be found in that work; they suggest standards of strength, and attempt to persuade magistrates that those standards are reasonable ones before they have secured official recognition. In such instances, it is necessary that the interests of pharmacists as a class should be stoutly defended, and that the public analysts concerned should be made to understand that they are not the

persons authorised to fix standards. Their duty is to test articles alleged to be other than in accordance with recognised standards, and to report thereon without adding unjustifiable comments. Anything beyond that should be left to the proper and legally-constituted authorities. The question of prejudice is chiefly a medical one, so far as drugs and medicinal preparations are concerned, and it is probably in but few cases that the defence of lack of prejudice should be raised by a pharmacist. The Pharmacopœia monograph may be wrong, or its sense may be strained, and a report of a well-argued case may afford the pharmacist the only remedy he can secure. But unless the plea that the purchaser has not been prejudiced is thoroughly justified, it should not be advanced. Indeed, to end by repeating a statement made at the beginning of this article, it is a question for serious consideration whether a pharmacist should ever defend a case under the Sale of Food and Drugs Acts when an article he has supplied for medicinal purposes is not in accordance with the British Pharmacopœia.

THE PRESIDENT AND THE COMPANIES BILL.

THE PRESIDENT'S assault on the Board of Trade, which was published in last week's issue (see p. 606), may have escaped notice owing to the holiday season, and it may, therefore, not be inappropriate to refer chemists and druggists to the full text of the carefully prepared statement which has been forwarded to the President of the Board of Trade. Briefly summarised, the letter urges the following considerations :—(*a*) That the Department formerly deemed the representations of the Society to be outside the scope of the investigation with which the Companies Committee was charged; (*b*) that since that decision was given, the LORD CHANCELLOR and the late Lord HERSCHELL have clearly expressed the opinion that the condition of the law which permits a company to do what an individual without personal qualification cannot legally do, is not compatible with the safety of the public, and that amendment is imperative ; (*c*) that the LORD CHANCELLOR has given practical support to his opinion that the amendment should be effected through the medium of a Companies Bill, by inserting a clause dealing with the subject in last year's Bill; (*d*) that as the subject of Company Legislation will shortly be again engaging the attention of the Department, the views of chemists and druggists should receive further careful consideration; (*e*) that those views embodied two principles, viz., the prohibition of the use by companies of the personal titles mentioned in the Pharmacy Act, 1868, and the undesirability, from a public point of view, that an unregistered person should be permitted to exercise any control over the retailing, dispensing, or compounding of poisons. The action of the PRESIDENT should commend itself to all registered chemists, and it should also disabuse the minds of any pessimistic spirits who may have been disposed to think that the Council never did and never would give any outward sign of vitality in the matter of company trading.

ANNOTATIONS.

THE END OF THE YEAR 1899 finds British pharmacy in a vastly superior position to that which it occupied twelve months earlier, although the chief problem which has attracted attention during the year yet remains as far off solution as ever. The adoption of poison regulations in January marked an important step in advance, and was indicative of a strong desire on the part of the Pharmaceutical Society to neglect no precaution which may place the dispensing and sale of scheduled poisons beyond the risk of accident. It is safe to say that, so far as concerned registered chemists generally, the public interests were already sufficiently safeguarded; but, by the adoption of formal regulations, advertisement of that fact was secured. No inconvenience appears to have been caused to any chemist by the carrying out of those regulations, and the forebodings to which utterance was given by several prophets of evil seem to have been based upon the assumed reality of purely visionary difficulties. To sum up the effects of adopting the regulations, the Pharmaceutical Society did its duty, the Government has been favourably impressed and its assistance bespoken for further pharmaceutical reforms, whilst the medical profession and the public have had a striking practical illustration of what pharmacists are prepared to do for the general welfare. Last, but not least, the practice of pharmacy has been shown publicly to have attained to something more than a mere trade in drugs and sundries, and the position of pharmacists as professional men has been advantageously affected in due proportion.

THE THOROUGH PHARMACEUTICAL INCORPORATION which was rendered practicable by the Pharmacy Act, 1898, has not yet been brought about, but there has been a wonderful stirring of the dry bones during the year just ending, more perfect organisation in pharmacy having been recognised as a neccssity of the times. Greater interest than usual was taken in the Council election last May and the work of the Council has probably been more closely scrutinised, month by month, than at any former period. The leaven of organisation has spread throughout the length and breadth of the land, many more local pharmaceutical associations being now in existence than of old, whilst towns and districts where no associations exist have found a means of expression in the Federation of Local Pharmaceutical Associations. That body has given sufficient reason for its existence in a variety of ways, but chiefly by securing the simultaneous discussion of serious matters in all important pharmaceutical centres throughout Great Britain. The latest of its exploits was to evoke expressions of opinion regarding the company pharmacy problom from the registered chemists of more than seventy important towns and districts. The opinions so collated, having been published in the Journal and submitted to the Council of the Pharmaceutical Society, may be expected to exert no slight influence on the course of events—so far, at least, as that can be influenced from the pharmaceutical side.

THE ALL-ENGROSSING TOPIC OF THE YEAR has naturally been that same company pharmacy problem. A profusion of ways and means for its solution have been suggested and considered, but as at the outset of the present agitation, so now—events wait on the position which the Government may take up in the matter. Strict justice demands that the use of any title indicating qualification under the Pharmacy Acts should be restricted to individuals who can be examined and registered in accordance with those Acts; also, generally, that no association of unqualified persons should be permitted to do what is forbidden by the law to those persons individually. Expediency, however, as voiced by several leading pharmacists, suggests that whilst all pharmaceutical titles must certainly be protected, it may be found desirable to agree to some compromise with regard to keeping open

shop for the dispensing and sale of scheduled poisons. The actual sale of those poisons, they point out, is already fully restricted to duly qualified individuals, and the Legislature may be expected to consider that sufficient for the protection of the public without interfering with the keeping of open shop for selling poisons by joint-stock companies. In that case, they urge, it may be found extremely difficult, if not impossible, to stem the tide of trade development, as illustrated by the spread of company trading and particularly by the growth of company pharmacy. Opinion is thus divided within the pharmaceutical camp, and what the end will be it is impossible to foretell or even to surmise at the present moment.

The B.P. Preparations of Ipecacuanha are the subject of observations by Mr. R. G. Guyer (see p. 622), who furnishes some startling figures. There may be a slight loss of alkaloid in the deposit which forms when liquid extract of ipecacuanha B.P. is first prepared, but that should be allowed for, and can hardly be so serious as that shown by the author, namely, a loss of 26·5 per cent. of the total alkaloid in two months. That it is possible to prepare a liquid extract which shall remain fairly constant in alkaloidal strength is evident from the fact that the B.P. preparation obtained from a wholesale firm eighteen months ago is still bright, and contains the full amount of alkaloid. In that sample, the total alkaloid amounted to 2·1 per cent. As the author does not state the method adopted in the analysis it is presumed that the inaccurate method described in the Pharmacopœia was employed. It is necessary to be certain of the analytical work. That this suggestion is not unnecessary is apparent from papers frequently published, which show the want of careful manipulation in alkaloidal determinations. It is true that emetine and cephaeline, as has been shown in Paul and Cownley's papers on the chemistry of ipecacuanha, are very prone to alteration when exposed to light or heated in alcoholic solution—for the latter reason the B.P. process is faulty—but that is more a molecular change than a decomposition likely to affect gravimetric determination.

The War in South Africa has become of direct interest to pharmacists, as such, by reason of the War Office authorities having been compelled to advertise for compounders of medicines to serve at the front. As the *Morning Herald* puts it, "Should a chemist and druggist, or a dispenser of three years' experience, who is over 21 and under 35 years of age, be of a patriotic and not money-grabbing disposition, here is a chance for him. The War Office will give a salary of 3s. 6d. per day, a free passage to the Transvaal, kit, rations, and quarters, and at the end a gratuity of three months' pay for his services in the military hospitals as a compounder of pills, potions, and powders for the sick and wounded Tommies, and the equally afflicted Boer prisoners. The patriotic chemist will, as will be seen, not become rich beyond the dreams of avarice, but he will have a pleasant sea-trip, see a bit of the world possibly have a fairly exciting time, and do a good service to his country." Whether patriotism will so far overcome self-interest as to induce properly qualified pharmacists to apply for the position offered is more than doubtful, as the views expressed by Mr. J. B. Guyer (see p. 640) are likely to be entertained generally in pharmaceutical circles. It will be observed (see p. 634) that there is a marked contrast in the two qualifications which the authorities propose to recognise, and it can hardly be regarded as a compliment that the alternative to having passed the qualifying examination of the Pharmaceutical Society is of such a distinctly inferior type.

Dispensing Extraordinary has resulted in the death of two patients at the Crumpsall Workhouse Hospital (see page 634), solution of strychnine having been dispensed in mistake for spirit of nitrous ether. According to the evidence of the chief dispenser, solution of strychnine had, by some unknown means, got into the spirit of nitrous ether bottle, but the Manchester City Coroner, who presided at the inquest subsequently held, is reported to have said that the evidence before the jury made it extremely difficult to fix the responsibility for the mistake that had been made. It lay between three persons—the chief dispenser and his two assistants. They all denied having made any mistake, but two lives had been lost owing to the lack of systematic arrangements in the dispensary. It has been held, the Coroner pointed out, that a dispenser who mixes poisonous medicine by mistake is guilty of criminal negligence, and the jury was therefore advised to consider the case carefully before liability was fixed on anyone. There was no doubt that death was caused by strychnine poisoning, or that the mistake arose from putting solution of strychnine into the spirit of nitrous ether bottle. The question the jury had to decide if possible was who made the mistake. After consultation in private the jury returned a verdict that the deceased men met their deaths through misadventure, by strychnine poisoning, and that in consequence of the lax system which prevailed in the dispensary it was impossible to fix the blame upon any individual. It is satisfactory to learn that the matter has since been brought before the Manchester Board of Guardians for further consideration.

So-Called "Temperance" Drinks were at one time supposed to be free from alcohol, but, in view of the evidence of a public analyst, Professor A. Wynter Blyth, before Sir Herbert Maxwell's Committee on Preservatives and Colouring Matters in Food, old-fashioned teetotal notions seem to need modification. Professor Wynter Blyth stated that he had found salicylic acid in certain "fizzy" drinks, used apparently to arrest alcoholic fermentation, or, as he explained, so that the "temperance" beverage might be almost free from alcohol. According to the *Daily Telegraph*, "the inference would appear to be that such drinks are 'cups that inebriate,' if only they have time to develop their power," and, it may be added, if substances that check fermentation are not added to the liquids. Another witness, Mr. Richard Bannister, late Deputy Principal of the Inland Revenue Branch of the Government Laboratory, also stated that salicylic acid was chiefly used in British wines and other liquids in which there was not sufficient alcohol to make them clear and bright. Sulphurous acid in one form or another was said to be used in beer to give and preserve its character—to make it of a nice bright colour.

Mr. Jesse Boot as an exponent of the just (?) claims of the assistants employed in the drug stores conducted by the company which he represents is decidedly amusing. The registered chemists of Nottingham have been at considerable trouble and expense to provide for their assistants and apprentices, at University College, a course of study suitable for the requirements of candidates for the Minor examination. For good and sufficient reason, no one is admitted to those classes unless he is an associate of the local Pharmaceutical Association and in the employment of a legally qualified chemist. Mr. Boot, however, objects to those conditions, and has written to the local newspapers to complain of the restriction which excludes the employees of his company from sharing the benefits of the classes. He writes about the "injustice" which excludes those employees from "pharmaceutical study specially designed for chemists," conveniently ignoring the fact that he and his unqualified partners and assistants are not chemists. In reply, Mr. Eberlin, hon. secretary to the local association, has pointed out that Mr. Boot has his remedy for the matter he complains of entirely in his own hands, namely, "to qualify himself as a chemist." And, though the remedy suggested in such brief terms would probably not prove entirely effective, we are cordially at one with Mr. Eberlin in defending the restriction of privileges to those who are properly entitled to them.

ENGLISH NEWS.

ARMY DISPENSERS WANTED.—A notice has been posted at the War Office, intimating that compounders of medicine are urgently required for service in South Africa. The conditions of enlistment will be as follow: (1) For one year unless the war lasts longer than one year, in which case they can be detained until the war is over. If, however, the war is over in less than one year they may either be discharged at once or remain until they have completed their year's service at their option. (2) Pay 3*s.* 6*d. per diem*, free rations, kit and passage to and from South Africa, and a gratuity at the end of the campaign of two months' pay. (3) Age, 21 to 35 years; height, 5 ft. 3 in. and upwards; chest measurement, 33 in. and upwards; weight 115 lb. and upwards. (4) Qualifications.—A certificate of Minor examination of Pharmaceutical Society of Great Britain; in default thereof a certificate that the candidate has been practically employed in the dispensing of medicines for three years and that he has performed his duties in a satisfactory manner. (5) Each candidate when attested to be sent direct to the Depôt Royal Army Medical Corps at Aldershot to be clothed and put under training in drill and discipline until embarkation. (6) Married men who enlist under these conditions will be treated as men married with leave for whom no accommodation is available at quarters. (7) In addition to the gratuity specified in paragraph 2 they will receive any general gratuity that may be granted to the troops at the conclusion of the campaign. (8) Men who are desirous of joining the Royal Army Medical Corps under the above conditions should apply either personally or by letter to the recruiting staff officers, London, W.C., Liverpool, Manchester, Birmingham, or Edinburgh.

SHEFFIELD PHARMACEUTICAL SOCIETY.—On December 20 Mr. J. W. J. Turner lectured before the members of the Sheffield Pharmaceutical and Chemical Society on "Fruits, Rare and Interesting." Mr. George Squire, the President of the Society, occupied the chair. Mr. Turner explained that his object in giving the lecture was to draw attention to many fruits that are not met with in commerce. He said that one reason why people in England did not get so many succulent fruits was probably because they would not stand the transit. Consequently they were only met with in English hot-houses. The lecturer showed about forty lantern slides, mostly illustrative of foreign fruits, and explained their external structure and their uses. The fruits in their natural state were generally small, but they were improved by cultivation, grafting and pruning. Mr. Turner also exhibited a number of dry fruits with edible seed. The lecture proved very interesting, and Mr. Turner was warmly thanked at the close.

LONDON COLLEGE OF PHARMACY.—We are requested to announce that the College Dinner and Distribution of Prizes will be held at the Holborn Restaurant, on January 22, when Mr. T. Skewes-Cox, M.P., J.P., will preside. Students and friends wishing to attend are requested to communicate with the Principal as early as possible.

DEFICIENT CAMPHORATED OIL.—At Hinckley Petty Sessions, on Thursday, December 21, William Pridmore, chemist and druggist, Hinckley, was summoned for selling camphorated oil deficient by 2 per cent. of camphor, and otherwise below the standard, cotton-seed oil having been substituted for olive oil. For the defence it was stated that the oil used was purchased as pure, and the absence of 2 per cent. of camphor was due by evaporation.—Thomas Pratt, grocer, Hinckley, was also summoned for a similar offence.—Supt. Shillcock stated that he took the sample, and had the same analysed, when it was found to be diluted with mineral oil. He had taken samples before from defendant's premises, but had previously had no cause of complaint. The Bench dismissed both cases on payment of costs, remarking that the magistrates were bound to protect the public.

THE SALE OF POTASH WATER.—At Swindon Petty Sessions on Thursday, December 21, the adjourned cases against William Evans, described as a chemist, of Market Street, New Swindon, and Joseph Henry Green, chemist and druggist, Wood Street, Swindon—for selling potash water not of the nature and quality demanded—were resumed. Mr. H. Bevir prosecuted on behalf of the Wilts County Council, and reminded the Bench that the cases had been adjourned to enable Dr. Bernard Dyer and Mr. Stoddart (Bristol city analyst) to make a joint examination of the water (see *ante*, p. 534*c*). Dr. Dyer said he had examined the sample with Mr. Stoddart, and they agreed that it was practically destitute of potash, but contained soda in the proportion of five grains to the pint. Mr. Henderson (Bristol), for the defence, suggested that in view of the divergency of opinion on the part of the analysts, as disclosed at the last hearing, the magistrates ought not to convict. The Bench, however, was unanimous in convicting, and imposed fines of 1s. and costs.—The Chemists' Aërated and Mineral Waters Association, Limited, of Gifford Street, Caledonian Road, London, was summoned at the same Court under the Merchandise Marks Act for applying a false trade description to a syphon of aërated water supplied to William Evans, of Swindon.—It was stated for the prosecution that the label on each syphon represented that the water contained five grains of bicarbonate of potash to each pint.—Mr. Henderson, for the defence, said that by some inadvertence a potash water label had been placed on a bottle of soda water. There was no object in wilfully adopting that course, as the prices of the two waters were almost the same.—The Chairman said the Bench found in this case that soda water was sold in place of potash water, and on that finding it could not convict.—The Clerk: In other words that no false trade description was applied to these goods.—The Chairman, in answer to Mr. Bevir, said the Bench would state a case if it was thought desirable to take the matter elsewhere.—There was a second summons against the company for applying a false trade description to a syphon supplied to Joseph Henry Green.—Dr. Dyer said the sample examined was practically destitute of bicarbonate of potash, but contained 2 grains per pint of bicarbonate of soda.—Mr. Groom, for the defence, suggested that the deficiency arose through insufficient mixing in the tank.—The Bench imposed a fine of 10s. and costs.

FATAL DISPENSING MISTAKE.—On Wednesday, December 20, the inquest was concluded upon two inmates of Crumpsall Workhouse Hospital, named John Smith and William Wharton, whose deaths were caused by the administration of strychnine as medicine in mistake for nitrous ether (see *ante*, p. 610*c*). It appeared that eight other patients had shown symptoms of poisoning on the same occasion, but the results had not proved fatal.—A large number of witnesses were called, including two nurses who administered the medicine, and others who spoke to the disposition of the various medicine bottles in the dispensary, in the selection of one of which it was stated the mistake had been made.—One of the assistant dispensers deposed that there was nothing to tell who had dispensed the bottles of medicine in question.—The jury returned a verdict of "Death from misadventure from strychnine poisoning, but that in consequence of the lax system which obtained in the dispensary, they were unable to fix the blame on any individual."—The Foreman added the recommendation of the jury that the poisons should be kept in differently shaped bottles, and that the initials of the dispenser who last filled them should be shown on the bottles.—The Master of the Workhouse, Major Ballantine, promised that those recommendations should be carried out.——

At the fortnightly meeting of the Manchester Board of Guardians, on Wednesday, Alexander Currie, assistant dispenser at Crumpsall Workhouse, resigned his position, having been acccpted as a dispenser at the seat of war in South Africa. He statcd that his resignation must not be construed as an admission of any kind in connection with the late disaster in the workhouse infirmary, which was deplored by no one more deeply than himself, no matter wherein lies the blame. He asked to be as liberally dealt with as possible as regarded pay, but Currie having been paid up to the day he left, the Board considered this a full discharge of their responsibility. Referring to the recent poisoning cases at Crumpsall Workhouse, the Chairman (Mr. Geo. Rooke), expressed his great regret at the occurrence.

Camwal Annual Meeting.—At the annual meeting of shareholders, held on Tuesday, December 19, at Anderton's Hotel, Fleet Street, E.C., the directors' report and the balance sheet (see *ante*, p. 588*b*) were unanimously adopted, the dividend proposed being agreed to. With regard to the annual sum of £50 which it has been usual to vote to the directors, who have then presented it to the Pharmaccutical Benevolent Fund, it was stated that the directors would this year be content with their usual fees without addition. They had come to that decision because many of their employees were Reservists, some of whom had been called out, and as the directors were keeping their situations open, and were assisting their wives during their absence, they might want a large sum for that purpose. The meeting thoroughly agreed with that decision. On the proposition of Mr. Nicholls, the retiring directors, Messrs. H. Davenport and A. Gould, were re-elected, as were also the auditors.—The meeting then resolved itself into an extraordinary general meeting, to consider the reconstruction scheme, and after some discussion, it was decided to wind up the old company and to form a new company to be known as "Camwal, Limited." An extraordinary general meeting of the company to confirm this decision is announced to take place at Anderton's Hotel on Tuesday, January 9, at 3 o'clock.

British Optical Association.—At the last council meeting of this Association, the names of thirty-one gentlcmen were passed for membership, including five chemists, viz.:—Thomas Mackenzie Inverness; R. H. Groves, Blandford; W. C. Gowans, Brechin; J. H. Nicholson, Oswestry; Daniel Evans, Ruabon. We are requested to state that the address of the offices and headquarters of this Association in future will be Piceadilly Mansions, 17, Shaftesbury Avenue, London, W.

Obituary.

Cheetham.—On December 22, The Right Rev. Henry Cheetham, D.D., formerly Bishop of Sierra Leone, died at his residence at Bournemouth, aged 72 years. The son of a Nottingham manufacturer, he was brought up to pharmacy, and was for some years an assistant with the late Mr. Thomas Harvey, of 13, Briggate, Leeds. He showed great interest in church work, and was Superintendent of the St. George's Sunday Schools, ultimately deciding to enter St. Bees College, and was ordained in due course. After holding the vicarage of Quarndon, Derbyshire, for twelve years, he was appointed Bishop of Sierra Leone, and held this position from 1870 to 1881.

Copney.—On Friday, December 22, suddenly, William Copney, of Lavender Hill, Pharmaceutical Chemist. Aged 79. Mr. Copney was a student in the School of Pharmacy in 1848 and gained the first prize for Materia Medica (lectures) in that year; the late R. W. Giles taking thc corresponding prize for laboratory work in the samc subject. In 1850 he carried off the first prize for Chemistry and Pharmacy, and passed the Major Examination—a natural result, perhaps, after a thrce years' curriculum and painstaking work. They did not hurry things in those days, and no one was called upon to compress the honest work of three years into a period of as many months. For many years subsequent to his school career, the Society had no more loyal supporter or active partisan than William Copney, and his warm interest in its work was manifest almost to the closc of his life. Not very long ago he presented to the Society a drawing taken from Blackley's well-known painting of "Faraday at the Royal Institution," and in the early days of the Museum he was a frequent contributor of interesting specimens. For some time he was Secretary of the Museum of the Royal College of Physicians, a position which naturally led him to interest himself rather deeply in materia medica collections. Mr. Copney was a man of considerable culture, artistic instinct and wide reading, and was never so happy as when engaged in reading, writing, or conversing on his favourite subject of meteorology. In the earlier numbers of the *P. J.* may be found several papers on thc subject from his pen, and he claimed to be the originator of the graphic method of recording barometric and thermometric readings now universally adopted in the daily press. To the knowledge of pharmaceutical science he contributed the following papers, which are published in the *P. J.*:—"Formation and Growth of Crystals"; "Nitrate of Silver and Tannic Acid in Pills"; "Test for Carbonate and Iodate of Potash in Iodide of Potassium"; "Chemical Tests for Strychnine"; and "Iodide of Antimony." Mr. Copney met with very evil fortune some ten years ago, and was compelled to have recourse to the Benevolent Fund. He was elected an Annuitant in 1889, and it should be a source of some gratification to subscribers to the Fund to know that they have been instrumental in rendering the poor gentleman's latter years less hard and less burdensome than they would otherwise have been.

Griffits.—On December 12, John Alonza Griffits, Chemist and Druggist, Torrington. Aged 57. Mr. Griffits had been connected with the Pharmaceutical Society for many years as an associate, and latterly as a member.

Mount.—On December 16, William Mount, Pharmaceutieal Chemist, Canterbury. Aged 78. Mr. Mount, who had been a member of the Pharmaceutical Society since 1853, was, until a few years ago, one of Canterbury's best known and most active citizens, and was three times Mayor of the city. Mr. Mount was a talented musician, and for twenty-one years held the band-mastership of the Royal East Kent Mounted Rifles. He was a noted amateur rose grower, and was also a keen lover of sport; one of his hobbies being the breeding of setters, which he carried on with considerable success. He was a Justice of the Peace, and up to November, 1898, was an Alderman of the city, having been raised to the Aldermanic Bench in 1886.

Pumphrey.—On December 19, at Bournemouth, Arthur Pumphrey, Pharmaceutical Chemist, late of Weston-super-Mare. Aged 37. Mr. Pumphrey had been a member of the Pharmaceutical Society since 1885.

Thompson.—On Dccember 24, Andrew Thompson, Pharmaceutical Chemist, Carlisle. Aged 75. Mr. Thompson had been a member of the Pharmaceutical Society since 1846, and was for many years the local secretary, always supporting the aims and views of the Society and furthering the interests and welfare of his fellow craftsmen. He was a native of Carlisle, and was one of the oldest and best known tradesmen of the city. He took a keen interest in the municipal affairs of the city, and until a short time ago was a very regular attendant at the meetings of the Town Council, of which he was a member as Councillor or as Alderman from 1871, and also at the meetings of the Health Committee. He was also a member of the Burial Board. He was a member of the Carlisle Subscription Bowling Club, and on one occasion won the championship pair of bowls. His death occurred suddenly during the night from failure of the heart's action. It is interesting to note that Mr. William Martindale, President of the Pharmaceutical Society. worked for three years in Mr. Thompson's pharmacy.

SCOTTISH NEWS.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The weekly meeting of this Association was held on December 22, Mr. J. P. Gilmour, President, in the chair. Mr. M. Meldrum, Ph.C., read a paper on "Reproduction in Plants." Beginning with schizoporous forms, the author went on to describe in general terms the leading laws and modes of asexual and sexual propagation among Cryptogams and Phanerogams, more particularly in relation to the facts of the alternation of generations in the Thallophyta and Pteridophyta, and to the homologies in the sexual members of Cryptogams and Phanerogams which go to prove their community of descent from a single archaic type. Having glanced at the problem of the origin of sex, the essayist gave an outline of some of the more striking and elaborate mechanisms for securing self- or cross-fertilisation in flowers, with an account of the essential steps in the process of pollination. In conclusion, he spoke of the immense importance of the datum of evolution in this as every other study of organic nature. The Chairman complimented Mr. Meldrum warmly upon the virtues of expression and compression which his paper had displayed. The history of the discovery of reproductive processes in animals and plants was a striking proof of the power of positive knowledge in dispelling illusion or imposture. It seemed but yesterday that the belief in heterogenesis held the field, and now as regards all the living forms known to us, it was quite discredited. The genetic affinities of the great sub-kingdoms and classes of the plant world were being worked out with conclusive results, and as a case in point he might quote the discovery by two Japanese biologists of the presence in certain Gymnosperms of a motile male gamete, a fact which linked that group with the Cryptogams. Mr. B. Cockburn, Ph.C., in the course of an instructive sketch of the process of the fertilisation of the ovum, mentioned the latest discovery as to the destination of the second generative nucleus. As they were aware, the pollen-tube contained two generative nuclei. One of these fused with the nucleus of the oosphere to form the zygate, but hitherto they had had no information about the fate of the other generative nucleus. It was now ascertained that it moved through the embryo-sac and, without previous division, fused with the pro-nucleus to form the secondary nucleus. The meeting closed with a vote of thanks to Mr. Meldrum.

ANNUAL SOCIAL.—The employees of Messrs. Raimes, Clark and Co., Edinburgh, held their annual social in Trafalgar Hall, Henderson Street, Leith, on Friday, December 15. Mr. Clark presided, and Messrs. Davies and Cunningham officiated as croupiers. After an excellent tea, an interesting programme of vocal and instrumental music was carried through, those contributing being Misses Amos, Barnetson, Clark, and Montgomery, Mrs. Donaldson, and Messrs. J. H. Davies, A. Donaldson, Gibb, and Jamieson. Misses Davies and Hill proved efficient accompanists. The programme included a cinematograph entertainment. An assembly followed, Mr. Hutton acting as M.C., and dancing was kept up to an early hour the following morning.

AERATED WATERS IN HOSPITALS.—The Hospitals Committee of the Glasgow Corporation has recommended acceptance of the offer by the Volcanic Aeration Company, 203, Great College Street, Camden Town, London, to fit up the necessary apparatus for the manufacture of aerated waters at the hospital, the amount, including expenses, superintending, fitting up, etc., £54 8s. 6d.; as also for the supply of 500 syphons and 50 cases to be marked "Belvedere Hospital,"—cost £49 11s. 8d.

IRISH NEWS.

QUACKERY IN EDUCATION AND MEDICINE.—Professor Leebody recently told the Irish Intermediate Commissioners, apropos their education system, "that a patient suffering from a malady of a particular kind was greatly benefited by a particular sort of medicine; but when the patient recovered, in spite of the beneficial results in the first instance, if the medicine was still continued, evil instead of good results would follow." Succinctly put. But the patent medicine vendor's bribed medium, after being cured by seven boxes or bottles, always continues to imbibe the virulent concoction.

POISONING BY SULPHURIC ACID AND LAUDANUM.—An inquest was held regarding the death of Mary Jane Lyons, aged thirty, at Toomebridge. It appears deceased went to Randalstown, and, feeling very cold on her return, took some vitriol in water to heat her up, some time after taking a small quantity of laudanum. Subsequently the woman was taken ill, and died a few days later. Sulphuric and laudanum! Why such an incompatible combination? Antidotic drugs, mutually destructive in their medicinal effects. The one stimulating liveliness, the other inducing lethargy. The only prescription it recalls is that administered by the Oracle on the "Quaker City," mentioned by Mark Twain:—"Four tablespoonfuls of laudanum to put the patient to sleep, and a mustard plaster, about the size of a saddle, applied to the spine of the back to wake him up again." The sequence is important.

CIRCUMSTANCES ALTER CASES.—This applies especially to medical cases, for doctors' fees are regulated by many standards and influenced by many contingencies. Dr. George Gibson, Donaghadee, sued William Milliken, Royal Avenue, Belfast, to recover £3 3s. for professional attendance. The doctor proved account. In cross-examination he admitted having refused to give any explanation as to his charge. Three years ago he had charged defendant 2s. 6d. a visit, it not being a consultative visit in the ordinary sense, and also because he did not know defendant's exact position. His present charge was 10s. 6d. a visit. His fees varied according to patients. Servants and fishermen he charged half-a-crown; to people in the plaintiff's position half-a-guinea. After some further questioning his Honour gave a decree for the full amount.

DENTAL NOTES.

FOR CASES OF SEVERE HÆMORRHAGE following extraction W. H. Dolamore advocates, in the *Journal of the British Dental Association*, the passing of sutures from the gum on one side of the tooth socket through that on the opposite side, and tying them together as tightly as possible. The clot is retained, the thread possibly hastening its formation; the stitches are left in for a few days. In cases where there is much laceration of the gum, and the alveolus is broken or removed during the extraction of the tooth, it is possible, with the stitches, to draw together the edges of the wound and so lessen its size considerably. He recommends the use of a curved needle, which should be rather strong, for the gum is dense, and the needle is apt to strike against the opposite alveolar wall. Horsehair answers well for the sutures; it should be strong and used in long pieces. Two or three stitches suffice, each being passed through the gum on one side, then through that on the other, and separately tied.

IN TAKING PLASTER IMPRESSIONS let the patient thoroughly rinse out the mouth with a little milk immediately before the tray is inserted, and there will be no need to use vaseline or glycerin.

FOREIGN NEWS.

The Nutritive Value of Sugar.—As a result of a series of experiments made by Leitenstorfer in the German Army, it appears that sugar is eminently suited to replace alcohol or wine. It affords, indeed, the same stimulation as alcohol, without, however, any of the latter's inconveniences. It has the advantage of being a muscular aliment of the first order, at the same time warding off fatigue. During the manœuvres the men who were fed upon sugar felt its benefit. They were more healthy and vigorous than before the administration of it. When marching, hunger and thirst were assuaged by a large piece of sugar. It has therefore been decided that sugar shall form part of the alimentation of the German troops in future.

Yolk of Egg as an Ointment Excipient.—M. le Docteur P. Unna, of Hamburg, advocates the use of a mixture of yolk of egg and almond oil in the proportion of two to three (2 : 3) prepared as one would make "mayonnaise." It constitutes an excellent ointment, into which may be easily incorporated 10 per cent. of the majority of medicaments used in dermatotherapy (sulphur-ichthyol, tar, starch, limewater, goulard, etc.). Such a pomade, on rapidly drying upon the skin, forms a very adhesive protective layer. It is specially useful in eczema, acne, and itch. To preserve it from decomposing, 1 per cent. of balsam of Peru should be added.

The Progress of Alcoholism in Paris.—Docteur Jacquet has just communicated to the Medical Society the results of an inquiry on which he has been engaged, into the progress of alcoholism in Paris. Dr. Jacquet's observations bore more particularly on the patients treated in the hospitals at Paris. Out of 4,744 cases personally investigated by the eminent physician 1,405, or 29·61 per cent., were found to be persons who habitually drank to excess, and whose malady, if not directly ascribable to alcohol, had been greatly aggravated by the abuse of stimulants. Moreover, Dr. Jacquet is convinced that the percentage given ought in reality to be higher. The patients are disposed to conceal their excesses—a fact especially noticeable in the case of women who, even when confirmed topers, stoutly maintain that they are models of sobriety. A striking feature of the situation is that the proportion of drunkards greatly augments when only the more serious cases treated in the hospitals are considered. Calculated on this basis the percentage of inebriates rises to 46. The perhaps unparalleled facilities for obtaining drink that exist in Paris, and the practice, rapidly becoming universal, of taking apéritifs, or appetisers, before meals, are considered by Dr. Jacquet to be among the principal causes of the alarming growth of the drink habit. Women—in particular those of the lower classes—are especially influenced to join the ever-increasing army of tipplers by the fact that the temptation to indulge in stimulants meets them at every turn. A great number of small tradesmen, especially greengrocers and coal-merchants, add to their income by selling intoxicants. Servants and others can thus obtain drink without frequenting the bars or wine-shops they would be ashamed to enter. Then, yet another class—who cannot well be styled small tradesmen—the pharmaciens, come in for condemnation, for they, too, are alleged to be capital offenders.

Pharmaciens are Accused of having taken advantage of the vogue acquired by certain much-advertised strengthening wines or "quinquinas" to push the sale of similar products of their own manufacture. Dr. Jacquet affirms that pharmaciens often persuade their customers to take one of those concoctions, which are merely strongly alcoholised wines sweetened and with an admixture of kola, in the place of prescriptions ordered by a doctor. This is a somewhat exaggerated assertion; doctors are greater sinners in prescribing various tonic wines as vehicles for their potions. But the craze for appetisers is more deadly still. It has spread to all classes of society, while the drinks swallowed under this pretext—absinthe, vermouth, and the various "bitters"—are the most pernicious forms of alcohol in existence. The increase in the consumption of absinthe—the most deleterious of all these filthy poisons—among the working classes is appalling. Many workmen have now reached the pitch of drinking absinthe with their meals, as well as taking it when they get up in the morning, and before lunch and dinner. Dr. Jacquet is of opinion—and rightly so, too—that the habitual taking of absinthe is responsible for much of the morbid irritability displayed by Frenchmen at the present day. There is, however, no possibility of getting into a Frenchman's mind the fact that his favourite "dram" is inferior to, and more injurious than, the much-ridiculed "Whisky des Anglais," or that the French as a nation are far and away ahead of all others as consumers of alcohol. But there are none so blind as those who will not see. Statistics fail to convince them.

Discovery of an Anti-Anæmia Serum at the Pasteur Institute.—One of the greatest discoveries of modern science has just been made at the Pasteur Institute. When the last details have been settled, science will have reached the point of abolishing most of the defects of old age, and, consequently, of prolonging life. Professor Metchnikoff, director of one of the sections of the Institute, is now engaged in seeking the accurate doses of a lymph, or rather, a series of lymphs, each of which will rejuvenate a particular organ of the human body. Professor Metchnikoff, like most men of science, is very modest, and has an antipathy to premature publicity. His explanations show, however, that he has already succeeded in solving the main problem. To begin with, Professor Metchnikoff's experiments show that the explanation of senile atrophy hitherto obtaining is erroneous. The theory was that certain blood cells devoured others when the vital functions began to weaken. The organic poisons thrown off energetically in youth were believed to remain in the system in old age, or at least to be less energetically ejected, and to poison the finer cells, while without action upon those of the conjunctive tissues. The noble cells died and became the prey of the others or plebeian cells, thus bringing about the atrophy of the organ where the metamorphosis took place. This explanation is erroneous. Professor Metchnikoff has discovered and proved conclusively that the noble cells are not dead in organs atrophied by senility, and, moreover, that they may be multiplied. By assisting them in their struggle with the plebeian cells they will continue to live as actively as in youth. Theoretically, the organism will cease to grow old, and in practice life will be prolonged.

The Discovery was Made in the following way:—Among Professor Metchnikoff's pupils is Monsieur Bordet, who last year published in the "Annales de l'Institut Pasteur" the results of a curious experiment he had made. Monsieur Bordet had injected the blood of a rabbit into a guinea-pig. Some-time later he injected the blood of this guinea-pig into a rabbit. The rabbit died. Professor Metchnikoff sought the causes of this phenomenon, and soon became convinced that the blood of the guinea-pig injected into a rabbit, or other vertebrate animal, elaborates a poison that weakens the red globules of the blood and makes them the prey of the phagocytes. Under the microscope one can see how the white globules devour the red and digest them. If one places the non-transparent, ordinary blood of a rabbit in a test tube, and add afterwards some of a guinea-pig's blood, before long the rabbit's blood becomes transparent, taking the colour of Bordeaux wine. Starting from the fact that the poison elaborated in the guinea-pig is fatal in large doses, Professor Metchnikoff argued that its action in small doses must be stimulating. Thereon is based the action of all medicines like strychnine, arsenic and so forth. Professor Metchnikoff, therefore began to inject into rabbits feeble solutions of previously injected guinea-pig's blood. The cubic-millimetre of blood in the rabbits thus treated contained before the injections 3,000,000 red globules. In three or four days that number increased to 8,000,000. A sovereign remedy against

anæmia had thus been discovered, and Professor Metchnikoff's theory concerning the red globules had been confirmed. His entire section at the Pasteur Institute is now working to find the specific serums for each particular organ. If the blood-serum act on the red globules, the liver serum must produce similar effects on the cells of the liver that of the brain on the brain, and so on. Experiments have demonstrated this. The specific kidney serum was found some few days ago, and Professor Metchnikoff is now determining the exact dose for medical purposes. The discovery has passed the period of mere laboratory experiments. The celebrated Dr. Vida is now at work on human serums. It is remarkable that so many of these discoveries are due almost to accident. It will be remembered that Dr. Roux's great discovery regarding diphtheria was worked on for four years in France and Germany, and was finally completed through a fact that had no relation whatever with the malady in question. When acquainted with the discovery Dr. Polaillon, of the Académie de Médicine, was inclined to be sceptical. "We must see, we must see," he said. "After all, however, it is not impossible," he added. "Organic creatures ought to live ten times as long as it takes them to reach maturity.' Elephants, according to Dr. Polaillon, are full grown in thirty years, and live three hundred years, and there are many other examples. Man, on the same principle, should live two hundred and fifty years, but he comes to a premature end owing to the conditions of life. Two and a-half centuries would be rather a long extension of the allotted span, but there is no reason why human life should not be materially prolonged by scientific discoveries. Horses, which by the same rule ought to live thirty years are, he added in reply to an objection, in the same condition as man.

ACADEMIE DES SCIENCES.—The annual meeting of the Academy of Sciences has been held at Paris, under the presidency of Monsieur van Tieghem, assisted by Monsieur Maurice Lévy Vice-President. In opening the proceedings, the President gave a *résumé* of the recent progress of science, and sketched the life and work of the members and correspondents of the Academy who had died during the year, viz.:—Messieurs Friedel, Naudin, Frankland, London; Bunsen, Heidelberg; Richards, London; Wiedemann, Leipsig; Marsh, Newhaven; Flower, London; and Ringenbach, Olten. Monsieur Marcel Bertrand, in place of his father, who was slightly indisposed, read a historic sketch of the life and labours of the astronomer, Félix Tisseraud, a former member of the Académie des Sciences.

MERCURIAL MASSAGE FOR RHEUMATISM.—A German doctor has devised a plan for massaging rheumatic joints. He takes the patient's hand and puts it into a deep glass receptacle which is two-thirds full of quicksilver. The mercury exerts an equal pressure on every portion of the fingers, and the pressure increases rapidly as the fingers sink further into it. The hand is alternately plunged and raised about twenty or thirty times at each treatment, and after a second visit there is a marked diminution of the swelling.

AN ACID-RESISTING PAINT.—A German paint for giving to wood great resistance to acids and steam under pressure, consists of two parts by weight of gypsum and one part of asbestos, stirred together with ox blood into a thick liquid. The paint is supplied evenly to wood perfectly dry. After a few hours another coat—with the addition of linseed-oil varnish—is given, and the work is dried by exposure for several days in the open air, or more quickly, over a wood fire. The paint is then steamed slowly, then dried for a considerable time. The coating adheres firmly, is cheap, harmless, odourless and tasteless, and therefore does not affect liquids in vessels covered with it.

AUSTRALASIAN NEWS.

(From Our Melbourne Correspondent.)

INTERCOLONIAL RECIPROCITY.—Notwithstanding a considerable amount of discussion at meetings of the various pharmacy boards and societies on the question of intercolonial reciprocity, recently revived by a circular letter from the Registrar of the West Australian Board, we seem to be hastening very slowly towards the much-desired consummation, the general feeling in the smaller colonies being apparently that some definite scheme should be formulated and submitted from the larger centres before they commit themselves to any decision. And with the failure of the negotiations entered into some two years ago in view, neither New South Wales nor Victoria seems inclined to take the initiative. Discussing a letter from the Pharmacy Board of Queensland, suggesting that a conference should be convened to discuss the subject, the New South Wales Board recently replied to the effect that while it was not adverse to equitable reciprocity, the idea originated in Victoria, whence should come the initiative. The Victorian Board, on the other hand, recognising that the Board of New South Wales was definitely invited, if not appealed to, by the Westralian circular to open the campaign, has been diffident about taking the lead; and at its last meeting resolved that a letter be sent to the N.S.W. Board, asking what course it proposed to adopt, as, until some expression of opinion had been given, the Victorian Board was unable to proceed further.

THE POSITION OF THE VICTORIAN BOARD.—There is unquestionably but little doubt that, had the Victorian Board been a shade more generous in meeting the claims of New South Wales as regards the recognition of those who were locally qualified on the grounds of a three years' apprenticeship, without examination, reciprocity might have been accomplished two years ago, and the *Australian Journal of Pharmacy*, in an editorial on the subject, strikes a note of warning in reference to further negotiations on this point. "One point becomes more strongly impressed upon us as time rolls on—namely, that existing rights must be recognised if reciprocity is to become a fact, and however unpalatable may seem the pill to those colonies who hold the opinion that the educational status of their men is superior to those who seek to stand upon equal terms with them, it is self-evident that the pill must grow larger with delay." Briefly put, the *A.J.P.* scheme for reciprocity is:—As regards registered men, the recognition of all colonial registers—deficiency of term of apprenticeship or of educational value of certificates, as compared with that of Victoria, to be met by a term of practice in business. The other colonies to put themselves in line with Victoria in obtaining amendments of their respective Acts, whereby intercolonial apprenticeship shall be recognised. And, as regards the future, all written examinations to be from papers set and valued by the same examiners (to be intercolonially appointed), the examinations to be held simultaneously. Were the two foremost colonies—New South Wales and Victoria—to agree to some such platform as this, their combined gravity would naturally attract the smaller ones, and reciprocity be speedily achieved. Well, we are hoping for the best.

THE VICTORIAN POISONS ACT AMENDMENT BILL was introduced into the Legislative Assembly and read a first time on September 6, but has not since been heard of. After it had apparently bade adieu to the Legislative Council, it was again recommitted on August 29, and after an animated discussion, a prominent part in which was taken by the Hon. F. S. Grimwade (Messrs. Felton, Grimwade, and Co.), Sub-section 3, Clause 4, was struck out. It provided that "no patent or proprietary medicine consisting of or containing any poison should be sold unless the bottle, etc., con-

taining the medicine bore, conspicuously printed or stamped thereon, the English name or names of the poison or poisons of which the medicine consisted, or which it contained, and the amount present." In opposing this sub-section Mr. Grimwade urged that it would put restrictions on trade which had never existed before, and which did not exist in any other English-speaking community. Victoria would be put under a great disadvantage if the provision were passed, and the other colonies had no such restrictions. It was not at all likely that the proprietors of these medicines would state what quantity of poisons they contained, or what the constituents of their medicines were. Several minor amendments, such as the addition of the words "within the meaning of the principal Act" after the word "poison" in several of the clauses, were also adopted; but, as it now stands, the Bill falls very far short of pharmaceutical ideals, and will prove a very unsatisfactory measure unless considerably modified in its passage through the Legislative Assembly.

Certification of Public Analysts.—Another gratifying illustration has been afforded of the important position in the Victorian educational system filled by the Melbourne College of Pharmacy. Some time ago, at the request of the Department of Public Health, facilities were provided at the College for a course of study for intending candidates for the certificate of public analyst, and the first examination—the first of the kind ever held in the colonies—was conducted recently by three of our leading specialists—Mr. C. R. Blackett, F.C.S., the Government analyst; Mr. Sidney Plowman, F.R.C.S., F.I.C., etc., and Mr. Wm. Sutherland, M.A.

Popular Scientific Lectures in New South Wales.—The first of the series of scientific popular lectures arranged by the Council of the Registered Pharmacists' Society of New South Wales was given by Mr. J. H. Maiden, F.L.S., Government botanist, and director of the Botanic Gardens, Sydney, on September 13, when, under the title of "A Botanist on Mt. Kosciusko," the lecturer, with the aid of photographs and limelight views, gave a vivid and interesting description of the scenery and plant life of our Australian Alps. The following well-known scientists have also promised to give their services gratuitously in filling up the programme—viz., Professor A. Liversidge, M.A., LL.D., F.R.S., Professor of Chemistry at the Sydney University; Professor T. P. Anderson Stuart, M.D., Dean of the Faculty of Medicine, Sydney University; W. H. Hamlet, Esq., F.I.C., F.C.S., Government Analyst and President of the Royal Society of New South Wales; T. Cooksley, Esq., Ch.C., B.Sc., F.I.C., Assistant Government Analyst, Sydney.

The Registered Pharmacists' Society of New South Wales continues to peg away at the Government in connection with the Friendly Society business; but the latest reply from the Crown Solicitor's office is somewhat discouraging. It is to the effect that a Dispensary "having been registered as a Friendly Society under Part III. of the Friendly Societies Act, 37 Vic., No. 4" the Registrar's certificate, "under the decisions of the English courts in similar cases, is, and must be deemed to be, conclusive as to the purposes for which the Society was established, and the Registrar having considered the rules and given his certificate, the Society cannot for the purposes named be deemed to be illegal. Under such circumstances, I cannot advise the Government to interfere. If the Pharmacists' Society consider that their privileges are interfered with, they should seek advice from their own solicitors as to what steps they can take to remedy their supposed grievances." Of course, the Registered Pharmacists' Society are not content to abide by this legal *ipse dixit*, and are now taking steps to bring the subject immediately under the notice of the Legislature.

LETTERS TO THE EDITOR.

Pharmacists and the War.

I have this day come across the following paragraph from one of the Service papers:—

> A circular has been issued by the Royal Army Medical Corps, stating that compounders of medicines are urgently required for service in South Africa; the conditions of enlistment are for a year or until the end of the war; the pay 3s. 6d. a day, free rations, kit, and passage, and a gratuity of two months' pay. There are also conditions as to age and physique. Application should be made to the recruiting staff officers at London, Liverpool, Manchester, Birmingham, or Edinburgh.

For myself personally, I feel utterly indignant at this; it amounts almost to an insult to the Pharmaceutical Council and to the pharmaceutical body at large. Why did not the authorities write to the Council stating their requirements, so that they might have selected as Army pharmacists properly qualified men, who should have received good pay and, for the time they were serving in the Army, have had local rank as lieutenants? What would society say if they advertised for nurses and took them from the old women of Mrs. Gamp's style? What an outcry there would have been! What are compounders of medicine? There is no such class of men recognised. Will they then accept the broken-down drift, and the ever-plucked men, who have given up study through want of brain power, and are therefore useless? In the old past days of the Crimea, a few dispensers were sent out, and were paid in the Crimea 7s. 6d. a day and allowances; afterwards, in India, 12s. 6d. a day. A regulation uniform was recognised. In the Crimea they had local rank as ensign, and in India as lieutenant. The old rank of ensign has long been done away with. I hope no one will come forward to accept the position offered, not from want of patriotism, but because I look on this offer as an insult to the whole body of pharmacists. What a splendid lot of young fellows—efficient, and a real help in every way to the Army—could have been enlisted, if the authorities had approached the Council.

Torquay, December 21, 1899. James B. Guyer.

The Reconstitution of Camwal.

A correspondent of the Journal has expressed the fear (see *ante*, p. 600) that the reconstitution of "Camwal," so as to enable the company to supply hotels, public institutions, etc., will interfere with the business of retail chemists, and deprive them of that privilege for which the company was organised. It may interest your correspondent to know that the retailing of the company's waters is not restricted to chemists in this part of the West Riding of Yorkshire; and that they are freely sold by pernicious stores, grocers, greengrocers, and fishmongers at absurdly low prices. It is to be hoped that the new company will be run on P.A.T.A. or other secure lines, so as to prevent outsiders from defeating the object for which "Camwal" originated.

Halifax, December 21, 1899. Clement Fielding.

Liquor Bismuthi.—Corrections.

We submit the following corrigenda to the otherwise correct report of our paper on liquor bismuthi (see *ante*, p. 604). The second paragraph (p. 604) should read, "adding *citric acid and* solution of ammonia, etc." In the second paragraph on p. 605, read, "0·305 × 4 = 1·22 gramme—dissolve in 10 Mgm. molecules of 5 N nitric acid, *i.e.*, 2 C.c." The following sentence as to 8 N solution should be omitted; it belonged to a subsequent paragraph at bottom of column.

Liverpool, December 26, 1899. R. C. Cowley.
J. P. Catford.

Dispensing Bromoform.

Will any readers oblige by giving their experience in the dispensing of bromoform prescribed for whooping cough?

December 26, 1899. W. R. K. (37/14).

The Plymouth Chemists' Ball.

The annual Ball, originally fixed for Friday, January 12, 1900, in connection with the Plymouth, Devonport, Stonehouse and District Association, has been postponed *sine die* on account of the Transvaal War. This being a military centre it was considered inadvisable to hold the Ball just now.

Stonehouse, Devon, December 22, 1899. F. MAITLAND, *Hon. Sec., Ball Committee.*

Carbon Dioxide in Vats.

In the *Pharmaceutical Journal* for December 23 is a report of the death of William Robb, who died owing to poisoning by carbonic acid issuing from a vat in Messrs. M'Connell's Brewery, and the jury, in returning their verdict, considered there was neglect on the part of Messrs. M'Connell in not taking proper precautions to ascertain the presence of gas in the vessel. It takes, as is well known, a long time to empty vats and other vessels of the carbonic acid gas which is generated in them, but however large their size, they can in a very short time be freed from it by a simple and very inexpensive process, thus:—Mix in the proportion of one pint of liquor ammon. fort. to twenty gallons of water, and with a watering-pot, having a large and finely perforated distributing rose, sprinkle the vat with this mixture; immediately carbonate of ammonia is formed and falls to the bottom like snow, and the sprinkling is continued until no more of the carbonate is formed. Water, through a hose, is now turned on, and the solution drawn off. In an hour the whole process is ended, and by sending down a light it will be seen that there is no danger to anyone descending into the vat to clean it.

North Kensington, W., December 26, 1899. PERCY WELLS.

The Society's Examinations.

It was my privilege to be present at the opening meeting of the North British Branch of the Society in Edinburgh, on November 29 last. Mr. Boa, in his address upon that occasion, made some important statements upon the present position of pharmacy, and, speaking with the authority of an examiner, he advocated the division of the Minor Examination. I can vouch for it, that this opinion was received with great satisfaction by most, if not by all, who were present. Furthermore, Mr. J. Laidlaw Ewing, who surely can speak from knowledge, and Mr. Gilmour—the mover and seconder of a vote of thanks—both went further, and advocated not only division, but also the still more important proposition of making the conditions of examination such that no candidate on re-offering himself for examination would be required to undergo examination a second time in the subject or subjects in which he had previously shown fitness. Now I think it will be admitted that, within certain limits, this is a most important question, and one deserving careful consideration. Now, what are the facts? In the *Pharmaceutical Journal*, we are told in the "Annotations," which are always very readable, that Mr. Boa discoursed pleasantly on (amongst other things) the question of dividing the Minor Examination. With this bare statement, a question which affects the future of our calling quite as much as company-trading, and which at present rests hardly upon hundreds of prospective chemists, is pushed aside. In the second place, only one reader of the Journal has thought it worth his while to record his opinion upon the subject. The thanks of all aspiring graduates in pharmacy are due to "A Country Member" for his letter, published in the Journal of date December 9. It states the case succinctly. But where are our "Town Members" and our "Student-Associates" plodding over their books? Have they no opinion worth expressing upon the matter? Surely I am not mistaken when I say that this question of allowing subjects already passed to stand to a candidate's credit is a deeply and widely felt necessity. It is because I have found it to be so that I (for very shame that no one else has done so) take up the thread woven by "A Country Member"; and whilst weaving my little bit to the web, I would plead with those who have deep and true feelings on the question to make their feelings and opinions known, for only thus can our Council have guidance in its work.

Edinburgh, December 26, 1899. JAMES LENNOX.

Proposed School of Pharmacy Drill and Rifle Corps.

I wish, with permission, to suggest the formation of a School of Pharmacy Drill and Rifle Corps? In the present state of public affairs such a step needs no lengthy arguments to support it. No doubt every student would feel a lively satisfaction in doing his best to become "an efficient defender of his country." Will those who are willing to form such a corps communicate their intention to me, together with any views they may have on the subject? It is necessary first to know at least approximately how many would wish to join the movement. Possibly old "Squaremen" in and around London who have not the time to spare for volunteering would like to join. Inquiries could then be made as to the possibility of the corps becoming affiliated to one of the Middlesex Volunteer Corps. If this could be managed it would give the use of drill hall, rifle ranges, rifles, etc. It is obvious that those who are not permanently settled in London cannot well join the Volunteers for the three years' service. Besides, it probably would require more time than a student could well spare. I propose that Saturday evenings be devoted to drill, etc. Range practice could be readily obtained after Easter on Saturday afternoons. If it is found impossible to become temporarily attached to existing Volunteer corps, then steps might be taken to secure the services of a skilled drill instructor. As the Middlesex County Council is now raising additional Volunteer companies, there is every prospect of an early application on our part receiving favourable consideration.

West End, St. Ives, Hunts, December 27, 1899. F. A. UPSHER-SMITH.

ANSWERS TO QUERIES.

Preliminary Examination (C. R. P.—37/13).—The certificate will be insufficient after August next.

Baking Powder (H. G. M.—36/27).—Yes, the amount of carbonic acid gas in the second powder will be about the same as that in the first, for although it contains more sodium bicarbonate, the whole of that salt is not used up, since the proportion of tartaric acid is not sufficient to neutralise it entirely, as you will find by working out the equivalents. You should reduce the amount of the bicarbonate somewhat, so as to have a slighter excess Alum is most objectionable as an ingredient, and its prohibition is well deserved.

Active Principle of Celery (G. A. B.—37/9).—Probably the volatile oil of celery fruits would be the best thing for you to use. You might combine that in pilular form with the green extract of the fresh green tops, or of the seeds, extracted with dilute alcohol (50 per cent.). The etiolated petioles which we eat probably owe their very slight diuretic property to the trace of volatile oil which they contain. That part of the plant probably contains less of the "active principle" than any other. We believe a liquid extract of celery is made in America, where they make liquid extracts of almost everything. The formula for compound elixir of celery which is prescribed in the States is: Celery fruits, 384 grains; catnip herb, 640 grains; German chamomile, 384 grains; alcohol, (49 per cent.), *q.s.*, simple elixir to make 1 pint. Percolate the drugs to obtain 4 fluid ounces of percolate; then add the elixir and filter. Dose, 1 fluid drachm.

POLITICAL GOSSIP.

Carbolic Acid.—Sir Matthew Ridley, the Home Secretary, replying to Sir John Leng on Friday night, June 23, made the following statement: "I am aware that a considerable number of deaths yearly are due to carbolic acid poisoning, and that it has frequently been suggested that the sale of carbolic acid should be placed under restrictions, such as apply to poisons named in the Schedule to the Pharmacy Act of 1868. Some years ago the Pharmaceutical Society did apply for the insertion of carbolic acid in that Schedule, but it was considered that the gain to the public would not be commensurate with the inconvenience arising from the restrictions, and the application has not recently been renewed. I believe that the Irish Government has scheduled carbolic acid, but that was done under an Irish Act, and without consulting the Privy Council in this country. I understand that the objections to scheduling the poison in England have now been lessened by the fact that regulations for the keeping, dispensing, and selling of poisons within the meaning of the Act of 1868 have now been prescribed, and that the Privy Council is prepared to consider whether carbolic acid can advantageously be dealt with in some way; but it cannot take any step except upon a resolution of the Pharmaceutical Society."

Generally Speaking, the Home Secretary's Statement is satisfactory, inasmuch as it indicates a willingness on the part of the Privy Council, which no doubt was the source of the Minister's inspiration, to sanction the use of existing machinery in putting an end to an anomaly that has assumed the dimensions of a scandal. There is, moreover, an element of gratification in the fact that the answer to Sir J. Leng's well-worded question contains no hint of Ministerial action on the lines of the Poisonous Substances Bill which made its meteoric appearance last Session. But notwithstanding these good points, the words of Sir M. W. Ridley on Friday convey an impression—and it is not altogether unnatural in a Departmental reply—that the Council of the Pharmaceutical Society has been somewhat lax in the performance of its statutory duties. The implied impeachment is delicately veiled in the reference to the recently-adopted Poison Regulations. Practically the pharmaceutical authorities are told that in the absence of the Regulations contemplated by Section I. of the Pharmacy Act, all resolutions under Section II. of the same Act could only be of academic value; and that whilst the Society persisted in putting Section II. before Section I. it was only engaged in the ineffective operation of putting the cart before the horse. There was, unfortunately, something in this charge, but now that the relations between animal and vehicle have been properly adjusted any mistaken tactics and shortcomings of the past may be left for the historian.

A Second Indictment is contained in the assertion that the Council has not recently renewed its application to have carbolic acid placed among the poisons, and that no action can be taken until the Society puts in motion the provisions of the Statute relating to the scheduling of poisons. This is distinctly misleading to the public and not quite fair to the Society. The Privy Council has still two resolutions before it affirming that carbolic acid ought to be a poison within the meaning of the Act, and although they were passed in the pre-regulation or "topsy-turvy" days, they have never been the subject of official repudiation. The Privy Council could, if it had deemed expedient, have given effect to either of those resolutions immediately after Mr. Walter Hills had completed his "good day's work" in carrying the Poison Regulations. But no such action was taken, and one was perfectly justified in assuming that the former well-known attitude of the Government in respect to restricting the sale of the substance in question would be maintained. The position being now distinctly clearer, the Government and the public need be under no misapprehension that the Pharmaceutical Society will fail in its duty. As we read it, the answer to Sir John Leng's question is a definite invitation to the Council of the Society to send to the Privy Council another resolution in slightly different terms to those already forwarded—a resolution which, whilst embracing the more dangerous forms of carbolic acid, shall not interfere with the free distribution of innocuous preparations that have obtained a certain amount of popularity on account of their real or fancied antiseptic value. We understand that a Committee of the Council has already met to grapple with the question.

The Food and Drugs Bill has not yet been reached, and Mr. Balfour has informed the House that it will not be taken till some time in July. Petitions for amendment of the Bill have reached Parliament from Glasgow, Tenbury, and other places whose geographical position is not so generally known. There are also ten pages of amendments now on the notice paper, hence there is good ground for supposing that the Bill will occupy a considerable portion of Parliamentary time when it is considered. The opposition is not confined to the Liberal members, for General Laurie (Pembroke) and Mr. Bartley (Islington, N.) are among the non-contents; the former desiring to restrict the operation of the provisions establishing the invoice as a warranty, and the latter being deeply interested in the margarine clauses.

The Lords' Bills Relating to the Company Question still stand where they did, and the Session is sufficiently advanced to warrant the belief that they are to be shelved. Mr. Swift MacNeill's outburst last week in the House of Commons has apparently not penetrated the Upper Chamber. The President of the Board of Trade, in an address to a gathering of City merchants at the Mansion House on Wednesday, followed Mr. MacNeill's lead by publicly denouncing the supineness of the Lords in reference to the Companies Bill. The right honourable gentleman stated that if he could have his way next Session he would bring the Bill into the Commons first. Mr. Crombie (Kincardine) is also amongst the anxious ones. He will ask Mr. Balfour on Friday, June 30, whether he expects to pass the Companies Bill this Session.

SCOTTISH NEWS.

Edinburgh Chemists', Assistants', and Apprentices' Association.—The second botanical excursion took place on Friday, June 16, to Royston, going by train from Waverley Station at 8.20 p.m. to Granton and walking along the shore, where many interesting maritime plants were found. There was a good attendance, and the party was conducted by the President, Mr. Fraser McDiarmid. The return journey was by train from Craigleith at 10.42 p.m. It was felt that if chemists had shorter hours and could start an hour earlier, much better work could have been done, as darkness came on far too soon for the plant-hunters — The second summer meeting was held in the Pharmaceutical Society's House, 36, York Place, on Wednesday, June 21, Mr. David Harley, Vice-President, in the chair. The plants collected by members were named and described by Mr. Rutherford Hill. After the demonstration the Association elected Mr. James Lennox, 139, Princes Street, to the vacant office of Secretary. The meeting then closed.

Mr. Robert Tocher, pharmaceutical chemist, Maybole, N.B., and Walter Stavert, chemist and druggist, Selkirk, have passed at the June examination of the Worshipful Company of Spectacle Makers in London. There were 140 candidates, of whom twenty-three were registered chemists.

Edinburgh Pharmacists and the Lord Chancellor's Proposals.—Taking advantage of the Parliamentary vacancies in South and East Edinburgh, a joint meeting of registered chemists having votes, convened by Messrs. James Paton and Claude F. Henry, the respective divisional secretaries, was held in the Pharmaceutical Society's House, 36, York Place, on a recent date. Mr. J. Laidlaw Ewing was called to the chair, and after a free interchange of opinion it was agreed to send to each of the four candidates a memorandum pointing out that Clause 2 of the Companies Acts Amendment Bill proposes to confer the titles of "pharmaceutical chemist" and "chemist and druggist" on others than those who have passed the examinations provided for by the Pharmacy Acts, 1852 and 1868, which confer and protect those personal titles for the safety of the public. Those titles, it was urged, imply a personal qualification on the part of those using them; and the general use of such personal titles by parties not possessing, and incapable of acquiring, the qualification implied therein would destroy the statutory significance of the said titles and prove misleading to the public. Registered chemists, therefore, objected to the passing of the Bill with that clause. In reply to a request for favourable consideration of this memorandum, both the candidates for South Edinburgh agreed to oppose the objectionable clause. Major-General A. G. Wauchope said he fully realised the importance of the question raised, both to the

chemists and to the general public, and he would do anything in his power to prevent the sale and dispensing of drugs by any but fully competent and qualified men. If elected, he would oppose Clause 2 of the Companies Acts Amendment Bill, so that chemists might have time for fuller consideration of the matter. Mr. Arthur Dewar, advocate (who proved to be the successful candidate), said that if elected he would oppose Clause 2 of the Companies Acts Amendment Bill, so that chemists might have further time to consider the matter. The candidates for East Edinburgh also replied, Mr. Harry G. Younger saying that he quite agreed with what the pharmacists wished, and would, if elected, oppose the passing of this clause. Councillor George McCrae, the successful candidate, said if elected he would oppose the clause so that chemists might have time for fuller consideration. It was found necessary in each case to explain the matter carefully to the candidates, and it was felt to be expedient to limit the matter to the withdrawal of the Lord Chancellor's proposals in the meantime, without attempting to discuss or bind candidates to any details of any further proposals.

The Glasgow Apothecaries' Company.—A social meeting of the employés of this Company was held on Monday last at the Cobden Hotel, Glasgow, and Mr. John Arnot presided over a large and representative gathering. The occasion was the presentation of a handsome testimonial to Messrs. Bain and Wilson, who have left the service of the firm to take over the business at Hawick conducted by Mr. Thomas Maben, Ph.C. The gifts were handed over by the Chairman with a few happy words, and the recipients thanked their fellow-workers for the kindness shown them. A varied musical programme was provided and a most enjoyable evening spent.

ENGLISH NEWS.

The Students of the Imperial College of Chemistry, under the guidance of the principal, Mr. Frederick Davis, visited Brin's Oxygen Works on Friday, June 23. The party was received by Mr. K. S. Murray, the Secretary, the methods employed by this company being explained in detail by the chief engineer. Air is passed over barium oxide heated by coke fires to a temperature of 1400° F.; the barium oxide retains the oxygen, becoming converted into barium dioxide; the nitrogen is permitted to escape whilst the barium dioxide is still further heated, parting with the oxygen previously absorbed from the air and is conveyed into gasometers. The testing of the cylinders in which the gas is sent out proved of great interest. Each cylinder is filled with water and subjected to a pressure of a ton and a half, and whilst in this condition is sounded by hammers. Dr. Hampson, who was introduced by the Secretary, then prepared some liquid air, and whilst the liquid boiled at a temperature of 191° C. introduced mercury, which immediately became a solid block; this block was handed to the students. Similarly, a common pliable French nail was immersed in the liquid air and upon removal from the fluid was snapped by a sharp blow. A solid piece of brass was then placed in the liquid air and was afterwards transferred to a vessel of water, causing the water to become a solid block of ice. Several further experiments were carried out, after which Mr. Frederick Davis thanked Dr. Hampson on behalf of the students.

Saturday by the Sea.—The seventh annual outing of the employés of Messrs, C. R. Harker, Stagg, and Morgan was held at Southend-on-Sea on Saturday last. Mr. S. R. Collis occupied the chair, and in a few appropriate words gave the "Health and Continued Prosperity of the Firm," and referred to the absence, through death and illness, of a few of the old faces that he was accustomed to see at the annual gathering. Mr. Rowland Stagg, jun., responded, and was desired to convey the thanks of all present to the firm. The afternoon and evening were spent in excursions on sea and land, and all left by a late train for London, having had a most enjoyable day.

Literary Intelligence.—The following books will shortly appear:—'A Text-Book of Physics,' by Professor Andrew Gray, F.R.S., Professor of Physics in the University College of North Wales. To be issued in three parts. Part I. will be on Dynamics, Properties of Matter. 'A Handbook on Chemistry and Physics,' for students preparing for the first examination of the Conjoint Board, under the joint authorship of Messrs. Corbin and Stewart. 'Notes on Folkestone,' by Dr. Larking. 'The Pathologists' Handbook,' a manual for the post-mortem room, by Dr. T. N. Kelynack, Demonstrator in Morbid Anatomy at Owens College, Manchester. 'Medical Electricity,' for the use of students and practitioners, by Dr. W. S. Hedley, Physician in Charge of the Electro-Therapeutic Department of the London Hospital. The above books will be published by Messrs. J. and A. Churchill.

Midland Chemists' Assistants' Association.—A Committee meeting of this Association was held in the Exchange Rooms, Birmingham, on Wednesday, June 21, when the following were elected officers for the coming session: President, Mr. W. F. Cox; Vice-Presidents, Messrs. F. A. Spear and F. Foster; Treasurer, Mr. A. Billington; Secretaries, Messrs. W. Holland (finance) and A. H. Bell (literary).

Messrs. C. J. Hewlett and Son's Annual Outing for the staff was held on Saturday, June 24, when over fifty of the senior members left London by train for Portsmouth. The morning was spent in visiting the dockyard, training ships, etc., and dinner served at the Hyde Park Hotel, Southsea. The chair was taken by Mr. E. J. Millard, and the toast of "Success to the Firm," proposed by Mr. T. B. Fickling, senior town representative, was received with enthusiasm. In reply, Mr. Millard referred to the number of those present who had been connected with the firm for over twenty years as a proof of the excellent relations existing between employers and employed. In the afternoon the majority proceeded by steamboat to Cowes, the return to London from Portsmouth taking place at 7.15 p m. The weather throughout was perfect, and, thanks to the liberality of the firm, a most enjoyable day resulted.

Poisoning by Ammonia.—On Saturday, June 24, an inquest was held at the Coroner's Court, Holloway, with respect to the death of an organ-builder named William Hunt, of 41, Maryton Street, Holloway, who went into his kitchen for a drink of some kind. He found a bottle with a publican's label upon it, and, thinking he had found whisky, took a draught. Unfortunately, the bottle contained ammonia, for cleaning cloth, and in a few hours Hunt was dead.—A verdict of "Death by misadventure" was returned.

The Wellcome Club and Institute.—At Dartford on Saturday last Mr. Henry S. Wellcome formally inaugurated an excellently-appointed club and institute for the benefit of the eight hundred odd employés of Messrs. Burroughs, Wellcome and Co., of Dartford and Snow Hill, London. For the purposes of the new club and institute Mr. Wellcome has acquired the old Manor House formerly known as Acacia Hall, with a large adjacent flour mill and other buildings, together with extensive grounds in a picturesque part of the valley of the River Darent. The Manor House has been transformed into a most comfortable club for members of the professional staff, the mill into a capital club house for the female employées, and a building called the Tower House has been conveniently arranged as a club and institute for male employés not included in the professional staff. Many visitors from London were present at the festivities held in connection with the opening ceremony. On arriving at Dartford they witnessed from the railway platform, which overlooks the firm's works and laboratories, some well-executed fire-alarm drill on the part of Messrs. Burroughs and Wellcome's fire brigade. Proceeding afterwards to the parish church, they took part in a brief inauguration service conducted by the vicar, the Rev. P. E. Smith. The formal opening of the club and institute then took place, after which came a luncheon in a marquee erected in the club grounds, the company numbering about 1300. Mr. Wellcome, in proposing "The Employés," remarked that it had always been the policy of the firm to consider the welfare of everyone associated with them, and the result was that they had won not only the hand-work but the heart-work of those who served them. After luncheon the whole company assembled on the recreation ground, where they had the pleasure of witnessing a prettily-designed "May Queen" procession, followed by a Maypole dance, athletic sports, tea in the marquee, a musical bicycle ride, aquatic sports, and tugs of war. The prizes won in the sports were subsequently presented by Mrs. A. Chune Fletcher, and the festivities wound up with a firework display and an illumination of the grounds.

Poisoning by Laudanum.—At an inquest held on June 14, concerning the death of Wilfrid, aged four weeks, son of Septimus Drinkhall, labourer, Culcheth, the jury returned a verdict of death from misadventure. Evidence was given that Mrs. Drinkhall sent her daughter Florence, aged eight, for some cordial to Mr. Worden, beerhouse keeper, grocer, and vendor of "patent" medicines, but by mistake she asked for and was supplied with laudanum. The bottle was not labelled "poison," nor did Worden ask for what the drug was intended. Mrs. Drinkhall gave the child the laudanum, death resulting fourteen hours later. —Coroner Brighouse said it was monstrous that because people got a 5s. licence to sell "patent" medicines the Legislature should allow them to sell unlabelled bottles containing nobody knew what. Practically the death was due to Worden, and there would be a miscarriage of justice if he was not prosecuted by the Pharmaceutical Society.

Earth Currents and Electric Traction.—Several views have been put forward as to the cause of the earth's magnetism, and Professor Rücker recently discussed them in a lecture delivered at the Royal Institution. By some physicists it is held that it is due to the existence of electric currents far down beneath the earth's surface, while others contend that there is a magnetisable substance within the earth. By means of an instrument devised by Mr. Henry Wilde, it is possible to produce much experimental evidence in favour of the latter theory, by reproducing the known magnetic condition of the earth on a geographical globe specially arranged for the purpose. While withholding complete adherence to this theory, Professor Rücker considered that there was much to be said for it, and that it was not physically impossible. One difficulty lies in the determination of the nature of the magnetisable substance. It is not magnetite, and perhaps it is not iron. All things considered, terrestrial magnetism may be classed as one of the most backward of sciences. The magnetic currents that are found near the surface of the earth next received attention. It is difficult to say whether islands and mountains that possess magnetism possess that property as a result of induction or whether they are permanently magnetised. The investigations recently made in the atoll Funafuti show that at a depth of about a thousand feet the matter obtained by boring is magnetic. It is believed that the magnetic property is not due to induction in this case but to the volcanic origin of the reef. Speaking of artificial electric currents, the lecturer drew attention to the danger which they threaten to magnetic observatories. Two American observatories, one at Toronto the other at Washington, have suffered severely from electric railways, so much so that the former has been ruined and another set up in its stead at a distance of about eight miles from the railway, while the Washington authorities contemplate a similar move. It remains to be seen whether industrial improvements of an electrical character can be combined with properly equipped laboratories for making magnetic observations. It is true that the difficulties experienced in America were largely due to the unscientific way in which the lines were laid down. At the present time the engineers connected with electric enterprises are doing all they can to prevent leakage by avoiding the old custom of putting currents to earth and by insulating the return wires. The next two years will be an anxious time for all connected with observatories, since it is important to preserve the continuity of observations which have been made regularly, *e g.*, at Kew during the past forty years. Improvements are constantly being made; thus at Charlottenburg the engines are provided with accumulators. Continuous currents are the most dangerous in respect of their effect on observatories. Professor Rücker concluded by discussing the possibility of currents flowing from air to earth and *vice versâ*.

The Purity of Drugs.—Physicians may prescribe, but, after all, the worth of the remedies they order is determined by the activity of the drugs that are put into the bottle. We are happy to believe that with the average respectable chemist their patients are safe, but a slight consideration of the matter from the point of view of probability must convince the most confiding customer that now and then he does not get what he pays for. Nay, more, in the rare instances in which local authorities have troubled to test pharmaceutical products a fair proportion of convictions have followed under the Sale of Food and Drugs Acts; indeed, a more strenuous application of those salutary measures is much to be desired in the interests of the public. What can be more desirable, for instance, than the systematic supervision of the purity of drugs used as medicines? Yet in the vast majority of cases no samples are taken by the sanitary boards of our local authorities. Perhaps the new districts created by Mr. Balfour in the metropolis will find time to look into this important matter, and set an example to the provinces. In America, the Massachusetts Board of Health analysed 1380 samples of drugs in the year 1896, and found 156, or 11·3 per cent., impure. The percentage of similar adulterations during the four years preceding was 11 per cent. Among the drugs implicated were spirits of nitre, rhubarb, and vinum ipecacuanha. Clearly the matter is worthy of a little more attention on this side of the Atlantic.—*Medical Press.*

Ferruginous Eggs.—It may truly be said that there is scarcely any branch in which medicine has not advanced within the last twenty years, but in no one branch has more improvement been shown than in the compounding and putting together of drugs. No more is the unwilling patient to swallow large doses of nauseating medicine, for sugar-coated pills, capsules, and wafers have come into use, and the patients can now take the most vile-tasting medicines without discomfort. According to a Transatlantic contemporary, an ingenious person has come forward with a still more ingenious plan which opens up to pharmacy unbounded possibilities of going still further ahead. On account of the difficulty of assimilating iron as a medicine, a French chemist has sought to introduce it in a digestible way by what he terms ferruginous eggs. Hens can digest iron easily while rendering it back through the albumen of their eggs in a form which is easily digested by the weaker stomachs of mankind. A salt of iron is given to the hens with grains of wheat. A dozen of these medicated grains of wheat a day make the hens, after three or four days, lay eggs which are very rich in iron already digested. The chemist in question is said to be experimenting further with other drugs, and it is not without the bounds of possibility that we shall shortly be able to take our medicines in the form of eggs.—*Grocers' Review.*

Grocers and the Pharmacopœia.—The Bradford and District Grocers' and Provision Dealers' Association has issued to all members of the trade a copy of the following circular:—We beg to call your attention to several recent prosecutions under the Food and Drugs Act, for selling articles that are included in the British Pharmacopœia and that are not of the nature and strength required by law. We therefore advise you that if you have any of the articles named below, or others that are included in the B.P., to at once satisfy yourself that these are of the nature and strength required. If you have purchased from a firm of any reputation you will have no difficulty in making arrangements to exchange the goods. But it is of importance that you look into this matter. Hoping you will understand the motive in which this advice is sent to you, we are, sir or madam, yours obediently (for the Committee), H. Horsman, Secretary.

Milk of sulphur.	Chlorodyne.
Liquorice powder.	Fellows' syrup of hypophosphites and others.
Camphorated oil.	Parrish's food.
Tincture of rhubarb.	Winslow's syrup.
Seidlitz powders.	Perry Davis's pain killer.
Sal volatile.	Oxalic acid.
Gregory powder.	Salts of lemon.
Sweet spirits of nitre.	Ground ginger.
Arsenical soaps.	Pepper.
Kaye's essence of linseed.	

—*Grocers' Review.*

Receiving Order in Bankruptcy.

(From the London Gazette.)

Allan P. Nosworthy, Chemist, 3, St. Leonard Terrace, Hove, lately carrying on business at 37, Preston Street, Brighton.

Partnerships Dissolved.

(From the London Gazette.)

Thomas M. Cann and Arthur G. Mossop, Physicians and Surgeons, Newhaven, Sussex.

Thomas W. Bartlett and Alexandra B. Creak, Physicians and Surgeons, Erith.

ITEMS OF INTEREST.

Dammar Resin.—Dammar is obtained from *Dammara alba*, *Hopea splendida*, *Hopea micrantha*, and *Engelhardtia spicata*—trees indigenous to the Moluccas. The resin occurs in irregular, colourless, or light yellow transparent lumps with a dull surface and scaly fracture; it softens when warmed in the hand, is quite pliable at 75° C., melts to a viscous liquid at 100° C., and is perfectly fluid at 150° C. It is completely soluble in fatty and ethereal oils, in benzene and in chloroform; partially soluble in alcohol and in ether. A. Zucker states that its constituents are dammaryllic acid 80 per cent., resins 19 per cent., and gum about 1 per cent. The resin is secreted in tears from large knotty formations growing near the roots or on the lower part of the tree trunk. Dammar varnish is noted for its clearness, but is much less hard and lasting than copal varnish; it is, however, indispensable for oil paintings. The so-called Australian dammar is Kauri copal; this is derived from the Kauri pine of New Zealand. The dammar trees never grow in numbers together, but in widely scattered groups, giving a very peculiar appearance to the landscape. Some of the trees are 30 mètres high, and have a diameter of 4 to 5 mètres. The resin is at first milky and changes later to a yellow amber colour. All the branches of the tree are full of resin, which drops and collects at the foot in large masses. The size of these masses depends greatly on the weather during the season of excretion. These large pieces are getting scarcer every year, as the Chinese, who monopolise the trade, break up the impure lumps which rank as second quality into small chips, which appear more transparent and are then suitable for being mixed off with the first quality with little fear of detection. This adulteration has now been checked by the Chamber of Commerce, at Batavia, but, on account of depreciation in prices, 28 per cent. of dust is still allowed to be mixed off with the bulk.—*Pharm. Ztg.*, **44**, 6.

Decorating Glass and Distinguishing False Diamonds by Means of Aluminium.—According to a discovery by C. Margot, aluminium seems to be destined to play an important part in the decorative arts. Margot found that, with a pencil of aluminium, distinct writing can be traced on smooth surfaces of materials containing silicic acid, such as glass, porcelain, etc., and that the letters adhere so firmly to the respective materials that even continued rubbing with moist substances will not remove them. If the characters are treated with strong hydrochloric acid or caustic potash, the metal disappears gradually, but leaves on the surface distinct traces as if etched. Hence the soft metal must actually combine more or less with the hard, siliceous substance. An indispensable condition for the production of distinct characters or designs is a most thorough cleaning of the surface, and the removal of even the slightest trace of grease, by polishing with chalk, as even the thinnest layer of grease would prevent the metal pencil from marking properly. Shortly before writing the material is breathed upon, whereby an easier touch of the pencil is effected. The metallic characters and designs may be given such a lustre by treatment with the burnisher and oil that it is not possible to distinguish them from inlaid silver. Magnesium, cadmium, and zinc also possess this writing capacity for glass and similar materials, but the ease with which they oxidise renders them too perishable and without permanent gloss. This property of the above-mentioned metals to act upon substances containing silicic acid may be practically utilised for distinguishing genuine diamonds from the imitation article. The latter, as regards fire, cannot sometimes be distinguished from genuine ones, although they are but paste, as a rule. But they are characterised as such, beyond a doubt, by aluminium, magnesium, cadmium, and zinc pencils.—*Scient. Amer.*, **80**, 135, after *Deutscher Uhrmacher Kalender.*

A New Coating, which is said to successfully protect posts and other timber surrounded by earth from rotting, is prepared, according to the *Baugewerkszeitung*, from resin, 50 parts; finely-crushed chalk, 40 parts; fine white sharp sand, 500 parts; linseed oil, 4 parts; native red cupric oxide, 1 part; and sulphuric acid, 1 part. First heat the resin, the chalk, the sand, and the linseed oil in an iron kettle, then add the oxide and the sulphuric acid, with caution, mix everything carefully, and paint the wood with the hot mass, using a strong brush. If the mixture is not liquid enough, it is diluted with a little linseed oil. When the coating is dry, it forms an extremely hard varnish, which allows no moisture to enter. —*Scient. Amer.*, **86**. 135.

Heliotropin.—Molten heliotropin forming a brown fluid is useless to the perfumer; the crystals, therefore, should be kept in a cool and dark place during the summer months. A temperature of 30° C. having a deleterious effect on its perfume, heliotropin should not be bought in large quantities during the hot season. Consumers residing in hot climates should, upon the receipt of heliotropin, dissolve it at once in alcohol and keep this solution in a cool and dark place, in order to preserve the flavour unimpaired. So-called amorphous heliotropin, consisting of a mixture of heliotropin and some vanillin with the inodorous and inert anisic acid, seems to have been withdrawn from the market.—*Schimmel's Bericht.*

Bixa Orellana as an Anti-Emetic.—A decoction of the leaves of the annatto plant is used in Paramaribo as an anti-emetic. J. S. Gurie has isolated a glucosidal bitter principle from them which is readily soluble in alcohol and chloroform, but only slightly so in water.—*Pharm. Zeit.*, **44**, 108, after *Nederl. Tijdschr. voor Pharm.*

Orthoform for Dog Sickness.—The only drug which has given any good results in the treatment of the prevailing epidemic among dogs is stated by F. Hobday to be orthoform. This is given in doses ranging from 2 to 15 grains every four or six hours. It should be given either as a powder or rubbed down with glycerin, olive oil, or mucilage. The symptoms of the affection which is now prevalent resemble those produced by an irritant poison, persistent vomiting being most marked.—*Vet. Record*, **11**, 598.

Blindness Caused by Ginger.—A. G. Thompson some time ago recorded a case of toxic amblyopia caused by ginger. H. Woods, in the *Ophthalmic Review*, has recently fully described six more. Although the ginger was taken in the form of an alcoholic essence, the toxic effect cannot be attributed to the alcohol alone. —*Quart. Med. Journ.*, **7**, 267.

Cod-liver Oil and Digestion.—Wirshillo finds that the ingestion of cod-liver oil has an unfavourable influence on healthy digestion; it diminishes the amount of hydrochloric acid and of pepsin, the latter being more affected at the beginning of the process of digestion; and that the secretion of the gastric glands is weakened, but that they remain longer active than when oil is not present.—*Internat. Med. Journ.*, **8**, 285, after *Vratch.*

Theobromine Solution.—Trisodic phosphate acts as a solvent on theobromine, the alkaloid dissolving to the extent of 1:50 in aqueous solutions of that salt. The solution thus obtained has the advantage over diuretine of not irritating the mucous membrane. Brissemort recommends the following formula for its administration. Theobromine, 1 Gm.; trisodic phosphate, 4·5 Gm. Dried egg albumin, 0·5 Gm.; distilled water to 80 Gm. To be taken twice to four times daily in a little warm milk.—*J. de Pharm. d'Anvers*, **55**, 146.

Products Obtained by the Chemical Treatment of Cellulose.—PARCHMENT PAPER.—Unsized paper is immersed in sulphuric acid of 50° B. and the excess of acid removed by washing. PARCHMENT PAPER SUBSTITUTE (Pergamyn).—Cellulose sulphite is milled for a long time and made up into paper. CELLULITH.—On continued milling of cellulose sulphite an amorphous product is obtained, which evaporates to a dry horny substance. VULCAN FIBRE.—Unsized paper is immersed in a solution of zinc chloride and several layers united together by mechanical pressure. CELLULOID.—Nitrated paper is pulped with water, the mass mixed with camphor and pressed out into sheets. Soaked in alcohol the sheets become pliable at 125° C., so that they may be moulded into any form. PEGAMOID—Is composed of paper or tissue dressed with a coating of celluloid mixed with castor oil. Pegamoid paper thus dressed on both sides resembles animal parchment. Ink-marks can be washed off, but not print. Pegamoid paper is very serviceable for wallpapers and showcards exposed to the influence of the weather. Cotton tissues dressed with pegamoid substance are stamped out into imitation pressed art leather. CELLULOSE SILK is nitrated cellulose spun into threads from a liquid solution and denitrated. VISCOSE is cellulose sulphocarbonate dissolved in water. VISCOID is the amorphous cellulose obtained from vicose.—*Pharm. Central.*, **40**, 159, after *Ztsch. f. angew. Chem.*

PRACTICAL PHOTOGRAPHIC NOTES.

Whilst Bromide Paper has come to stay and will probably always find adherents, there is a good future for a printing-out paper which shall, with or without toning, give a black image. Such a paper ought not to be difficult to prepare. At the present time most of the printing-out papers may be considered to depend upon the action of light upon the chloride and an organic salt, generally the citrate or tartrate of silver with free silver nitrate. The method of making the emulsion is to form the chloride and organic salt by double decomposition, and in consequence of the free silver nitrate it is impossible to wash the emulsion to free it from the inert nitrates of ammonia, etc., which are formed. To these and to the free silver nitrate is due the difficulty of keeping the paper. The former, being hygroscopic, is liable to attract moisture, in the presence of which the silver nitrate combines with the gelatin and the fibre of the paper to form coloured compounds without the action of light.

For Warm Tones, as already stated, longer exposures must be given, and for cool to warm sepias the exposure must be five or six times that for black, and the developer should be—

Concentrated developer as above	250 C.c.
A.C. solution	25 to 32 C c.
Water	to 1000 C.c.

The A. C. solution is—

Ammonium Bromide	50 Gm.
Ammonium Carbonate	50 Gm.
Distilled Water	to 1000 C.c.

For warm brown to red tones the exposure should be increased from six to eight times, and the developer is—

Concentrated	125 C.c.
A.C. solution	31 C.c.
Water	to 1000 C.c.

For red chalk tones the exposure is increased eight or ten times, and the developer is—

Concentrated	50 C.c.
A.C. solution	25 C c.
Water	to 1000 C.c.

Of all the tones the most pleasing are the sepias, and there are very few subjects which they are not suitable for.

Professor Valenta, of Vienna, points out that many of the amines may be used for making toning baths for silver papers, and that the best is *m*-phenylendiamine, which has the formula $C_6H_4 < \begin{matrix} NH_2\ (1) \\ NH_2\ (3) \end{matrix}$ and is made from *m*-dinitrobenzol by reduction with tin and hydrochloric acid. The hydrochlorate forms small white crystals, easily soluble in water with an acid reaction. This salt very quickly reduces gold salts, but platinum salts by no means so readily, and he suggests the following formula :—

Potassium Chloroplatinite solution, 1 per cent.	5 to 10 C.c.
M-phenylendiamine solution, 1 per cent.	5 to 10 C.c.
Water	100 C.c.

The prints should be washed for a short time and then immersed in the above bath, in which they assume very quickly an intense platinum black tone, with pure whites, and then fixed in a 10 per cent. solution of hypo.

If Blue-Black Tones are wanted, the prints should be first toned for a short time in the following gold bath :—

Borax	10 Gm.
Sodium Acetate (fused)	10 Gm.
Gold Chloride	0·5 Gm.
Water	1000 C.c.

and then thoroughly washed and immersed in the platinum bath; if the prints are not thoroughly well washed between the gold and platinum baths, the gold is reduced all over the whites of the print.

Pyrogallic Acid Solution.—At a recent meeting of the Photographic Club an interesting piece of evidence was given of the keeping qualities of pyrogallic acid solution when properly compounded and stored in well-closed bottles. A bottle was brought from the Club dark room bearing the inscription that the solution it contained was mixed in 1887 by the following formula :—

Pyrogallic Acid	1 oz.
Sulphite of Soda	3 oz.
Boiled Water	to make 10 oz.

made acid with meta bisulphite of soda. It was further recorded that the solution was tested against a freshly-mixed solution made by the same formula, and it was found not to have deteriorated and the remainder rebottled, a smaller bottle being used. The solution remains almost colourless.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

June 29, 1899.

Business, as might have been expected, has been decidedly restricted during the past week, while the changes in values which have taken place are comparatively quite unimportant. Ipecacuanha maintains its price in spite of the late arrival, which turns out to be only 50 bales, it being asserted that further supplies cannot be expected before October. Price of Cocaine has so far not been advanced. Quicksilver is stated to be very firm, it being believed that a further advance in price is not unlikely. Acid Citric has been advanced in price by the makers, who are apparently not anxious to book orders, even at the advance. Opium is dearer, and the more especially as regards price in Smyrna. Morphia and Codeia very firm. Acid Carbolic is also firm. Oil of Lemon is dearer. Cod-liver Oil and Glycerin quiet; same may be said of Sulphate of Ammonia. Permanganate of Potash partly maintains the improvement which was lately reported. Quinine and Sulphonal remain practically *in statu quo*. The following are actual prices for articles of principal interest :—

Acetanilide—Dull and weak at 10½d. to 1s. per lb., according to quantity and make.

Acid Carbolic.—Refined is in good demand at very firm prices, say 6⅝d. to 6¾d. per lb. for the 35°-36° Ice Crystal in large bulk, other qualities and packing being quoted at proportionate prices. An advance in value is considered not improbable. Crude steady at 2s. 1½d. per gallon for the 60° F., and 2s. 8d. per gallon for the 75° F. Liquid, 95 to 98 per cent., of pale straw colour, 1s. 2d. to 1s. 3d. per gallon, according to quantity, in 40-gallon casks.

Acid Citric.—Makers' price has been advanced to 1s. 8d. per lb. There are, however, sellers from second hand at 1s. 7½d. per lb. for crystals, in 5-cwt casks.

Acid Tartaric.—Foreign is rather dearer at 1s. 0¼d. per lb., c i.f., English being still quoted 1s. 1d. per lb.

Ammonia Compounds.—Bromide, 2s. 2d. per lb. Carbonate, 3d. to 4d. per lb., according to packing and make. Muriate, chemically pure, 30s. to 32s. 6d. per cwt.; commercial, free from metals, 25s. 6d. to 27s. 6d. Iodide, 14s. 6d. per lb. Sal Ammoniac : Sublimed firsts, 35s.; seconds, 33s. per cwt.; crushed for batteries, 2s. per cwt. more. Sulphate quiet; grey prompt, 24 per cent., London, £12 7s. 6d. per ton; Hull, prompt, £12 6s. 3d.; Leith, prompt, £12 6s. 3d. to £12 7s. 6d.; Beckton, prompt, £12 7s. 6d.; July-Dec., £12 3s. 9d.; Beckton terms, £12 2s. 6d. to £12 3s. 9d. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb., according to quantity.

Antimony.—Regulus, £39 to £40 per ton; crude Japan (Black Sulphide), £24 10s.

Antipyrine and Phenazone—Are steady at unchanged values.

Arsenic.—The market is quiet but steady, quotations being,

nominally, white or yellow lump 33s. per cwt., powder 20s. per cwt.

BISMUTH AND SALTS—Unchanged at 5s. per lb. for the commercial quality of the metal, 5s. 8d. per lb. for the carbonate, and 5s. 1d. per lb. for the subnitrate.

BLEACHING POWDER (CHLORIDE OF LIME).—English is still quoted £6 per ton.

BORACIC ACID—Steady at unchanged prices, viz., 25s. per cwt. for crystals, and 27s. per cwt. for powder.

BORAX—Is quiet but steady at 16s. per cwt. for crystals, and 16s. 6d. for powder.

BROMINE AND BROMIDES.—Bromine is quoted 2s. 2d. per lb. in case lots (60 lbs.). Potassii Bromid., 1s. 10½d. per lb. Sodii Bromid., 2s. 1½d. per lb. Ammon. Bromid., 2s. 2d. per lb.

CAMPHOR.—Market is quiet, but steady at unchanged price, both for crude and for the refined article.

CASTOR OIL—Firmer. Belgian first pressing, spot, £25 10s.; second pressing, £23 10s. per ton ex-wharf. Hull manufactured, £23 15s. to £24 per ton, in barrels; 2⅞d. to 3⅛d. per lb. in cases, for prompt delivery, ex-wharf, London. London pressed, 24s. 6d. per cwt. in barrels; French, 23s. 6d. to 25s. 6d. per cwt.

CLOVES.—Privately the market for Zanzibar exhibits a steadier tone, but business is on a small scale at 3⅛d. to 3$\frac{5}{32}$d. for Oct.-Dec. delivery. At auction 9 cases picked Penang were bought in, no Zanzibar being offered.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 8½d. per gallon; pure, 1s. 3d. per lb. Benzole, 50 per cent, prompt 7½d., July-Dec. 8d.; 90 per cent., prompt 6¾d., July-Dec. 7¼d. per gallon. Creosote, 3¼d. to 3⅜d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 3d. Solvent Naphtha, 95 per cent. at 160° C., 1s. 4d.; 90 per cent. at 160° C, 1s.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene, A, 3¼d.; B, 2½d. per unit. Pitch, 32s. 6d. per ton, f.o.b. Tar, crude or refined, 14s. per barrel, 2½d. per gallon.

COCAINE.—Makers are very firm. They have, however, so far made no alteration in their prices, which remain at 11s. 3d. to 11s. 9d. per oz., according to quantity and brand, for the Hydrochlorate in 25-oz. tins.

CODEIA.—This article is in very good demand, price remaining very firm at 12s. 3d. to 12s. 9d. per oz., according to quantity.

COD LIVER OIL.—Market is fairly steady at 56s. to 58s. per barrel, f.o.b., according to brand, for new non-congealing Norwegian oil, in 25-gallon tin-lined barrels. It is thought that when the autumn demand sets in, which will be the case shortly, we may very likely see an improvement in values.

CREAM OF TARTAR—Firm at 73s. to 74s. per cwt. for first white crystals on the spot, and 75s. to 77s., according to percentage, for powder.

GALLS.—Business in all kinds continues very slow. China are quoted 59s. to 60s. per cwt. for usual shape. Smyrna neglected, although in very moderate supply. Persian: Blues in little request; Greens more enquired for, but prices asked check business; Whites are firm at about late rates.

GINGER.—930 packages Cochin offered met slow demand rather easier rates ruling. About 200 packages found buyers; native cut medium and bold at 45s. 6d. to 49s. 6d., small and medium 27s. 6d. to 28s., washed rough medium and small at 22s. Of Jamaica 596 packages offered and 257 sold; good bright plump at 73s. to 75s., fair to good medium 61s. to 66s., ordinary to good ordinary 51s. to 58s. 6d., common 49s. to 50s. 6d.

GLYCERIN.—Crude is steady at about £30 per ton for the quality most suitable for refining purposes, while refined is quiet at about late prices, viz., 48s. 6d. to 50s. per cwt. for English, and 52s. 6d. to 57s. 6d. per cwt., according to brand, for German, best white double-distilled, chemically pure, 1260° quality, in 56-lb. tins (2 or 4 tins in a case).

IODINE AND IODIDES—Are in fair demand at steady prices, viz., 7½d. per oz. for commercial Iodine, 12s. per lb. for Iodine resublimed, 10s. 6d. per lb. for Potassii Iodid., 11s. 10d. per lb. for Sodii Iodid., 14s. 6d. per lb. for Ammon. Iodid., and 13s. 10d. per lb. for Iodoform, cryst., pulv., or precip.

IPECACUANHA.—Late arrival of Rio proves to have been only about 50 bales, while it is stated that no further arrivals can be expected before October. Price is firm, holders asking 17s. per lb. for Rio and 12s. 6d. per lb. for Carthagena.

LYCOPODIUM—Is firm at 1s. 5d. to 1s. 6d. per lb. for sifted, according to quantity.

MENTHOL—Is rather firmer at 7s. to 7s. 3d. per lb., according to quantity, for best white dry crystals in 5 lb. tins (12 tins in a case).

MERCURIALS—Are very firm at 2s. 10d. per lb. for Calomel, and 2s. 6d. per lb. for Corrosive Sublimate; other Quicksilver preparations being also unaltered in price.

MORPHIA—Is firm at 4s. 6d. per oz. for the Hydrochlorate Salt in powder (crystals 2d. per oz. more). Makers are exceedingly busy, and will not book fresh orders at all, except for delivery, at earliest, end of August to beginning of September, so great is the demand for delivery in execution of existing contracts.

NITRATE OF SODA.—Refined is quoted £8 5s. per ton, while the ordinary commercial article can be obtained at £7 17s. 6d.

NUTMEGS—Very slow of sale. Of 22 cases Penang, only 2 cases sold at 1s. 1½d. per lb. for 107's. 3 packages West Indian sold at 10d. per lb. for limed 106's.

OILS (FIXED) AND SPIRITS.—Linseed, steady; pipes, spot, London, £20 to £20 5s. per ton; barrels, £20 7s. 6d.; July-August, £20; September-December, £19. Hull, spot, naked, £19 10s.; July-August, £19; September-December and January-April, £17 10s. Rape, firm; ordinary brown spot, £22; July-August and September-December, £22 5s.; refined spot, £23 10s.; Ravison spot, naked, £18; July-August, £18 5s.; September-December, £18 10s. per ton. Cotton, quiet. London crude spot £15, July-August £15 5s., refined spot £16 10s to £17 5s., according to make, etc.; Hull refined spot naked £15 2s. 6d., July-Aug. £15 5s., Nov.-April £14 2s. 6d., crude spot £14 2s. 6d., July-Aug. £14 5s., Nov.-April £13. Olive: Mogador £30 to £31, Spanish £30 to £32. Coconut: Ceylon spot £25 10s. to £25 15s. landed, June-July and July-Aug. £23 15s, Aug-Oct. £23 10s., c.i.f. Cochin spot £28 10s. landed, Aug.-Oct. £25 15s., c.i.f. Palm: Lagos spot £24. Lubricating Oil: Pale American spot, 5s. 6d. to 7s. 6d. per gallon; black, 5s. to 6s.; pale Russian, 5s. 9d. to 8s.; black, 5s. to 5s. 9d. Turpentine, firm and dearer; American spot and June, 31s. 7½d.; July, 29s. 9d.; August, 28s. 6d. to 28s. 7½d.; Sept.-Dec., 28s. 6d.; Jan.-April, 1900, 29s. 3d. per cwt. Petroleum, firm; Russian spot and Sept. Dec., 5¼d. per gallon; American spot, 5⅛d. to 5⅜d.; Sept.-Dec., 5⅜d.; Water White spot and Sept.-Dec., 6⅞d. Petroleum Spirit: American, 9d.; deodorised, 9d. to 9¼d. per gallon.

OIL OF LEMON—Is dearer, 3s. 9d. to 4s per lb. being now the price of finest quality.

OPIUM.—The market for this article is somewhat firmer, prices being nominally 9s. 3d. to 11s. per lb. for good to fine soft shipping, and 8s. 3d. to 8s. 9d. for seconds. Good to fine Druggists', 8s. to 8s. 3d.; seconds and manufacturing, 7s. 3d. to 7s. 9d. Persian is very firm at 11s. 3d. to 11s. 9d. for good to fine, and 10s. 6d. to 11s. for seconds. In Smyrna prices rule distinctly higher than London parity, while there are very conflicting reports as to the new crop, the estimates of which vary from 6000 to 10,000 cases. It is probable that, as is often the case, the actual result of the new crop will be somewhere near about in the middle between the higher and lower figures.

OXALIC ACID.—3d. to 3⅛d. per lb. nett, free London.

PARAFFIN WAX.—Crude is still quoted 1⅞d. to 2d. per lb., and refined 2¼d. to 3d.

PHENACETIN.—Makers continue to press sales. Quotations for a really reliable article are 3s. 6d. to 3s. 9d. per lb., according to quantity. Bayer's article in original 1-lb. bottles is still quoted 6s. 6d. per lb., and Riedel's 5s. 6d. per lb.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS—Are unchanged, present quotations being: Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, crystals, 3¾d.; powder, 3⅞d. per lb., spot, London. Iodide, 10s. 6d. per lb. Permanganate: Makers' prices vary from 52s. 6d. to 60s. per cwt., according to brand, for small crystals in 1-cwt. kegs, large crystals being quoted 5s. per cwt. more money. Prussiate: Yellow, Beckton, 7⅞d. Other English makes, 8d. to 8⅛d. per lb.; red, 1s. 1d. to 1s. 2d. per lb.

QUICKSILVER—Is very firm at £8 5s. per bottle from the importer, and 6d. per bottle less from second hand.

QUININE.—Market is rather firmer to-day, the article still, however, maintaining its anomalous position. Makers of the German brands, which are chiefly in demand, maintain their price of 1s. 6d. per oz. for the Sulphate, for 1000-oz lots in 100-oz. tins, while second-hand quotes for the same brands 1s. 4¾d. per oz. for August delivery, and 1s. 5d. per oz. for October delivery. There are, however, rather buyers than sellers at these lower prices.

ROSIN.—Quiet. Strained on spot is quoted 4s. 3d. to 4s. 4½d.

per cwt., ex wharf, landed terms, and 3s. 11d. per cwt., c.i.f., for Sept.-Nov. and Nov.-Dec. shipment, per sailing vessel.

Saffron.—Very high prices are asked up to 44s. for best Valencia.

Seedlac—Quiet, and 75 bags fine pale Kurrachee in auction were all bought in at 63s. to 65s.

Shellac.—Market remains quiet, demand on spot being somewhat slow. For arrival, however, rather higher prices are asked, viz., 65s. 6d. per cwt., c.i.f., for TN Orange for Oct.-Dec. steamer shipment. In the speculative market 67s. 6d. per cwt. is quoted for TN for August delivery. In auction there was good competition for the reduced supplies catalogued, and the whole found buyers, Second Orange, chiefly without reserve, at fully previous rates to 1s. advance, fair TN selling on a basis of 66s. to 67s.; the few cases cakey Garnet brought steady rates. Button easier. A total of 378 cases offered and sold:—311 cases Second Orange sold, fair bright reddish free at 66s., good bright flimsy at 66s., good bright cakey to blocky at 65s., fair bright curly matted at 64s. to 65s., strong curly liver free at 63s. to 64s. 14 cases Garnet offered and sold, fair strong cakey at 60s. 53 cases Button offered and sold, good pale at 76s., fair pale resinous at 73s. to 74s., fair cakey firsts at 70 to 71s., cakey seconds at 65s.

Soda Compounds.—Bromide, 2s. 1½d. per lb. Crystals, 52s. 6d. per ton in bags and 55s. per ton in barrels ex-ship Thames. Ash, £5 to £5 15s. per ton, according to percentage, package and make. Bicarbonate, £7 12s. 6d. to £8 per ton; ditto, fully bicarbonated, 19s. 6d to 20s. 6d. per cwt. Bichromate, 2¾d. per lb. Caustic, white, 70 per cent., £7 10s.; 60 per cent., £6 10s. per ton. Hyposulphite (Antichlor.), 6s. 6d. to 8s. 6d. per cwt. Iodide, 11s. 10d. per lb. Nitrate: Commercial, £7 17s. 6d.; refined, £8 5s. per ton.

Spices (Various)—Black Pepper: 816 bags Malabar sold in auction at 5d. to 5¼d., also 5 bags Ceylon at 5¼d. White Pepper all bought in, Singapore at 8¾d. and Penang at 8¼d. Capsicums: 5 robbins Bombay bought in at 23s 6d. Cassia Lignea: 210 packages all bought in, good old false packed at 50s., new at 40s. to 45s. Cassia Vera: 120 bags bought in, coarse Padang quill at 31s. Cinnamon Chips: Of 161 bags Ceylon 140 sold, ordinary to good at 2⅞d. to 4¾d., and bark at 2½d. to 2⅞d. Mace, dull: Of 15 cases Penang only 1 case sold, fair pale, part wormy, at 1s. 5d.; 6 cases West Indian sold, fine pale at 1s. 10d., good at 1s. 7d. to 1s. 8d., broken pickings at 1s. 2d. Pimento, easier: Of 332 bags about 120 sold, middling to fair at 3⅜d. and fine small at 3¾d.

Sulphate of Copper—Is quoted £24 15s. to £27 per ton on the spot, according to make, etc.

Sulphonal.—The two principal makers are firm at 17s. per lb. for both crystals and powder; there are, however, still offers from second hand at a lower price. Whether there is really a third maker supplying the article is a question as to which opinions differ.

Sticklac—Neglected. In auction 20 cases Siam, rather small, bought in at 46s.

Tar.—Stockholm 26s. 6d., Archangel 20s.

Turmeric—Is quiet but steady, quotations being: Bengal, 18s. 6d. per cwt., with small sales of dark fracture at 19s.; Madras, good to fine bright, 25s. to 27s. 6d.; Cochin finger, 17s. 6d.; split bulbs, 9s. to 9s. 6d.; China fair finger, 18s. per cwt.

Liverpool Market Report.

June 28, 1899.

The market has been rather busier as regards transactions in Canaryseed, Ginger, Beeswax, and Castor Oil. Better prices are obtainable now for Castor Oil and Canaryseed, whilst lower rates rule for Spirits of Turpentine. A fair inquiry, with limited business passing, exists in the chemical trade. Sulphate of Ammonia a turn dearer.

Ammonia Sulphate.—£12 10s. to £12 12s. 6d. per ton.

Beeswax.—35 sacks of Chilian sold for £7 5s. to £7 10s. per cwt.

Borax—Is very firm; £16 to £16 10s. per ton.

Canaryseed.—The demand for Turkish has been and continues good, with a steady upward movement in price; 100 bags fair quality Turkish sold at 32s. per 464 lbs., 100 bags at 32s. 6d., 280 bags at 32s. 6d. to 32s. 9d., and 400 bags at 33s. 6d. per 464 lbs.

Carnauba Wax.—A fair demand exists for grey, and 31 bags sold for 42s. per cwt. *Ginger*: 160 bags of Sierra Leone found buyers ex-quay at 18s. per cwt.; 50 bags of Cochin, ex-store, sold for 23s. per cwt. *Linseed* is quiet, with a slight lowering of price. River Plate "to arrive" and on the spot is 36s. 6d. per 416 lbs., and Calcutta July 38s.; 200 tons Calcutta May-June shipment sold for 37s. 6d.

Oils (Fixed) and Spirits.—*Castor Oils* are very steady, with fair inquiry. 100 cases of Calcutta sold for 2⅛d. por lb., and 250 cases at 2⅞d. per lb. Sales of French 1st pressure at 2¾d. and 2nd pressure at 2⅝d. are reported. Madras is 2¾d. per lb. *Olive Oil* is strong in tone, with only a small amount offering. Candia at £31 10s. per tun, and Malaga at £32 per tun on the spot. For shipment, Malaga is put at £32 5s., and Seville at £31 to £32 per tun, cost and freight. *Linseed Oil* of Liverpool make, packed in export casks, is again dearer, 22s. 3d. to 22s. 6d. being asked. *Cottonseed Oil* is firm but quiet at 17s. to 17s. 6d. per cwt. *Spirits of Turpentine*, owing to arrivals, have dropped to 35s. per cwt.

Manchester Chemical Report.

June 28, 1899.

So far as this district is concerned, there is little new to report in regard to heavy chemicals, in which the business continues steady. Ammonia Alkali, 58 per cent., is very firm at convention rates. Miscellaneous chemicals are lower in some cases. Chlorates of Potash and Soda, even at the recent reduced rates, are the turn easier, the former being quoted 3½d., and Soda 3¾d. Salt Cake is easier at 27s. 6d. to 28s. 6d. per ton in bulk on rails. Glycerin continues in a position of great uncertainty, and there is still great competition for orders amongst producers in this district. A fairly current quotation appears to be about £42 for tins and cases, on rails or *f.o.b.* White Powdered Arsenic is firm and unchanged at £19 5s. to £19 10s. per ton, ex-ship Garston. Sulphate of Copper is lower, and £26 is taken for best brands, delivered Manchester. Brown Acetate is very irregular, but the tendency is upwards, and contracts are being put through at £5 to £5 2s. 6d., both Welsh and American, delivery over the next six months. Acetate of Soda is firm at £12 15s. per ton, *c.i.f.* Yellow Prussiate of Potash has recovered somewhat at 8¼d. in quantity. Coal Tar products are somewhat dull, except Creosote and Tar Oils, which are in request. Pitch is firm, but Anthracene is stagnant.

Newcastle Chemical Report.

June 28, 1899.

Business in heavy goods continues active. Shipping orders are passing hands with more freedom, mostly, however, for the Upper Baltic ports. Bleaching Powder and Soda Crystals are in rather more demand. Quotations, however, go unchanged, and are as follow:—Bleaching Powder, £5 7s. 6d. to £5 12s. 6d. Soda Crystals, 45s. to 47s. 6d. Caustic Soda: 70 per cent., £7 to £7 5s. Soda Ash: 52 per cent., £4 5s. Alkali: 52 per cent., £5 5s. Sulphur, £4 15s. to £5 per ton.

TERMS OF SUBSCRIPTIONS.

The Pharmaceutical Journal circulates amongst Pharmacists in Great Britain and Ireland, France, Germany, Austria, Italy, Russia, Canada, the United Statos, South America, India, Australasia, South Africa, etc., etc., and the average number of copies circulated weekly exceeds seven thousand.

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Publications Received.

A Manual of Pharmaceutical Testing for the Man of Business and His Assistants. By Barnard S. Proctor, F.I.C. second edition. Pp. viii.+192. Price 2s. 6d. net. London: The *Chemist and Druggist*, 42, Cannon Street, E.C. 1899. From the Publishers.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m on Thursdays.

OFFERED.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Superfine Oil Lemon, 10 lbs. Copper, 22s. 6d.; sample pound, 3s.—Moss, Chemist, Chorley.

36 Munyon's, 22s. 6d.; 4 ounces Quin. Sulph. Pur. 5s. 6d., 16 ounces £1, 50 ounces £3; Bismuth Scarb., 5s. 3d. per lb., 4 lbs. £1; Iodoform, Precip. or Crystal, 12s. 6d. per lb.; Saffron, 2s. 6d. per ounce, 4 ounces 9s. Carriage paid.—Eastman, Forest Lane, Stratford.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Camwal Shares Wanted. State number and lowest price.—Lawrence, Chemist, Rhyl.

Daisies, 7s. doz.; Erasmic Soap. Quantity and price.—Eastman, Forest Lane, Stratford.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc, have been received from Messrs. Abram, Alcock, Beaton, Bell, Bennett, Boor, Bowie, Brewer, Browning, Cox, Cruickshank, Davis, Elborne, Ellal, Gair, Harrie, Hewlett, Kirkby, Loosmore, McLaren, Mumbray, Ough, Peck, Sandy, Simmons, Stewart, Summers, Ward,

Obituary.

Butler.—On June 17, Samuel Butler, Chemist and Druggist, of 18, Ashgrove Road, Redland. Aged 90. Mr. Butler was formerly in business in Old Market Street, Bristol, but retired some twenty or thirty years ago. He took a personal interest in the work and ministry of the late Mr. George Müller at the Orphan Houses, Ashley Down, being associated with the movement from its inception sixty years ago, and for many years his name appeared amongst those who annually audited the accounts of the Orphan houses. Mr. Butler, who originally belonged to the Society of Friends, devoted much of his income to the Orphanage work.

Harvie.—On June 17, at his residence, Kilinn Cottage, George Harvie, Chemist and Druggist, Princes Street, Helensburgh, N.B. Aged 62. Mr. Harvie became a member of the Pharmaceutical Society in 1870, and had acted as Local Secretary for Helensburgh from 1878 till the time of his death. For some years he had been in failing health from weak action of the heart. He leaves a widow, and is succeeded in the business by his son, Henry Taylor Harvie, who qualified in January last.

Crofts.—On June 25, John Lawrence Crofts, Chemist and Druggist, Halifax. Aged 28.

Hargreaves.—On June 27, Mark Hargreaves, Chemist and Druggist, Preston.

Advertisements.

(Received too late for Classification).

NEWPORT (Salop).—Wanted immediately, an APPRENTICE or TURNOVER. A young man with 18 months' experience would be treated with as an Improver. Apply, with full particulars, to G. L. DOUTHWAITE, Chemist, Newport, Shropshire.

DISPENSER requires engagement with a medical man or institution, or LOCUM TENENS. Town or country. Hall certificate. Apply, Miss B. CORY, 56, Homefield Rd., Chiswick.

QUALIFIED ASSISTANT seeks permanency as SENIOR or MANAGER. Out-door. London or suburbs. West-end experience. Excellent references. Age 24½. DAVIES, 5, Rokeby Cres., Brockley, S.E.

DISENGAGED. 40. Hall. LOCUM or permanency in London or country. Experienced prescriber. Had hospital and private experience. Extractor. SPES, 70, Venner Rd., Sydenham.

POLITICAL GOSSIP.

Courteous Ambiguity characterised Mr. Balfour's response to the question put to him by Mr. J. W. Crombie as to the expectations of the Government in respect to legislation on the "Companies" question this Session. The first Lord of the Treasury evidently had no expectations whatever on the subject, and following the sound precept immortalised by Hosea Bigelow, he declined to predict without absolute knowledge. Though, like a good statesman, he replied nicely but said nothing, he managed to convey pretty conclusively to those in the habit of estimating the purport of parliamentary utterances that neither Mr. Beggs' Amendment Bill nor the House of Lords' proposals on the same subject will receive further attention this Session. Mr. Beggs' remedy for bogus company promotion is postponed for the present, whilst the Lords' Bills for restoring commercial morality and, incidentally, ensuring the salvation of Medicine and Pharmacy are still motionless—mere lines of standing print upon the official order book. Mr. Crombie would probably have something to say about Limited Companies if the matter came before the House, for he is a Director of J. and J. Crombie, Limited, and has had the advantage of some administrative training at the Board of Trade, where he acted as private secretary to Mr. Bryce during that gentleman's Presidency.

Exit the Shops (Early Closing) Bill.—Sir John Lubbock after so long a struggle against adverse circumstances, has again had to yield to the inevitable, and to drop his Bill for another year. Nor has he been fortunate enough to secure the ear of the House for his motion relative to the excessively long hours in shops. Mr. Steadman (Stepney) is also a reformer of shops, and some little time ago introduced a measure of his own to minimise what has been referred to as "white slavery." The Bill, which bore the name of the Shop Hours Act (1892) Amendment Bill, has now been abandoned. Thus of the attempts made this Session to obtain parliamentary authority to restrict shop hours have all proved abortive. It is true that Sir Charles Dilke still keeps his Shops Bill on the paper, but it is only a matter of a few days before it will follow its kindred to that bourne from which no Bill returns. It may be of interest, as indicating the present condition of business, to state that there are still 98 Bills on the Order Book, and 23 of these are "starred," that is to say, belong to the Government programme.

The Lord President of the Council was solemnly admonished on Tuesday by the Lord Chancellor not to meddle with the Jury Law of these realms. The incident arose out of an amendment to the London Government Bill, which stood in the name of an absent Peer, and which proposed that members of the new Municipal Councils should be exempt from Jury Service. His Grace of Devonshire moved the amendment on behalf of the absentee, and there was every possibility that the Peers assembled would have accepted it without much difficulty. Lord Halsbury, however, allowed no time for the expression of views; he conceived it to be his duty to save the House from legal sacrilege and he performed his duty well. He protested that the amendment would alter the general jury law of the country, and ought not to be adopted without the gravest consideration. The Peers trembled and the Lord President accepted the rebuke, and withdrew the obnoxious motion. The episode is referred to in this column, as it may be useful for chemists and druggists who pine for exemption from jury service to know the attitude of the Lord Chancellor in respect to applications for relief from such service.

Sir John Leng is apparently acquiring a politico-pharmaceutical qualification. Having been instrumental in wringing from the Government a hope-inspiring answer on the subject of the retailing of carbolic acid, Sir John has now been led to turn his attention to the Medicine Stamp Duty. On Monday next he will ask the Chancellor of the Exchequer if he can state the amount of revenue derived from the sale of medicine stamps in Scotland for the years ending March 31, 1898 and 1899 respectively. When the information has been obtained and handed over to the instigator of the question, will the Chancellor be asked to abolish the Stamp Duties in so far as they apply to Scotland? After all, there seems to be a distinct advantage in having questions bearing on pharmaceutical matters asked in Parliament, and we should not be sorry to see the question paper more frequently ornamented with such items. It would be an outward and visible sign of that political vitality within the pharmaceutical body, which we have continually advocated and endeavoured to promote.

East St. Pancras has been added to the parliamentary vacancies by the resignation of its member—Mr. R. G. Webster, LL.B., of the Inner Temple. The Unionist majority at the last election was only 289; hence a close contest may be expected. The polling is to take place on July 11, and between this and the critical day there should be ample opportunity for chemists in the Division to co-operate with a view to educating the candidates who seek their votes on the present position of pharmacy and its qualified practitioners.

THE PURITY OF FOOD AND DRUGS.

Lime Water.—At Lambeth Police-court, on June 22, E. F. Munday, chemist and druggist, Camberwell Green, was fined 40s. and 12s. 6d. costs, for selling lime water which the public analyst certified to be only 50½ per cent. of the strength required by the B.P. The defence was that the deficiency in strength arose through a mistake made by the wholesale house.

Milk of Sulphur.—Percy Murray was summoned at Bridlington Police-court, on June 24, for selling, in the shop of Messrs. J. Hardwick and Sons, milk of sulphur adulterated with 54·72 per cent. of calcium sulphate. For the defence it was urged that Murray was not liable, as the sample was endorsed as having been bought from John Hardwick. The Chairman said the Bench would convict, as it was a very serious adulteration. Defendant would be fined £5 and costs.

Almond Oil.—At Birmingham Police-court on June 23, Frank Henry Prosser, pharmaceutical chemist, 114, Spring Hill, was summoned and fined £1 and costs for selling almond oil containing 50 per cent. of peach-kernel oil. The defendant stated that he bought the oil as pure, but admitted that he had not tested it as he had perfect confidence in the wholesale house.—A similar fine was imposed upon Arthur Tyler, drysalter, for a like offence, he also pleading that the oil was sold in the same condition as received. One of the magistrates remarked that it would be a wise thing on the part of chemists to examine what they were buying and selling.

Camphorated Oil.—At Burnley on Wednesday, June 28, Charles Edward Dodsley, chemist and druggist, of Manchester Road, was summoned for selling adulterated camphorated oil. Mr. Wheatley, who prosecuted, said that analysis showed the oil to be deficient in camphor to the extent of 8 per cent. by weight. Any diminution in camphor meant a gain to the seller. Mr. Steele, for the defendant, admitted the analysis, but did not plead guilty. He urged that complete saturation had not taken place, but there had been no fraudulent intent. A fine of 10s. and costs was inflicted.

ENGLISH NEWS.

Johnson's Saccharum Co., Ltd.—On July 1 Mr. Justice North sanctioned an alteration in the memorandum of association of this Company for the purpose of enabling it to manufacture isinglass, finings, etc., in addition to glucose, dextrine, saccharine, and saccharine materials, to which it is at present confined. It was stated by Mr. Hamilton, who appeared for the Company, that the principal customers were brewers, distillers, and pharmaceutical chemists, who also used the other substances it was desired to deal in, and which were supplied by their foreign competitors. His lordship thought the name of the Company ought to be altered, subject to which the order would be made. Mr. Hamilton suggested that the name should be Johnson's Saccharum and Chemical Manufacturing Co., and his lordship said that would be satisfactory.

Death by Chloroform.—At Leeds, on June 23, an inquest was held with respect to the death of a page boy, aged seventeen years, who had been employed by Dr. F. B. Musgrave, first as surgery boy and afterwards as assistant dispenser. He was found dead in bed, with a bottle, which had contained chloroform, by his side, and a piece of cotton-wool covering his face. Evidence was given to the effect that the boy had suffered from neuralgia and toothache, and it was supposed that he had used the chloroform to alleviate pain. Death was attributed to mechanical suffocation, and the jury returned a verdict of death by misadventure.

Morphine Poisoning. On Tuesday, June 27, an inquest was held at Walsall concerning the death of a child aged one year and ten months, son of Mr. G. M. Tolley, ironmaster, Bescot. It appeared from the evidence that the little one had climbed from his chair on to the dresser and had swallowed the contents of a bottle containing an ear lotion. Medical assistance was obtained immediately, but was unavailing, death resulting from morphine poisoning. The lotion had been supplied by a doctor at Bilston and was said to contain two grains of morphine. The bottle was not labelled "Poison." Dr. Sydenham pointed out to the jury that though it would be necessary to label the bottle "Poison" in the case of sale by a chemist, it was optional with the medical profession. The jury returned a verdict of "Accidentally poisoned," but strongly recommended that it should be compulsory for doctors to label as poison all bottles which contain poison.

Employes' Outing.—The employés of Messrs. Stone and Son, chemists, of 166, Fore Street, Exeter, held their annual outing, in North Cornwall. The party journeyed to Camelford by train, travelling in a saloon carriage, kindly placed at their disposal by the London and South Western Railway Company. Arriving at Camelford the party proeeeded to Tintagel by brake. Dinner was served at the Wycliffe Hotel, the chair being occupied by Mr. E. F. Stone. "Success to the firm" having been drunk, the party continued their drive to Boscastle. Tea was provided at the Wellington Arms Hotel, after which the party drove back to Camelford to catch the train for home, which was reached after ten o'clock. The weather was all that could be desired, and a very enjoyable day was spent.

Outing and Presentation.—On Saturday last the annual outing of the employés of Messrs. Evans, Gadd and Co., of Exeter and Bristol, took place, the party numbering about eighty. The Exeter staff (exclusive of the female staff, who held an outing elsewhere) left Queen Street Station at 7.45, and the Bristol staff Temple Mead at 6 15, both meeting at Bournemouth, where, on arrival, the excursionists were entertained to a capital lunch at the Hotel Mont Dore, after which the majority of the party had a trip to Swanage by the steamer "Empress." The remainder of the party spent their time in visiting places of interest in and around the town, particularly Branksome Park Lakes and Chine, Alum Chine, over the Cliffs to Boscombe Pier, and through the Chine. The pleasure-seekers subsequently returned to the Hotel Mont Dore, where an excellent dinner awaited them. Alderman Gadd occupied the chair, and Mr. W. J. Wippell the vice-chair. After dinner and the usual toasts, Mr J. Taylor asked Mr. Boorne (manager of the Bristol branch) to accept for Miss Gadd and himself a standard lamp from the Exeter employés, and a silver lamp from the Bristol employés, on the occasion of their marriage. He hoped the lamp would serve to illuminate their home, brighten their leisure, and reflect the good feelings which prompted them in making the presentations. He understood that Mrs. Beck, on behalf of the bottling and finishing department of the Exeter factory, had presented Miss Gadd and Mr. Boorne with a cucumber knife, and there was also an address from the employés. Mr. H. Wippell Gadd acknowledged the gifts on behalf of his sister, and Mr. Boorne, who was enthusiastically received, also thanked the company for their kind presents to Miss Gadd and himself. Mr. Boorne then proposed "The Host," who having responded, the party separated. The homeward journeys were soon afterwards commenced, the destinations being reached after a glorious day's outing.

Overdose of Laudanum at Ashton-on-Mersey.—On Friday, June 30, Mr. Yates, coroner, held an inquest touching the death of Fanny Dean (49), dressmaker, of 9, Elm Grove. It was stated that deceased was of intemperate habits, and took laudanum to check sleeplessness. A verdict of "Death from misadventure by taking an overdose of laudanum" was returned.

Poisoning by Ammonia.—On Saturday, July 1, an inquest was held concerning the death of John Higginbottom (61), a weaver, of 47, Droylsden Road, Audenshaw. From the evidence it appeared that he had not for some time been able to follow his employment owing to failing eyesight, and on June 29 he had taken ammonia in mistake for turpentine, which he had been in the habit of taking for worms. A doctor was called in but the same evening the man died. The jury found that deceased had taken ammonia by mstake, and returned a verdict of "Death by misadventure."

Valentine Meat Juice Company v. Valentine Extract Company, Limited.—Mr. Justice Stirling in the Chancery Division on Thursday resumed the hearing of this action by which the plaintiffs asked for an injunction to restrain the defendants from carrying on business as manufacturers and vendors of extract of meat or meat juice under any name of which Valentine formed part. Mr. Upjohn, Q.C., for the defendants, urged that the defendant C. R. Valentine had a perfect right to sell the goodwill of his name to the defendant Company, which was an honest undertaking. The defendant and the other gentlemen connected with the Company had done nothing but what an honest commercial man might do without infringing the highest sense of commercial honour. He asked that no injunction should be granted. Mr. J. Fletcher Moulton, Q.C., replied on the whole case for the plaintiffs on Saturday and Wednesday. He said the plaintiffs were well known throughout the world for their meat juice, and when they found that someone else came into the trade with a form of globule of extract of meat and used Valentine as part of their name it was natural that the plaintiffs should feel injured. He submitted that it had been proved in evidence that the meat juice of the plaintiffs was frequently asked for as Valentine and if the defendants were permitted to continue to use their present title confusion to the public would arise and the plaintiffs would be damaged. There were letters put in which showed considerable confusion, and a traveller of the defendants had stated that everyone he had called on thought the firms were one and the same. Mr. Justice Stirling reserved judgment.

Exeter School of Pharmacy.—T.R.H. the Duke and Duchess of York on Wednesday last visited Exeter to open the new Diamond Jubilee Wing of the Exeter Technical and University Extension College at the Albert Memorial Museum, attached to which is a School of Pharmacy in which students are specially trained for the Pharmaceutical Society's examinations by Mr. Alan H. Ware, under the direction of Mr. A. W. Clayden, the principal of the College, who, on Saturday last, was presented by the students and friends of the College, to the number of about ninety, with a silk M.A. gown in case and a framed illuminated address recording this fact, and the names of the subscribers, and that it was in connection with the opening of the Diamond Jubilee Wing by their Royal Highnesses. The Royal visitors were received by the Mayor and Corporation and presented with an address prior to the opening of the wing. Mr. Clayden gave an outline of the work of the College, and after the opening ceremony Their Royal Highnesses were entertained at luncheon by Sir Stafford and Lady Northcote, after which the Royal visitors inspected the Devon and Exeter Hospital, where they received purses and attended other civic functions, the city being *en fête* for the occasion. Their Royal Highnesses were the guests of Lord and Lady Clifford, of Chudleigh, during their visit to Devonshire, and fulfilled several county engagements.

Royal Institution.—At a general monthly meeting of the members of the Royal Institution, held on the 3rd inst., Sir James Crichton-Browne, treasurer and vice-president, in the chair, Lord Kinnaird, Mr. A. F. Lindimann, and the Hon. W. J. Ward were elected members. The special thanks of the meeting were returned to Mr. Henry Vaughan for his donation of £20, and to Sir Henry Thompson, Bart., for his donation of £25 to the fund for the promotion of experimental research at low temperatures. The cordial thanks of the members were returned to the Masters and Wardens of the Merchant Taylors' Company; to the Lord Mayor and Lady Mayoress; to Dr. and Mrs. Mond; to Dr. and Mrs. Dewar; to Professor William Odling and to the Teachers of Natural Science at Oxford, for their hospitality to the members and guests of the Royal Institution during the recent centenary celebrations. The managers reported that they had received gratifying assurances from their guests that the centenary celebrations, as a whole, were highly appreciated and considered not unworthy of the past history of the Royal Institution, and of good augury for that new century of scientific work to which it has now to apply itself. It is satisfactory to be able to report that the centenary celebrations have not affected the pecuniary resources of the Royal Institution, as all expenses in connection therewith have been defrayed by private contributions. A balance remaining over of the sums contributed, amounting to £87, has been paid over to the fund for the promotion of experimental research.

'A Jubilee Souvenir' is the title of a volume composed of some two-hundred pages, giving an account of the work of Mr. G. S. V. Wills and the Westminster College of Chemistry and Pharmacy. The book has been written to gratify the wish expressed by many of the students who have passed through the College, for the history of the Principal, and the story of the College; therefore copies of the book are being sent to all old students. The narrative has been issued at this particular time because four events of deep interest to Mr. Wills and his friends occur within the twelve-months—his jubilee birthday; his silver wedding day; the coming of age of his only son; and the twenty-fifth year of the establishment of the Westminster College. In conjunction with the publication referred to, Mr. Wills issues his Minor Prospectus for 1899, in connection with the Westminster College, the old partnership of Messrs. Wills and Wootton having been dissolved on and from June 30 last.

Poisoning by Carbolic Acid.—On Monday, June 26, an inquest was held at Low Prudhoe, respecting the death of Ellen Brown, 74, a widow, and also of her great-grand-child, aged 2½, both having died the previous day from the effects of poison. It appeared from the evidence that the old lady was ill with English cholera, and some disinfectant, carbolic acid, had been used in the room, and the bottle placed on the floor under one corner of the bed. Her mind being somewhat deranged she got out of the bed, and seeing the bottle, poured some of the carbolic acid into a cup and swallowed part of the contents. Soon afterwards she was found to be very ill, and while being attended to the child found the cup and drank the remainder of the poison, death resulting in both cases. The jury returned a verdict to the effect that Ellen Brown died from carbolic acid poisoning, having taken the same in mistake for medicine which had been prescribed for her. And in the case of the child that he died from carbolic acid poisoning, having drunk the same in mistake for milk.

SCOTTISH NEWS.

Presentation to Mr. David Storrar, Kirkcaldy.—On Friday, June 30, an influential company of ladies and gentlemen assembled in the Swan Memorial Hall, Kirkcaldy, to do honour to Colonel Storrar, member of the Pharmaceutical Council. Mr. M. B. Nairn, of Dysart House, presided, and Mr. Lewis Grant, Chairman of the School Board, made the presentation, which consisted of an illuminated address, a silver salver, and a purse of 300 sovereigns. The address bore the inscription: "Presented to David Storrar, Esq., together with a silver salver and a purse of sovereigns, in recognition of the many and valuable public services rendered by him to the community through many years, and especially of his work as Secretary to the Committee of Science and Art Classes, from 1880 to 1898." Mr. Grant said if there was a man in their community who might be said to approach—and in some respects to far excel—the old Athenian ideal of citizenship, of self-abnegation, and self-sacrifice in the interest of his fellow-men, it was the citizen whom they were now met to honour and whom they all delighted to honour. Their guest was a many-sided man, an enthusiast in art, and himself an artist of no mean attaintments. He was Lieut.-Colonel of the local Artillery Volunteer Corps, and a member of the School Board, and had also acted as a Town Councillor, Harbour Commissioner, Water Commissioner, Governor of Philip's Trust, and a member of the Burgh Trust and the Parochial Board, and for eighteen years he had rendered invaluable service as secretary for the science and art classes which were now taken over by the School Board. His many friends had ventured to honour themselves by presenting him with these tangible tokens of their high sense of obligation to him for all his labours of love. The subscribers included many former students of the science and art classes in distant parts of the earth, and he had to express the hope of all the subscribers that he would be spared for many years to continue his useful public work. As an evidence of his repute in his own line as a chemist, it was enough to say that he was one of the two Scottish representatives on the Council of the Pharmaceutical Society of Great Britain. Colonel Storrar, who was loudly applauded, expressed his high appreciation of their great kindness. He was born in Kirkcaldy and had lived his life in it and given a little help to its progress, the extent of which he described in a most interesting speech, and concluded by saying he hoped their kindness to him would be an incentive to the young men present to take part in public work when they saw that such work was appreciated by their fellow-townsmen. A complimentary dinner followed in the George Hotel, when Rev. John Campbell, B.D., presided and proposed the toast of the evening in a very humorous speech, in which he said there was a perpetual resort to Mr. Storrar's backshop by all ranks and conditions of people, and if Colonel Storrar were to write "The Chronicles of the Backshop" they would have a revelation as to the extent to which he had influenced the private and public life of the community. Mr. Storrar suitably replied, and among other toasts were "The Friends of our Guest" proposed by Mr. D. Wilson (Perth) and replied to by Messrs. H. Storrar and J. Laidlaw Ewing, the latter representing the Pharmaceutical Society.

Laudanum Poisoning in Glasgow.—On Saturday night, July 1, John Robertson (40), shoemaker, 93, Cumming Drive, Glasgow, was admitted to Victoria Infirmary suffering from an overdose of laudanum, and recovered after treatment. He was found lying unconscious by his wife with an empty four-ounce phial beside him. He had been depressed for some time, and was in the habit of taking laudanum to induce sleep.

Mr. John MacIntyre, chemist and druggist, North Berwick, has been elected Provost of that town.

Aberdeen Pharmaceutical Association.—This Association held its annual excursion on Tuesday, June 27, the party, which numbered about thirty, leaving the Joint Station, Aberdeen, in a saloon carriage provided by the Caledonian Railway, and proceeded to Fordoun. At Fordoun Station they were met by Mr. Bertie, chemist, Auchenblae, who from his knowledge of the district was quite an acquisition to the company. From Fordoun the party drove in carriages through the beautiful village of Auchenblae. At Drumtochty the party dismounted, and by the kindness of Mr. Gemmell, the proprietor, were allowed within the chapel and grounds, where numerous photographs were taken of the beautiful surroundings. The drive was afterwards continued through hedges of rhododendrons, by the loch of Glensaugh to Clatterin' Brigs, where lunch was partaken of and numerous games were engaged in. After a stay of fully two hours, the company drove to Fettercairn, and afterwards proceeded to Laurencekirk, where an excellent dinner was served by mine host of the Gardenston Arms. The return journey to Aberdeen was made with the train that arrives there at 9.5 p.m. The weather was all that could be desired.

Presentation to Mr. Thomas Maben, Hawick, on the evening of Thursday, June 29, at a meeting held in the hall of the Evangelical Union Church, Hawick, for which he has acted as secretary since 1888, and which position he now resigned in consequence of his removal to Glasgow. The presentation was made by Mr. Edward Wilson, of Beechhurst, who said Mr. Maben had been one of the strong ones among them for a quarter of a century, and his personality had been deeply marked on much in that church and town. With great energy of purpose he combined an immense power of working, which he was always ready to give heartily in the interests of all good work. He then handed to Mr Maben a three-quarter plate English lever watch, bearing the following inscription: "Presented to Mr. Thomas Maben, by the E. U. Congregational Church, in recognition of the many valuable services rendered during a long period of years, June 1899." He also handed to Mrs. Maben a handsome silver-mounted brush and comb, suitably inscribed. Mr. Maben acknowledged the gifts, which he said they would be proud to show to their friends as an evidence of how they were regarded by the people among whom they had spent nearly twenty happy years.

FRENCH NEWS.

Petty Vengeance.—Dr. Augagneur, professor of the Faculty of Medicine of Lyons, has just been the unfortunate victim of the over-zealous patriots of Lyons. It appears that the learned professor offended the students who cheered and acclaimed Marchand, by calling them a set of rabid imbeciles. For this outspokenness and assumed lack of patriotism the Council of the University of Lyons has childishly retaliated by suspending Dr. Augagneur's "Cours" for a period of one year. Truly a tyrannical and vindictive procedure and one quite incompatible with that boasted *liberté*, *égalité*, and *fraternité* the national motto, which one hears so much about and sees plastered upon every edifice in the country.

Vitriol Dramas.—It is only in France that when the course of true love ceases to run smooth, women seek vengeance in throwing vitriol upon the lovers who have offended them. Of late there seems to be quite an epidemic of this abhorrent practice, and some legislation is sorely needed to regulate the sale of this dangerous fluid. Last week Marie Legagneur and Gaston Marchand, two young sweethearts and employés at a printing establishment in the Cours des Petites-Ecuries at Paris had a quarrel. It appears that Marie announced to her young Romeo that, due to his attentions, she was in an unenviable condition. Learning this fact the youth ceased all relationship with the girl, and in fact shunned her completely. Stung by such cowardly treatment the girl awaited Gaston at the corner of the Rue d'Enghien and threw full in his face a bowl of vitriol, disfiguring him fearfully. He was at once taken to the nearest pharmacy, but his state was so dreadful that an ambulance had to be telephoned for to bear him off to the Hospital Lariboissiére. His eyesight is completely destroyed.—— On Sunday night, as Monsieur Louis Moisan was returning to his home, 6, Rue de Wattignies, a woman accosted him and threw over his head and neck the contents of a milk-jug of vitriol, burning him frightfully on the right cheek and neck, and destroying his right eye. His condition was considered so grave as to demand his retention at the Hospital Saint-Antoine. His aggressor, Marie Eléanor Cojeau, was at once placed under arrest and conducted to the police depôt, where, in reply to questions, asserted that she had committed the act because she was jealous of him, and yet intended to "warm" his other side when the opportunity shall present itself.

Interesting "Find" in a Parisian Pharmacy.—As stocktaking and a general cleaning out was being prosecuted at the Pharmacie Swann, Paris, a rather interesting box was found carefully packed away in the magasin. It appears to have belonged to a former assistant, who had charge of the Pharmacie in Mr. Swann's absence during the Commune in 1871. The assistant died soon after, but the box had remained intact where it had been stowed until the other day. When opened and its contents removed, carefully wrapped and labelled packets were found. In one were Prussian bullets in various conditions found, some whole, others flattened. Then in another, a portion of a Prussian shell weighing about 800 grammes, found in the Jardin du Luxembourg. In still another was a portion of the Column Vendôme, wrecked during the Commune. Others contained flowers taken from the statue of General Clement Thomas, who was shot during the siege; pieces of the Porte Saint Denis, and chips of marble from statues mutilated in the Place de la Concorde, and many other trophies and souvenirs too numerous to mention, but all bearing testimony to the troublous times which reigned in the gay capital after the war.

At the Sorbonne.—The University Council met on June 27, under the presidency of Monsieur Gréard. Having acknowledged the receipt of sundry expeditions from foreign Universities the work of the Council was proceeded with. Monsieur Gréard nominated Monsieur Michel as master of Conferences of Mineralogy to the Faculty of Sciences, and Messieurs Lévy-Bruhl and Lafaye as directors d'études de la Faculté des Lettres. He also communicated the decision of the Faculty of Medicine to delegate Monsieur le professeur Fournier to the Medical Conference of Brussels in September next. The Council then pronounced upon one of the students the penalty of exclusion from all Faculties and Schools of Higher Education, public and free, during twelve months, for having sold books belonging to the Library of the Faculty to which he belonged. Authority to continue the free course of lectures by Monsieur Courtant upon pharmaceutical legislation was also granted, and a favourable reception was accorded to the proposition to found an institution granting the certificate "d'études françaises" to male and female students of foreign nationality.

A Pharmacy Besieged.—A pharmacien at Raincy has just had a singular adventure. It appears that his little girl, whilst playing outside the pharmacy with some neighbours' children, was ill-treated and fled indoors, still followed by one little boy. Noticing blood-stains upon the child's face, the father, moved to anger more than was necessary, seized the boy and took him into the pharmacy, and there wrote upon his forehead in large characters with a caustic point the word "Brigand." Recognising the absurdity of his action, he essayed to remove the stains, but the youngster struggled and bellowed, and finally made good his escape. The news was soon wafted round the quarter, and the neighbours, indignant at the act, repaired *en masse* to the Pharmacy. Hearing them coming the pharmacien quickly closed and went upstairs to the window, from which he fired several revolver shots in order to attract the attention of the police. This he succeeded in doing, several arrests were made, but the demonstrators were soon liberated.

Concours.—A Concours is to be held on December 11, 1899, before the mixed Faculty of Medicine and Pharmacy of the University of Lyons, for the chairs of Pathology, Clinical Surgery, and Obstetrical Clinique to the Preparatory School of Medicine and Pharmacy of Dijon.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. A. E. Bolshaw, M.P.S., chemist and druggist, 37, White Rock, Hastings, has placed in his handsome newly-fitted pharmacy an artistic late design "American Soda Fountain," and is now able to supply his patrons with fruit-juice beverages in the latest up-to-date American style.

Mr. L. A. Cocker, M.P.S., pharmaceutical chemist, 68, Mostyn Street, Llanduduo, intimates that he has erected a splendidly-equipped photographic dark room for the use of visitors, and keeps a very large assortment of photographic goods, and that all dry plates, films, papers, etc., are guaranteed to be quite fresh.

Messrs. Oxen and Co., Limited (D. H. Oxen, M.P.S., managing director), of Newcastle-under-Lyne and Stoke-upon-Trent, have recently purchased the branch business of Mr. W. Hartle, chemist and druggist, 99, Broad Street, Hanley.

Mr. Josiah Austin, F.S.A., M.P.S., Nechells, Birmingham, is the author and publisher of an illustrated booklet entitled "Beautiful Italy" and numerous other pamphlets on health, travel, etc. These pamphlets are "dedicated to the working classes, who, whilst not being able to visit the world's wonders are ever ready to read and learn from the pen of those who desire their welfare." The booklet referred to includes interesting descriptions of Milan, the Lakes, Veniec, Florence, Naples, Pompeii, Vesuvius, Rome, Genoa, Pisa, etc.

Mr. James Taylor, head of the drug department of Messrs. Evans, Gadd and Co., Exeter, was the recipient on Friday last of a handsome marble clock and Japanese vases, together with a framed photographic group of the principals and employés of the firm. A silver plate on the clock bore the inscription: "Presented to Mr. James Taylor as a slight token of esteem and a memento of fifty years' faithful service for the firm of Messrs. Evans, Gadd and Co., from his sincere friends, Henry Gadd and W. J. Wippell, Exeter, July 1, 1889." Mr. Taylor was also presented with a framed illuminated address by his fellow emloyés.

Bro. W. R. Cook, Pharmaceutical Chemist, Faringdon, has had the honour of Provincial Grand Pursuivant conferred upon him at the Provincial Grand Lodge held at the Royal Military College, Sandhurst, on the 1st instant, by the Right Worshipful the Provincial Grand Master, Lord Wantage, V.C., K.C.B.

Mr. I. Weston Aplin, chemist and druggist, Chislehurst (from P. W. Squire, Oxford Street, London), is reported to have acquired the business recently established by Messrs. Coleberd and Co., Ltd., in High Street, Exeter, and intends to carry on a "high-class pharmacy on the latest modern cash principles," and to supply "Imperial quality at democratic prices."

Dr. S. B. Schryver, of the Wellcome Chemical Research Laboratories, has been awarded a Research Medal by the Council of University College, London, as one of the former pupils of the College who has most distinguished himself in research. Dr. Schryver received the medal at the official presentation of prizes at the College, on Friday, June 23.

Mr. Owen Jones, chemist and druggist, Penmaenmawr, has succeeded to the business of his brother-in-law, Mr. J. W. Ellis, chemist and druggist, Abergele, North Wales.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

July 6, 1899.

As might have been expected, business has been somewhat restricted during the past week; at the same time a fair number of transactions have taken place since the turn of the half-year. There are no changes in value of any special importance to report, excepting a rise in price of Quicksilver, which, it is said, may very likely be followed by a further advance before very long. Mercurials are so far unchanged. Quinine very dull at nominally unchanged values. Iodides and Bromides without change. Bismuth and Salts very firm and in good demand, it being hinted that the long anticipated advance in price to something like the old figure may possibly now not be much longer postponed. Glycerine, Cod Liver Oil, and Glycerine are very dull. Opium and Morphia dearer. Codeia very firm. Castor Oil firmer. Sulphate of Ammonia rather easier. Linseed Oil and Rape Oil very firm. The following are particulars as to prices ruling for some articles of chief interest:—

ACETANILIDE—Continues dull and weak at 11d. to 1s. per lb., according to quantity and make.

ACID CARBOLIC—Is in good demand, quotations for the best makes being 6¾d. per lb. for the 35°-36° C. ice crystal in large drums and overcasks; 7¼d. to 7½d. for the 39°-40° C. ice crystal, and 8¼d. to 8½d. for the 39°-40° C. in detached crystals, this being now the B.P. quality. Crude 60° F. 2s. 1½d.; 75° F. 2s. 8d. per gallon. Liquid of pale straw colour 95-98 per cent. at 1s. 2d. to 1s. 3d. per gallon in 40 gallon casks.

ACID CITRIC.—Makers of the best brands still quote 1s. 8d. per lb. for Crystals in 5 cwt. casks. They can hardly be considered as being free sellers at the price. Second-hand offers at 1s. 7½d. per lb. It is stated that with a continuance of warm weather there is prospect of even higher prices ruling, both Juice and Citrate of Lime being very firm.

ACID OXALIC.—No change in price to report.

ACID TARTARIC—Firm at unchanged price.

AMMONIA COMPOUNDS—Are without change with the exception of sulphate, which is a shade easier.

ANTIPYRINE and **PHENAZONE**—Are unchanged.

BLEACHING POWDER (CHLORIDE OF LIME)—Unchanged at £6 per ton for English.

BORAX AND BORACIC ACID—Are unchanged.

BROMIDES AND BROMINE—In good demand, prices remaining as given last week.

BISMUTH.—Price both of the Metal and of the Salts remains unchanged; there are, however, rumours that the long-expected advance to something like the old figure of 7s. 6d. per lb. for the metal may possibly take place ere long.

CAMPHOR.—Crude remains nominally unchanged at 135s. per cwt. c.i.f. for Japan, and 127s. 6d. for China, while the price of refined has been reduced 1d. per lb. by the English makers, prices now being for ton lots, 1s. 7d. per lb. for Bells and Flowers, and 1s. 8d. to 1s. 10½d. per lb. for Tablets, according to size. The German refiners also reduced their price.

CASTOR OIL—Remains firm. Belgian first pressing, spot, £25 10s. per ton; second pressing £23 per ton ex wharf. Hull manufactured, guaranteed cold drawn, fine Pharmaceutical oil £28 5s. per ton in barrels, 3$\frac{5}{16}$d. per lb. in cases; pure firsts £25 15s.; seconds £24 5s. per ton in barrels; firsts 3$\frac{1}{16}$d. per lb. in cases, seconds 2$\frac{7}{8}$d. per lb. for prompt or forward delivery ex wharf London. London first pressing 24s. 6d. per cwt., second pressing 23s. 6d. per cwt. Medicinal in cases 3½d. per lb.; French 25s. 6d. per cwt.; spot, 23s. 6d. f.o.b. Marseilles; second pressing, spot, 24s. per cwt.

CLOVES.—Privately the market for Zanzibar is firm at rather higher rates. Sales include July-Sept. at 3$\frac{3}{16}$d. and Oct.-Dec. at 3$\frac{9}{32}$d. to 3$\frac{5}{16}$d. No Zanzibar offered in auction. 27 cases Penang were bought in, ordinary picked at 7d. to 7½d., unpicked at 6d.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. per gallon; pure, 1s. 3d. per lb. Benzole: Dearer, 50 per cent., 8½d.; 90 per cent, 8d. per gallon. Crude Naphtha: 30 per cent. at 120°C., 3½d. per gallon. Solvent Naphtha: 95 per cent. at 160°C., 1s. 4d. per gallon; 90 per cent. at 160°C., 1s. 1d.; 90 per cent. at 190°C., 1s. 2d. per gallon. Creosote: 3½d. per gallon. Anthracene: A. 3½d. per unit; B. 2¾d. Tar, Crude and Refined: 13s. 6d. per barrel; 2¼d. per gallon. Pitch, 32s. per ton, f.o.b.

COCAINE—Makers so far make no change in their price, which remains at 11s. 6d. to 11s. 9d. per oz., according to quantity and brand, for the hydrochlorate in 25-oz. tins.

CODEIA—Is in good demand, and very firm at 12s. 6d. to 12s. 9d. per oz. for the pure, and 1s. per oz. less for the salts.

CODLIVER OIL—Is quiet, with no alteration in price to report.

CREAM OF TARTAR—Quiet, but steady at unchanged quotations.

ESSENTIAL OILS—Remain very quiet. In Peppermint H.G. Hotchkiss is firm, and rather dearer at 5s. 3d. per lb. Japanese dementholised is also quoted rather higher at 7s. 3d. per lb. Star Aniseed unchanged at 5s. 7½d. per lb.

GALLS.—China continue slow of sale at 59s. per cwt. for usual shape. Persian are in good demand, and firm at 62s. 6d. to 65s. per cwt. for blues, 56s. to 57s. 6d. for green, and 52s. 6d. to 53s. per cwt. for white. Smyrna remain dull, although the supply is very restricted.

GINGER.—Fair supplies offered, but demand slow and somewhat lower rates ruled. Of 1,082 bags and 233 cases Cochin, about 200 packages sold; good bold cut and scraped, much limed, at 75s.; fair bold, some medium ditto, at 69s. 6d. to 70s.; fair medium ditto at 45s. 6d.; cut ends at 23s. 6d.; washed rough bought in at 23s. to 25s. 1,097 packages Jamaica offered, of which 813 sold; fair to good bright at 64s. to 70s.; fair to good medium 59s. to 63s.; ordinary to good ordinary 51s. to 56s. common to good common 47s. to 50s. 6d.

GLYCERINE.—Crude continues firm, while the refined article remains dull and weak at nominally unchanged prices.

IODIDES AND IODINE—Are steady at unchanged prices.

MENTHOL.—Best dry white crystals are quoted 7s. 3d. per lb., but with the renewal of demand we shall probably see a better price for this article.

MERCURIALS.—Makers so far made no alteration in their prices, which remain therefore as given last week.

MORPHIA.—Makers advanced their price to 4s. 10d. per oz. for the Hydrochlorate Powder (crystals 2d. per oz. more), and in view of the firmness of the crude Drug it looks as if the advance will be maintained, for the present at any rate, especially in view of the fact that makers appear to be unable to cope with the pressure of orders against existing contracts, and are therefore practically unable to book fresh contracts except for later delivery.

NITRATE OF SODA—Is quoted £7 17s. 6d. per ton for the ordinary commercial article, and £8 2s. 6d. per ton for refined on the spot.

OILS FIXED and **SPIRITS**.—Linseed and Rape oils are very firm. Cotton quiet. Petroleum and petroleum spirit rather firmer; otherwise there are no changes of importance to record.

OIL OF SWEET ORANGE.—Best makes are now quoted 8s. to 8s. 6d. per lb.

OPIUM—Has been in good demand, and prices are firm to somewhat dearer for both druggists' and manufacturing kinds. Soft shipping is firm, but no business has been reported. Persian has been in active demand, and is now held for full prices, say 11s. 9d. to 12s. per lb. for fine, no medium being available.

PHENACETIN—Very quiet at nominally unchanged price.

POTASH COMPOUNDS—Are quiet and without change.

QUICKSILVER.—Yesterday the importers raised price 2s. 6d. per bottle, to £8 7s. 6d., secondhand meantime not offering. It is believed in some quarters that a further advance is not improbable.

QUININE.—The market remains very quiet. Makers' price for the best German brands of sulphate remains unaltered, while in the speculative market there is nothing doing, prices being nominally unchanged at 1s. 4d. per oz. for spot, 1s. 4¾d. for August, and 1s. 5¼d. for October delivery.

SHELLAC—Remains very quiet, there being practically no business passing in the article, while prices are nominally without change.

SODA COMPOUNDS—Are practically without change.

SPICES (various).—Black Pepper: 130 bags Tillicherry bought in at 5⅜d., no Singapore offered. White Peppper: 150 bags Singapore and 85 bags Penang all bought in. Capsicums firm: of 77 bales Bombay 31 sold at 29s. to 33s. for fair to good bright. Mace dull: of 31 cases Penang 5 sold, finc bold red, little pale, wormy, and slightly mouldy, at 2s.; broken red at 1s. 2d.; 12 packages West Indian sold, fair to good red at 1s. 6d. to 1s. 7d., broken pickings at 1s. 1d. Nutmegs flat: 33 packages West Indian sold, 64's at 2s.; 84's, slightly mouldy, at 1s. 3d.; 76's at 1s. 6d. to 1s. 7d.; 101's and 102's at 1s. to 1s. 1d.; 111's at 1s.; 118's, slightly mouldy, at 9½d.; 128's at 9d. to 9½d.; 148's at 6½d. Pimento: 488 bags offered and 187 sold, ordinary to fair at 3d. to 3⅜d.

SULPHONAL.—The quantity offering below 17s. per lb., whioh is the makers' price for both crystals and powder, appears now to be reduced to quite limited dimensions.

TURMERIC—Has been very quiet, with only restricted business at about previous rates.

To-day's drug auctions passed off quietly, and without special incident. Rio Ipecacuanha showed a decline. The following are the particulars as far as it has been possible to give same up to time of going to press:—

ALOES.—Good hard bright Cape was held for 26s. per cwt., softer, duller, and rather drossy selling at 24s, down to 20s. 6d. per cwt. for two barrels sweepings.

ASAFETIDA.—Of 10 cases, fine drop realised 77s. 6d. per cwt., rather stoney 65s. to 67s. 6d., and black heavy 40s.

BALSAM PERU.—4 cases of good quality were taken out at 8s. 6d. per lb.

BALSAM TOLU.—4 cases were held for 1s. 4d. per lb.

BUCHU LEAVES.—2 bales oblongs were taken out at 4d. per lb.

CARDAMOMS.—Medium to fair Ceylon sold at 1s. 9d. to 2s. 6d. per lb. 1 case seeds sold at 2s. 5d. per lb.

CASTOR OIL.—33 cases Calcutta were all bought in at 3¾d. per lb. for firsts and 3¼d. per lb. for seconds.

CASCARILLA BARK.—7 bales and 15 barrels bought in at 50s. per cwt. for good bold; siftings selling at 35s.

CINCHONA BARK.—13 bales Carthagena were bought in at 4d. per lb. 8 serons catalogued as Peruvian sold at 8½d. per lb.

COCCULUS INDICUS.—23 bags of good quality realised 10s. per cwt.

COLOMBO ROOT.—7 bags fair washed were held for 40s. per cwt., 35 bags medium ditto part selling at 20s., while good sorts realised 16s. 6d. per cwt.

CANELLA ALBA.—10 bales good realised 35s. per cwt.

CUTTLE FISH BONE.—For 85 mats good white sorts there was no bid, same were taken out at 5d. per lb.

DRAGON'S BLOOD.—7 cases fine picked part sold at the very high price of £22 per cwt., balance being bought in; fair bright lump realised £9 to £10; rather better quality, £12 per cwt.; inferior bricky selling at £6 to £7.

ERGOT OF RYE.—10 cases good sound Spanish taken out at 1s. 9d. per lb.

ESSENTIAL OILS.—40 cases Eucalyptus of fair commercial quality were held for 9d. per lb.

GAMBOGE.—17 cases were taken out at £9 for bright pipe; part rather damp.

GUM BENZOIN.—Good seconds Sumatra sold at £9 10s. to £9 15s., fair ditto at £9 per cwt. 2 cases good Siam at £18 per cwt.

GUM GUAIACUM.—1 bale good lump sold cheaply.

GUM KINO.—2 tins, African, sold at 2s. 6d. per lb.

GUM MYRRH.—13 bales and 3 cases part sold at 40s. per cwt. for fair, three cases inferior blocky selling at 12s. per cwt.

HONEY.—157 packages Jamaica part sold at 21s. to 22s. per cwt. for set white; another lot of 69 barrels part sold at 22s. 6d. to 23s. per cwt.; 23 cases good liquid Californian taken out at 34s. per cwt.

IPECACUANHA.—Eleven bales Rio part sold at 14s. 6d. to 15s. per lb. for ICSD and ICCD which shows a decline in valuc. Ten bags finc Cathagena were held for 13s. per lb., a bid of 11s. 6d. being refuscd. Other eight bales not so good in quality realised 11s. 9d. per lb.

JALAP.—Fair heavy tubers were bought in at 7d. per lb. for rather small, and 7½d. per lb. for fairly bold.

LIQUORICE ROOT.—16 bales fine peeled bought in at 65s. per cwt.

MUSK.—6 tins Tonquin of inferior quality, offered without reserve, sold at 17s. to 30s. per oz.

NUX VOMICA.—99 bags small Madras were bought in at 9s. per cwt.

ORRIS ROOT.—86 packages East Indian sold cheaply at 5s. per cwt.

QUASSIA WOOD.—20 tons Jamaica, bought in, at £4 15s. per ton.

QUININE.—2,000 oz. Brunswick Sulphate in 100 oz. tins held for 1s. 4d. per oz., 1,500 Jobst for 1s. 3d. per oz.; 2,000 ozs. Pelletier's guaranteed B.P. test, 1898, for 1s. 4d. per oz.; 1,000 ozs. Howard's in 1-oz. vials for 1s. 8d., 750 ozs. ditto in 25-oz. tins for 1s. 6d. per oz.

RHUBARB.—Fair to good flat Canton was taken out at 1s. to 1s. 3d. per lb.; round, 1s. 1d.; good bold round Shensi sold at 2s. 6d. per lb.; fair flat ditto, at 1s. 6d.

SANDALWOOD CHIPS.—173 bags of good quality were bought in at 22s. per cwt.

SARSAPARILLA.—8 bales Guayaquil sold at 10d., 1s., and 1s. 1d per lb. for 3, 2, and 1 CCD respectively. 5 bales Jamaica, part sold at 1s. 6d. per lb. 6 serons Honduras were taken out at 1s. 4d. to 1s. 5d. per lb. 22 bales Lima, somewhat chippy, at 11d per lb., a bill of 10½d. per lb. being refused. 9 bales good Lima held for 11d. per lb.

SCAMMONY ROOT.—271 bags sold, without reserve, at 17s. 6d. to 18s. per cwt.

SENNA.—11 packages Alexandria sold at 7½d. to 7¾d. 4 bales Tinnivelly were bought in at 7d. per lb. for the sound, and 6d. for I.C.S.D.

STAR ANISEEDS.—2 bales, quality of which left much to be desired, were bought in at 60s. per cwt.

TAMARINDS.—Fair Antigua bought in at 11s. per cwt., very medium East Indian being held for 6s. 6d. per cwt.

TONQUIN BEANS.—2 casks fair Angostura were taken out at 3s. per lb.

WAX.—16 blocks fair African were bought in at £6 10s. per cwt.; 16 cases East Indian held for £7 2s. 6d.; white Calcutta part sold at £5 17s. 6d. to £5 12s. 6d.; fair Jamaica bought in at £7 7s. 6d. 12 bags Cuban part sold at £6 5s., balance being taken out at £6 15s. 4 cases very medium Zanzibar fetched only £5 15s. per cwt; fair Madagascar bought in at £6 10s.

Newcastle-on-Tyne Chemical Market.

JULY 4, 1899.

Shipping orders for heavy goods for the Baltic and Channel ports have been more in circulation during the last few days. Bleaching Powder and Soda Crystals are still being well booked ahead at quoted prices. In fact, the existing better all-round trade is keeping general makes on the move, so that stocks do not materially increase. Quotations keep as follow:—Bleaching Powder, £5 7s. 6d. to £5 12s. 6d. Soda Crystals, 45s. to 47s. 6d. Caustic Soda, 70 per cent., £7 to £7 5s. Soda Ash, 52 per cent., £4 5s. to £4 10s. Alkali, 52 per cent., £5 5s. to £5 7s. 6d. Sulphur, £4 17s. 6d. to £5 per ton.

Manchester Chemical Report.

JULY 5, 1899.

The stock-taking now progressing in various works interferes with the usual volume of business, and buyers are only buying from hand to mouth. Notwithstanding this, prices of Alkalies are firm, caused no doubt by the continued demand for export account. Caustic Soda and Bleaching Powder are in request, and Soda Crystals continue somewhat scarce. Glycerin is unchanged at £42 per ton, tins and cases, chemically pure on rails. Brown Acetate is firmer, and the range is now £5 2s. 6d. to £5 7s. 6d. for prompt delivery. Sulphate of Copper is about 10s. per ton lower on the week. Pitch is higher, and for prompt 28s. 6d. is being paid, while makers are looking forward to higher prices for next season's delivery. Naphthas remain firm. Green Copperas, Lancashire. make, is unchanged at late rates. Acetate of Soda dull at £13 10s. to £13 15s. per ton. Both Glauber and Epsom Salts are firm at 35s. and 55s. respectively. Yellow Prussiate is firm at 8¼d. to 8½d according to quantity. Alum dull.

Liverpool Market Report.

July 5, 1899.

With the exception of a considerable fall in the price of Spirits of Turpentine prices are practically those of last week. Slight improvements are to be noted in the quotations for Quillaya Bark and Cream of Tartar. The demand in the chemical trade is better, and a good amount of business has been done in Caustic Soda.

Ammonia Salts.—*Carbonate:* 3¼d. per lb. *Sal ammoniac:* 33s. to 35s. per cwt. *Sulphate* quieter: £12 7s. 6d. to £12 10s. per ton.

Canaryseed.—Turkish seed has been in good demand. 300 bags sold for 33s. 6d. per 464 lbs. early in the week, then 80 bags for 34s. 6d., and now there is nothing of good average quality to be had under 35s. per 464 lbs.

Ginger.—102 bags of *Monrovian* sold privately in transit, terms not mentioned.

Linseed.—The market is firm and the amount offering is practically *nil*. Some attention is directed to North American seed which has in consequence risen in price to 36s. 9d. per 424 lbs. No business has been concluded in Calcutta or River Plate seed.

Oils (Fixed) and Spirits.—*Castor* is selling steadily almost at last week's rates: Calcutta at 2⅞d. per lb. French, 2$\frac{11}{16}$d. to 2¾d., and Madras at 2¾d. In the early part of the week 150 cases of Calcutta sold for 2$\frac{13}{16}$d. to 2⅞d. "to arrive," and latterly French has sold at 2$\frac{9}{16}$d. for second pressure, ex-quay, and 2⅝d. from store. *Olive:* There has been more doing of late, Candia and Levant oils being in good demand at full rates. Candia is quoted at £31 10s. per tun, and Malaga at £32. *Linseed* is firmly held for 22s. to 22s. 6d. per cwt. in export casks. *Cottonseed* is steady with quiet trade passing at 17s. to 17s. 6d. per cwt., for Liverpool refined in export barrels. *Spirits of Turpentine*: Quotations have experienced a considerable fall, and are now fairly steady at 33s. 6d. per cwt. spot delivery, 32s. 6d. delivery before end of week, and 32s. during the month.

Potash Salts.—*Bichromate* 3¼d. per lb. *Chlorate* scarce, 3½d. to 3¾d. per lb. *Cream of Tartar* is firmer, and higher prices are asked, viz., 75s. to 80s. per cwt. for "finest white." *Pearlashes* are very quiet at 32s. per cwt. *Potashes* 23s. per cwt. *Saltpetre* firm, 22s. 6d. per cwt.

Quillaya Bark.—3 to 4 tons of Chilian sold at £12 5s. per ton ex store. Prices have since gone up.

Soda Salts.—*Bicarbonate*, £6 5s. to £5 15s. per ton. *Borax* is very firm at 16s. to 17s. per cwt. *Caustic*, 76 to 77 per cent., £7 15s. per ton; 70 per cent. £7; a very firm market. *Crystals*, £3 per ton. *Hyposulphite* is firm at £6 15s. to £6 per ton. *Nitrate* is easier, and the trade doing is quiet at 7s. 9d. to 8s. per cwt.

TRADE NOTES.

New Sponge Case and Show Stand.—Messrs. Baughan and Co., shopfitters, etc., Walthamstow, London, are introducing a new hexagon sponge case and show stand in mahogany and crown glass, which forms a handsome centre case, and can be made in any size. It is well made and well finished, and an ornament to any shop. The base is 34½ inches high, and 24 inches in diameter, total height with stand, 64½ inches. The case has six separate cages, thus enabling six sizes of sponges to be shown; each door is hinged at bottom, and tips forward with a tinned wire cage attached, at bottom of which a ticket clip is fixed, so that price ticket can be put in each cage if desired. The upper part consists of three circular plate glass shelves, with rounded and polished edges 10, 12, and 14 inches diameter, which can be altered to any height, and are supported on a handsome fancy brass pillar, thus with the top of case and shelves a handsome show of other goods can be shown. Price, polished bright or black, £8 15s. If in plate glass, 9s. 6d. extra.

Extension of Premises.—Holloway's Wine Co., Ltd., 61, New Oxford Street, W.C., intimates that it has secured large cellarage, adjoining its present bottling cellars, under the new building being completed by Mr. Carmichael in New Oxford Street, also two large additional offices on the ground floor which will be connected with the present offices and packing warehouses. This extension will add considerably to the firm's facilities for bottling. The company also directs attention to its latest speciality St. Holloway's Quinquinna at 1s. 6d. and 2s. 9d. per bottle retail, less 33⅓ per cent., which is said to be rapidly gaining favour. Doctor's samples and a sampling vase for counter use are supplied with the Quinquinna.

Photographic Price List.—Messrs. F. Darton and Co., Clerkenwell Optical Works, 142, St. John Street, E.C., submit a copy of their trade price list of cameras, etc. It is profusely illustrated, and contains descriptions of several good lines. The "Exceptioual" hand cameras, at prices from a guiuea upwards, appear to be fitted with all the latest improvements, and in finish equal to much more expensive oues. Dealers in photographic goods should apply for a copy of this list.

"Twenty-one Years in Fleet Street" is the title of a booklet issued by Smith's Advertising Agency, 132, Fleet Street, E.C., being a retrospect by Mr. Thomas Smith, founder of the firm. An interesting account is given of the growth of the advertising business from June 10, 1878, when literally the writer had not a stick in an office to call his own, or a single clerk—not even an office boy—to the present time. The staff now numbers forty-three.

The "Plymouth" Lime Juice Cordial.—Mr. James Maurice, chemist and druggist, 34, Bedford Street, Plymouth, submits a sample of his "Plymouth" lime juice cordial. It is a preparation entirely free from alcohol, made from the purest West Indian limes. However hot the weather may be at the time of the forthcoming Conference at Plymouth, visitors will be able to satisfy their driest thirst with a perfectly pure and wholesome beverage, for mixed with either plain or aërated water, the cordial forms a most palatable and refreshing drink, free from the musty flavour which is so frequently associated with lime juice. Locally it has a great sale, the price being 1s. per bottle, or three bottles for 2s. 6d. The London agents are Messrs. Barclay & Sons, Ltd., 95 Farringdon Street, E.C.

Messrs. A. H. Cox and Company, St. Martin's Place, Brighton, have just issued their July, 1899, priced catalogue of tasteless pills. A few new formulæ have been added, and the prices of many of the pills have been reduced, notably antipyrin, pepsin, and papain. The firm also issue a list of "Packed" Pills suitable for chemist's own name and address.

Births, Marriages, and Deaths.

BIRTH.

Ough.—On June 30, at Curzon Terrace, Sparkenhoe Street, Leicester, the wife of Lewis Ough, F.C.S., pharmaceutical chemist of a daughter.

MARRIAGE.

Boorne—Gadd.—On July 5, at Southernbay Congregational Church, Exeter, by the Rev. H. Arnold Thomas (Bristol, Chairuan of the Congregational Union), assisted by the Rev. Herbert Arnold, Mr. Herbert E. Boorne (manager of the Bristol establishment of Messrs. Evans, Gadd, and Co., wholesale chemists and druggists, of Exeter and Bristol), son of the late Mr. Charles Boorne, of Clifton, to Miss E. Rose Gadd, second daughter of Alderman Henry Gadd, J.P., of St. David's Hill, Exeter (Messrs. Evans, Gadd and Co.).

DEATHS.

Moon.—On June 17, Henry Moon, Chemist and Druggist, Brighton. Aged 50.

Dodd.—On June 24, William Henry Dodd, Chemist and Druggist, Fulham. Aged 47.

Goddard.—On June 25, Enoch William Goddard, Chemist and Druggist, Nottingham. Aged 45.

Watts.—On June 26, Walter Watts, Chemist and Druggist, Lower Clapton.

Garforth.—On June 27, John Garforth, Chemist and Druggist, Sheffield, Aged 66.

Clark.—On July 3, Robinson Unwin Clark, chemist and druggist, Jarrow-on-Tyne. Mr. Clark, who was a member of the Pharmaceutical Society, had been unable to attend to his business for about a fortnight, and had been away to recuperate, but returned home on Monday last and died from heart affection.

Advertisement.

(Received too late for Classification.)

QUALIFIED ASSISTANT wanted, about 26 years of age, outdoors, to manage branch. Must be smart, good appearance and experienced. No Sunday duty. Apply by letter, with particulars to T. M., "Pharm. Journal" Office, 5, Serle St., London, W.C.

Publications Received.

OUR BABY: FOR MOTHERS AND NURSES. By Mrs. LANGTON HEWER. Sixth edition, revised. Pp. viii. + 154. Price 1s. 6d., cloth 2s. 6d. Bristol: J. Wright and Co. 1899. From the Publishers.

A JUBILEE SOUVENIR. The work of G. S. V. Wills and the Westminster College of Chemistry and Pharmacy. Pp. 222. Stratford: Wilson and Whitworth, Ltd., Printers, Broadway. 1899. From the Author.

PHYSICS, EXPERIMENTAL AND THEORETICAL. By R. H. JUDE, D.Sc., M.A., and partly from the French (third edition) of H. Gossin. Vol. I. (Illus.) Pp. xxiii.+926. Price, 12s. 6d. net. London: Chapman and Hall, 11, Henrietta Street, Covent Garden, W.C. 1899. From the Publishers.

EXCHANGE

OFFERED.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Superfine Oil Lemon, 10 lbs. Copper, 22s. 6d.; sample pound, 3s.—Moss, Chemist, Chorley.

What Offers. Squire's (9th Edition) Thorpe's 'Metals and Non-Metals'; Balfour's 'First Botany'; Lindley's 'School Botany'; Everett's 'Physics'; Attfield (4th Edition); Proctor's 'Pharmacy,' 'Art of Dispensing'; Elborne's 'Pharmacy and Materia Medica'; Remsen's 'Organic.'—65, Barnsbury Road, London, N.

Automatic Sight-testing Company's ½-doz. 2s. 6d. spectacles and 22 2s. 6d. folders for 1s. 6d. each.—Finch, 11, Manor Park Parade, Lewisham, London, S.E.

Three Dozen Stoppered Winchesters, gold labelled; two specie jars; 5-gr. pill machine; revolving pill coater; several proprietaries and patents; large iron mortar; all very cheap.—Plattin, Fakenham, Norfolk.

Pharmaceutical Journal, from February, 1898, to present date, 2s.—Chemicus, 88, Sussex Road, Holloway.

36 Daisies, 24s.; 72, 46s. 6d.; 36 Munyon's, 22s. 6d.—Eastman, Forest Lane, Stratford.

Cannot Repeat. Sponge Bags, best check (Maw's sizes) 2, 5s., 3, 6s.; 4, 8s. 6d.; 5, 9s. 6d.; 6, 10s. 6d. doz. Bathing Caps, circular, best check, 5s. 6d. Eye Shades, celluloid lined green, rights, lefts, 2s. Enema Syringes, I.R. bottle, bone pipes, best English, red, green, black, 1 oz., 1s.; 2 oz., 1s. 3d.; 3 oz., 1s. 6d.; 4 oz., 1s. 9d. each. 10s. lots post free. Cash returned if sold.—Warnes, Chemist, 333, Gray's Inn, Rd., W.C.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Camwal Shares Wanted. State number and lowest price.—Lawrence, Chemist, Rhyl.

Partnerships Dissolved.

(From the London Gazette.)

W. J. Sprott and W. B. Smith, Physicians and Surgeons, Beeston Notts, so far as regards W. R. Smith.

Lewis Mackenzie and Stephen Henry Fisher, Surgeons and Medical Practitioners, Tiverton, Devon.

Hugh Wallace and R. A. Wallace, Chemical Manufacturers, 5, Fenchurch Street, E.C.

Geo. S. V. Wills and Henry Wootton, Tutors, Westminster College of Pharmacy, Trinity Square, Boro', S.E. Debts will be received and paid by G. S. V. Wills.

Receiving Order in Bankruptcy.

(From the London Gazette.)

William Payne, Mineral Water Manufacturer, St. Anne's-on-the-Sea, Lancs.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Allen, Attwood, Balkwill, Bostock, Bonn, Bullock, Burroughs, Cruickshank, Davis, Edwards, Fleming, Gall, Giles, Glass, Hall, Hardy, Hill, Jones, Kenway, Lenfestey, Lovis, McVitæ, Morton, Ough, Rogers, Rowell, Sandy, Stiles, Watson, Westley, Wilson, Wolstenholme.

POLITICAL GOSSIP.

The Lord Chancellor is to be placed on trial in the House of Commons by an Irish barrister, who, some seven years back, was instrumental in securing the downfall of the Unionist Ministry. The hon. gentleman in question is Mr. Swift MacNeill, who represents, among other things, Donegal and Anti-vivisection, and boasts of a remote connection with the famous Dean Swift. He is one of Her Majesty's Counsel learned in the law, who considers that Lord Halsbury's judicial patronage is not judiciously bestowed, and he, therefore, proposes to air his convictions by moving that the recent action of the high officer impeached is calculated to degrade the dignity of the judicial office and to bring the administration of justice into contempt. It is not the first time that the breath of calumny has been directed at the present occupant of the Woolsack, but we have little doubt that the Chancellor will come out of the ordeal without much damage, for he has been described as a somewhat "rugged" person, whose nature is allied to the toughness of the eminent Major Joseph Bagstock. It will be remembered that it was Mr. MacNeill who made the recent indignant protest against the "shelving" methods adopted by the House of Lords in regard to the Companies Bill. He evidently regards the Lord Chancellor as the prime obstacle to reform in Company law, and perhaps he may not be very far wrong.

Virtue is its own reward, or should be according to Mr. Hazell, one of the members for Leicester, for that gentleman has notified that he will move to reduce the salary of the Lord President of the Privy Council by £2,000. As this amount represents the whole of the salary of the Lord President, it would appear that his services to Education are not ranked very high by Mr. Hazell and those who act with him. Another Minister whose action has endangered his salary is Mr. Long—the President of the Board of Agriculture. He, together with Mr. Chaplin, of the Local Government Board, are to be rewarded for the worry they have experienced over the Food and Drugs Bill by motions in the names of Mr. Strachey and Mr. Channing (both ardent opponents of the Bill) for reductions of £100. Fortunately for Ministers there is so much talk over general Parliamentary business that the Estimates usually have to be rushed through Committee without adequate discussion.

Food and Drugs Legislation is likely to be postponed for another Session, to judge by the recent utterances of some prominent members and the action of others. It is stated that Mr. Long, the Minister in charge of the Government Bill, has appointed a committee to consider and report upon the question of the use of colouring matter and preservatives in food products. The committee is to include Sir H. E. Maxwell, Dr. T. E. Thorpe, Dr. Bulstrode, and Dr. Tunnicliffe. The Bill will therefore have to be thrown over, for it is well known that in regard to the use of preservative substances there is an amount of conflicting expert evidence that will occupy the discriminating faculties of the committee a considerable time. Meanwhile everything works towards making the abandonment of the Bill easy. Mr. Hedderwick (Wick Burgs) has considerately put upon the paper a question inviting Mr. Long to state whether he has promised the above-mentioned Committee; whilst Mr. Provand (Glasgow) has another notice delicately insinuating that as the Food and Drugs Bill is highly contentious in character, and is strongly opposed by manufacturers and traders, it might be wise to consent to its withdrawal. Sir J. Leng is also among the enquirers. The result of these Scotch manœuvres will be made public as we go to press. Mr. Balfour will at the same time make a further statement as to the Bills to be passed this Session, and it is expected that he will give the *coup de grace* to Mr. Long's measure. The amendments to the Bill, it may be mentioned, have swelled into twelve pages of folio.

The Companies Amendment Bill, to which we referred last week as standing in the name of Mr. Faithful Begg, has now been dropped. The other Bills in the House of Lords on the same subject stand where they did, and there is no sign of their progress. Having regard to the fact that the Session is almost at an end, all hope of relief from the "Company" incubus this year must be abandoned.

The Shop Girl found favour with the Lords on Tuesday, when the Seats for Shop Assistants (England and Ireland) Bill passed its second reading in triumphant disregard of the words of wisdom uttered by Lord Shand and the Marquis of Salisbury, backed up by the sturdy "whip," circulated amongst the noble Lords by the Council of the Liberty and Property Defence League. Means must now be found to include Scotland within the operation of the Bill, and Lord Ribblesdale has already notified an amendment to effect that object.

Medical Research does not yet recommend itself to the Government. Replying to Sir C. Cameron, who suggested the appointment of a Royal Commission to devise means of combating the increase of cancerous diseases, Mr. T. W. Russell, in the absence of Mr. Chaplin, stated that the Local Government Board has from time to time caused scientific inquiries to be made into the causes of cancer, but that in the present state of knowledge he is advised that the appointment of a Commission would serve no useful purpose. Perhaps Chicago may find the remedy in fulfilment of recent rumour.

According to the Chancellor of the Exchequer, the arrangements for the conversion of the Imperial Institute into a branch of the London University are almost complete. Replying to Mr. Hogan, the Australian colonist, who sits for Mid-Tipperary, Sir Michael Hicks Beach informed the House that the Treasury, the Institute, and the Commissioners had come to an arrangement which is mutually satisfactory; and that after the ratification by the Senate of the University, the terms of the agreement would be embodied in a Treasury minute and presented to Parliament. It is to be hoped that the satisfaction said to exist among the contracting parties may communicate itself to the general public when the whole scheme is made known.

THE PURITY OF FOOD AND DRUGS.

Camphorated Oil.—At the Durham County Police Court on Wednesday, July 5, Messrs. John Bell and Sons, Ltd., drysalters, Liverpool, were charged with having given a false warranty with regard to camphorated oil.—Mr. B. Scott Elder, chief inspector of food and drugs under the Durham County Council, prosecuted, and Mr. T. Jennings, of Bishop Auckland, appeared for the defendants. —Mr. Scott Elder gave evidence as to purchasing several bottles of camphorated oil from the shop of a Mrs. Fisherwick at Langley Moor, near Durham, who had written to the defendants' firm for a written warranty as to the pureness of the article before selling any of the oil, and they had forwarded the warranty certifying the oil to be pure. The oil, upon being submitted to analysis, was found not to be compounded with olive oil as required by the B.P. which costs from 5s. to 7s. 6d. per gallon, but with rape and mineral oil, which could be purchased at 1s. 6d. a gallon.—Mr. Jennings raised a technical objection that since the oil was purchased the firm had been converted into a limited company, and also that the analysis was obtained after the summons was taken out.—The defendants' warehouseman was called to prove that the defendants purchased what was guaranteed to them as olive oil for the purpose of making camphorated oil.—The magistrates overruled Mr. Jennings' objections, and convicted the defendants, inflicting the full penalty of £20 and costs.—William Whittle Mellor, of the general stores, Leatherhead, was summoned by the County Council for selling camphorated oil which was 20 per cent. deficient in camphor.—Mr. Downs, of Dorking, appeared for the defendant, and Mr. Washington watched the case on behalf of the wholesale dealers.—There was no dispute as to the facts. Inspector Martin stated that he went to the defendant's shop and bought three twopenny bottles of camphorated oil, which purported to be prepared in accordance with the British Pharmacopœia. On being analysed it was found to contain 16·6 per cent. only of camphor, instead of 20 per cent., as required by the Pharmacopœia.—Mr. Downs produced a letter from the wholesale firm, stating that they now only supplied the oil in accordance with the formula stated, and that defendant ordered on that letter, paying a higher price than he had paid before. The Chairman stated that the magistrates were satisfied that the defendant was perfectly innocent of any fraudulent intention. Still the public must be protected, and he would be fined 2s. 6d., the costs being remitted. He would be able to recover from the wholesale firm.

What to Buy is the title of a sub-heading in an article in *Food and Sanitation* on "Practical Lessons Derived from 14,000 Samples Taken for Analysis under the 'Sale of Food and Drugs Act,'" by J. R. Kaye, M.D., Medical Officer of Health, West Riding, Yorkshire. Referring to drugs the writer remarks that this is a wide branch of the work, bristling with difficulties; but much good can be done by sampling those drugs of definite composition which are much used by the public, and much liable to sophistication. He then goes on to say that it is of no use purchasing such drugs as "Life and Health Elixir," "Castor Oil Pills," and any other such remedies, which may consist of practically anything, but recommends a list of drugs which may be usefully purchased by inspectors for analysis, and gives the amount to be asked for in each case as follows:—Almond oil, 4 oz.; oil of eucalyptus, 2 oz.; olive oil, 4 oz.; camphorated oil, 4 oz; antimonial powder, 1 oz.; Gregory's powder, 2 oz.; milk sugar, 3 oz.; milk of sulphur, 2 oz.; saffron, ¾-oz.; precipitated chalk, 4 oz.; jalap, 2 oz.; fluid magnesia, ½-pint; benzoic acid lozenges, 2 oz.; tincture of iodine, 2 oz.; lemon juice, 4 oz.; mercury ointment, 2 oz.; compound mercury powder, 4 oz.; sulphur ointment, 4 oz.; zinc ointment, 4 oz.; sweet spirit of nitre, 3 oz.; spirit of sal volatile, 4 oz.; paregoric, 2 oz. Chemists and druggists will do well to make a note of the above quantities, as they may thus be saved trouble. Dr. Kaye points out that if the articles which are supplied do not conform to the requirements of the B.P., a conviction would be obtainable under Section 6 of the Food and Drugs Act, 1875, also that according to the Pharmacy Act of 1868, Section 15, any person who shall compound any medicine of the B.P., except according to the formularies of the said B.P., is liable to a penalty. The author omits to point out that, in so far as the provisions of the Pharmacy Act, 1868, relate to the compounding of medicines according to the formularies of the British Pharmacopœia, the interpretation that has been put upon the word "person," as not including a company, makes the administration of that part of the Act extremely difficult, if not impossible, in the case of drug stores or shops carried on by companies. The Food and Drugs Act alone provides a remedy for the sale of improperly prepared medicines of the British Pharmacopœia, on giving proof of their not being of the nature of the article demanded.

With Regard to Medicines Compounded according to special prescriptions, Dr. Kaye states that those may be purchased for analysis if proper care is exercised. He advises inspectors to have three facsimile copies of the prescription it is intended to have made up—one to be handed to the chemist who compounds the prescription, a second for the guidance of the analyst, and the third to be kept by the inspector. If the certificate shows any variation, proceedings may be taken under Section 7 of the Sale of Food and Drugs Act. The writer points out that proceedings under that Section would be effective even though the purchaser got more for his money than he demanded, there being nothing about prejudice in the Section, as the offence is supplying what is not in accordance with the demand.

Paregoric Tablets, put up in penny packets, marked "Confectionery, sold as herbal sweets," and retailed by confectioners, have been examined by the public analyst for Kensington. Regarding a sample of the tablets as a drug, it was found that it had been correctly described, and was accordingly reported as genuine, although had the sample been purchased and submitted for analysis as "sweets," and if the attention of the purchaser had not been drawn to the fact that it contained "paregoric," it would have been certified as adulterated, the presence of any appreciable quantity of morphine in an article sold as food unquestionably constituting adulteration within the meaning of the Acts. The sample in question was found to be composed of sweetstuff into which paregoric had been introduced, but the sample was too small to admit of the determination of the percentage of morphine present, it being only possible to prove the presence of the alkaloid, In his report, the analyst remarks that the danger attending the unrestricted sale of a preparation of such a nature is too obvious to need comment.—*British Food Journal*, **1**, 20.

The Enamel of Cooking Utensils has been the subject of investigation by M. L. Barthe in consequence of a case of poisoning at Bordeaux which resulted in the death of one person and the serious illness of several others. The poisoning, however, appeared to have been due to a ptomaine. He found little information on the subject in echnical works, but according to a paper by A. Granger, the enamels consist of complex silicates, or borates, in combination with potash, soda, lime, or oxide of lead. Binoxide of tin is employed to make the enamel opaque, also arsenious anhydride, phosphate of lime, and high proportions of alumina. An analysis by O. Emmerling of an enamel intended for domestic utensils showed that it contained 52.51 per cent. of oxide of lead and 3·74 per cent. of arsenic acid. M. Barthe personally examined the enamels from four saucepans which he found to be similar in composition, and to consist of silica, tin, and alumina, with small proportions of zinc, lime, and potash, and traces of iron and cobalt. A trace of manganese was found in one case. Lead, boric oxide, and arsenic were entirely absent. These enamels were fusible with great difficulty; but, according to the *British Food Journal*, there is no doubt that many others are used which are easily fusible and which contain oxide of lead and other dangerous ingredients. Dr. G. Ambühl, official analyst for the canton of St. Gall, Switzerland, states in a recent report that a preparation used by a local enameller contained 35 per cent. of oxide of lead, and it is thought that similar facts would be revealed if the matter were looked into in this country.

The Toxic Effects of Boric Acid are described by Dr. J. J. Evans in the *British Medical Journal*. In treating a case of cystitis increasing doses of 10 to 20 grains of boric acid three times a day were prescribed. After about three weeks of this treatment an erythematous rash spreads over the patient's neck, face, and head, followed by some subcutaneous œdema, and a fine scaly dermatitis. The salivary glands became enlarged, and eventually the hair on the face and head fell out, so that in about a fortnight the man was perfectly bald. The drug was discontinued, but six weeks elapsed before there was any reappearance of hair on the face or head. In numerous other cases of cystitis and urethritis extending over a period of five years, Dr. Evans has observed similar effects following the administration of boric acid—that is, an erythema followed by a fine scaly exfoliation. Immediate discontinuance of the drug prevented development of the more severe symptoms, but in one case in which it was inadvertently continued the hair fell out to a slight extent, and there was marked exfoliation of the skin, especially of the hands, with onychia and splitting of the nails. Dr. Evans concludes that the symptoms were entirely due to the action of boric acid on the skin and appendages.

A Novel Meat-Preservative has been examined by A. C. Chapman. It was a colourless antiseptic solution having a mixed odour of sulphurous and benzoic acids. A qualitative analysis revealed the presence of aluminium sulphate, sodium chloride, sodium nitrate, sulphurous acid, chloral hydrate, benzoic acid, and a small quantity of iodine, apparently existing as hydriodic acid. The alum was evidently intended to exert its astringent effect upon the fibre of the meat, whilst the remaining constituents, with the exception, perhaps, of the chloral, were used for their well-known preservative and antiseptic properties. The chloral and the benzoic acid would doubtless be volatilised during the process of cooking, which probably suggested the use of benzoic instead of the more active salicylic acid.—*British Food Journal*, **1**, 35.

ENGLISH NEWS.

Charing Cross Hospital Medical School.—In the absence of Lord James of Hereford, Sir Robert Finlay, M.P., the Solicitor-General, distributed the prizes and certificates awarded during the summer session, 1898, and the winter session, 1898-99, to the students at this school, on Wednesday, July 5. The Dean, Dr. Montague Murray, having read his report on the past year's work, the Solicitor-General congratulated the prize winners on the success which had attended their efforts, and referred to the presence of Professor Virchow and Lord Lister at the Huxley lecture instituted to commemmorate the connection of the late Professor Huxley with this medical school. Every student of medicine might well feel proud of the fact that he had chosen, without exception, the most unselfish profession in the world. There was no class of men who did their work more nobly and conscientiously than the medical men and surgeons of Europe. He impressed upon the students the importance, when they started practice, of keeping themselves in touch, not only with the improvements of Science, but with the great masterpieces of literature in which some phase or other of human nature was always to be found. A vote of thanks to Sir R. Finlay, proposed by Sir Joseph Fayrer, concluded the proceedings.

Cricket.—In a match played at West Green on Saturday, July 8, between the Allenbury's C.C. and Balland's C.C., the former team scored 101 runs, and the latter, playing one man short, 50.

Society of Chemical Industry.—The annual meeting of the Society of Chemical Industry was opened on Wednesday, July 12, at Newcastle-on-Tyne. Mr. George Beilby, of Edinburgh, president of the society, was in the chair. At the Durham College of Science, where the delegates were welcomed to the city by the mayor, Professor C. F. Chandler, M.D., of New York, was elected president for the ensuing year. Professor Chandler had written to the retiring president accepting the office, and regarding it as an evidence of the good feeling existing between the two branches of the Anglo-Saxon race on opposite shores of the Atlantic. The council's report, which was adopted, according to the *Times*, stated that the number of members on the register was 3,312, compared with 3,185 at the last annual meeting. The president (Mr. Beilby) in the course of his address dealt with the rapid exhaustion of British coalfields and the serious increase of smoke pollution. The remedies were broadly divided into two classes—first, improved appliances for the combustion of raw coal and distribution of the air supply in furnaces, and secondly, the transformation of the raw coal into smokeless fuel by preliminary treatment. The effects of the natural development of certain industries on the markets for by-products were next considered. It was pointed out that if any considerable part of the 137 million tons of coal which is at present burned in the raw condition were to be converted into gas, coke, and ammonia, an altogether new condition of things would arise which would need to be foreseen and provided for. A careful study of the whole subject had led to the conclusion that the natural outlet for the coke and pitch would be found in the manufacture of fuel briquettes, and the president advocated the turning of the very best technical skill to the perfecting of this manufacture. He believed that with skill and enterprise it would be possible to make briquettes exactly suited for every purpose from boiler firing to domestic cooking. As a means of bringing all of the different interests which are concerned in this matter into line, it was suggested that the society might arrange for the holding of a conference on the subject of fuel and smoke, at which the leading technical societies as well as the actual industries concerned should be fully represented.

Newcastle-on-Tyne and District Chemists' Association.—The third annual excursion in connection with this Association will take place on Thursday, July 20, to Morpeth. The train leaves Newcastle at 1.30 p.m., arriving at Morpeth at 2.20 p.m. The party will visit Morpeth Castle, Morpeth Parish Church, and then on through the fields to Newminster Abbey, where tea will be provided at 4.30 prompt. After tea, Mitford will be visited. These arrangements are, of course, liable to slight variation. The cost of single tickets is 4s. each, double, 7s. 6d. As this is the only outing the Association has in the year, the committee hope that all members and friends (ladies specially invited) will be able to be present. Those members who reside at Blyth, Bedlington, etc., may book direct to Morpeth themselves, and in that case the cost of the tea, 2s. each, will only be charged. Those intending to be present should notify the Secretary, Mr. F. Gilderdale, 19, Groat Market, Newcastle-on-Tyne, on or before Monday, the 17th inst., so that the necessary arrangements may be made.

Swallowing Medicine Bottles.—A coroner's inquest was held at Bath, on Tuesday, July 11, on the body of a fruiterer, named Thomas Watson, aged 53, in whose stomach were found over twenty small bottles, containing mercury, all securely stoppered with gutta-percha. They weighed over a pound, and the perforation of the stomach had set up peritonitis, which caused death. The jury found that the deceased swallowed the bottles while in a state of dementia, believing that they were medicine.

The Owens College, Manchester.—We are requested to announce that the Introductory Address at the opening of the Winter Session of the Department of Medicine, will be delivered in the Physiological Theatre, on Monday, October 2 next, at 4 p.m., by Sir J. Crichton Browne, LL.D., M.D., F.R.S.

Prussic Acid Poisoning.—An inquest was held at Manchester on July 6 with respect to the death of Izod Richards (36), a surgeon practising at 47, Churnell Street, Rochdale Road. Evidence was given to the effect that deceased went into his surgery on the previous evening, telling his wife that he would follow her upstairs to bed in a few minutes. Shortly afterwards she heard a loud noise, and upon going downstairs found her husband sitting upon a chair in an unconscious condition. On the desk was a small measure containing yellowish, milky fluid. Death occurred shortly afterwards, and was attributed to cardiac failure, the result of an overdose of prussic acid. A verdict of "Accidental death" was returned.

FRENCH NEWS.

To Combat Disease.—A committee, which includes Messrs. Audiffret, Aynard, and d'Arenberg (Deputies), and Monsieur Siegfried (Senator), has been formed to organise a public subscription in aid of scientific research, with a view to the discovery of new methods of treatment for infectious and contagious diseases. That the need is pressing will be seen when it is stated that France loses every year by these diseases two hundred and forty thousand victims, nearly double the number of lives lost in the Franco-Prussian war of 1870. Out of this terrible total tuberculosis is responsible for 100,000 deaths; typhoid fever and other contagious diseases, such as small-pox, measles, scarlatina, whooping-cough, diphtheria, and puerperal fever for 64,000, without speaking of the ravages caused at long intervals by cholera and plague. The task of the scientists is to discover how to cope with these deadly enemies to health; but lack of the sinews of war seriously handicaps them, and although 125,000 fr. has been derived from the funds of the Pari-Mutuel (a Society under Governmental control, having to do with the regulation of racecourse betting), and 75,000 fr. has been subscribed by the public, much more money is needed to accomplish the important work in view. It is to be hoped the noble efforts of the Committee will meet with the success they merit, and that in consequence the ravages of infectious diseases will be considerably lessened.

Suicide of a Medical Student.—Monsieur M. Renard, medical student, living at 219, Boulevard Raspal, Paris, committed suicide on Sunday evening by throwing himself out of his bedroom window on the fifth floor into the courtyard. Death was instantaneous. No cause is assigned for the act, though the deceased youth had for some time past been in a low-spirited condition.

The Turkish Students in Paris, who are assisted by the Ottoman Government, have taken advantage of the presence in Paris on holiday of General Ahmed Djelaled-din Pasha, Aidé-de-Camp-General to the Sultan, to wait upon him with an address of gratitude, which they asked him to transmit to the Sultan. The General, in thanking them for their visit, commended them on their loyalty, and counselled them to profit by the admirable scientific institutions placed at their disposal in France.

The "Presse" announces that Mr. Carrington, an English publisher in the Rue Montmartre, lately issued a volume entitled 'L'histoire de la Flagellation,' from a medical, scientific, and historical point of view. Following a denunciation of this book by the English Society (National Vigilance Association), the French authorities have found that the engravings in question are of an obscene nature, and Mr. Carrington was this week summoned before the Ninth Correctional Tribunal. Our contemporary in a later account of the trial puts the result as a fine of 1,000 fr. exclusive of expenses.

A Peculiar Request.—A certain Monsieur Guichard, shocked at the steady growth of intemperance in France, would like that doctors should prescribe for their patients the least quantity possible of alcohol or alcoholic preparations necessary for their well being. And, with every good intention, he has addressed a request to the Pharmaceutical Society, proposing that alcohol be replaced by some other medium (not suggesting "which") in the preparation of the Codex tinctures, etc. The Society, in replying courteously to this request, admitted that many abused the use of some of the alcoholic preparations, but thought that it rested rather with the medical fraternity to abstain from indiscriminately prescribing such wines and medicaments as lent themselves to abuse when they judged that such were not indispensable, and added that the Codex could only indicate the means whereby the medicaments

could be prepared in the most active form possible, and if a substance could only yield its active principles to an alcoholic menstruum, it was necessary that that menstruum should be employed. Had Monsieur Guichard studied his point a bit more closely, he would have first turned his attention to the cafés rather than the pharmacies. The public as a rule have such a variety of quack wines to choose from that they have recourse to these before consulting either doctor or pharmacien, and then their object is not to gratify any tendency to intemperance, but rather to find a medicament as agreeable to their palate as possible. Hence, though Monsieur Guichard's object be a very praiseworthy one, he pursues it from the wrong end. True, medicated wines and elixirs are used and abused, but not to such an alarming extent as to call for such interference.

Treatment of Carbuncles, etc.—A treatment now very much in vogue in France for carbuncles and dermal suppurations, impetigo, acne, etc., and one advised by Dr. Brocq, the eminent Parisian skin specialist, consists in the use of fresh beer-yeast in doses of two or three teaspoonfuls before meals. When the fresh yeast is unobtainable, the baker's solid variety may be employed. The above-mentioned authority has witnessed marvellous results from the use of this simple remedy. The illustrious, but departed, Saint-German invariably prescribed the application of "pâte de pain d'épice" (a sort of ginger-bread paste) with equally good results. A Parisian pharmacist has now put up a specialty which he calls "Extrait de Levure de Biére," or extract of beer yeast.

SCOTTISH NEWS.

Chemists' Apprentices Outing.—On Wednesday, July 5, all the apprentices in the various drug businesses in Dumfermline enjoyed a day together in the country. Leaving town in one of Mr. Goodall's brakes, the party drove to Aberdour. After a delay of an hour or two, they proceeded per steamer to Leith, and after spending an hour or two there and in Edinburgh, they returned to Aberdour, and reached Dumfermline at about 11 p.m. The weather was all that could be desired.

IRISH NEWS.

Pharmaceutical Society of Ireland.—The following have passed the preliminary examination:—Messrs. E. J. Burke, E. E. W. Young (equal), Miss Mary M. Stanton, Messrs. A. Williams, R. H. Lowe, Matthew Murphy, T. Stack, W. Harnett, A. Bennett (J. Campbell, Miss Sarah E. Dimond equal). Eight candidates were rejected.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. P. S. Campkin has been awarded the Dental Prize for second year's (1898) students at Guy's Hospital Medical School.

Mr. C. G. Yates, chemist and druggist, Brighton, intimates that he has removed from 21, Upper Hamilton Road to 9, Upper Hamilton Road, and requests that all communications be sent to the new address.

Miss Rennie has been appointed dispenser at the Royal County and City of Perth Infirmary. Miss Rennie was trained at the General Hospital, Birmingham. She also studied with F. Alcock, F.I.C., Temple Chambers, Birmingham.

Mr. George Coull, B.Sc., chemist to Messrs. Raimes, Clark and Co., Edinburgh, is, we understand, among those who are to receive the degree of Doctor of Science at the Edinburgh University Graduation Ceremonial on July 29.

Dr. John Coates, M.B.C.M., son of Mr. Joseph Coates, one of Messrs. Raimes, Clark and Co.'s representatives, is to graduate as Doctor of Medicine at the same time.

Messrs. Hickman and Metcalf, wholesale and retail chemists, Newbury, have taken into partnership Mr. Stanley Hickman from July 1 last. The name of the firm is to remain unaltered.

Mr. R. G. Gourlay, chemist and druggist, has recently opened a shop at 65, High Street, Rushden.

TRADE NOTES.

Vasogen Preparations.—Mr. E. J. Reid, 11, Dunedin House, Basinghall-street, E.C., submits samples of several vasogen compounds, manufactured by the Vasogenfabrik Pearson and Co., Hamburg, for which he is now the British agent, having taken over the agency from Messrs. Burgoyne, Burbidges and Co. Vasogen is a vehicle which is said to possess the property of penetrating the pores of the skin more quickly than any other substance, and at the same time to be an admirable solvent, holding in clear solution iodine, iodoform, creosote, guaiacol, etc. The samples submitted include:—Liquid Vasogen Compounds—Camphor-Chloroform, part. aeq.; Creosote, 20 per cent.: Ichthyol, 10 per cent.; Iodine, 6 per cent. and 10 per cent.; Iodoform, 3 per cent.; Guaiacol, 20 per cent.; Beta-Naphthol, 10 per cent.; Menthol, 2 per cent.; Sulphur, 3 per cent.; Tar, 25 per cent; a Vasogen Ointment Base; Mercury Vasogen Ointment, 33⅓ and 50 per cent; and Vasogen Capsules, including Creosote Capsules, 20 per cent.; Iodine Capsules, 6 per cent.; and Mercury Vasogen Soft Capsules, 50 per cent. and 33⅓ per cent.

Photographic Printing and Enlargements, etc.—Messrs. John Done and Co., Lewisham Works, New Barnet, send their price list for various kinds of photographic printing, collodion enamelling, developing, intensifying and reducing, mounting, spotting and hot rolling, retouching, copying, enlargements, lantern slides, etc. A specialty of this firm is the fact that single copies are prepared at the same rate as per dozen. Trade discounts are allowed, and carriage is paid one way to country clients, goods to London clients being collected and delivered free by the firm's own messengers.

Extension of Premises.—Messrs. Taylor, Taylor, and Hobson, scientific instrument makers, Stoughton Street Works, Leicester, intimate that their business having overgrown the capacity of the Slate Street Works, they have erected a new factory and office buildings, to be known as "Stoughton Street Works, Leicester." These buildings, equipped with every modern convenience, will, it is expected, enable the firm to improve its products and to execute orders with greater despatch. After June 15 the address will be as above.

Sandron's Assimilable Iron Tonic.—Messrs. Sandrons, Limited, 34, Devonshire Street, Portland Place, London, ask us to state that in order to facilitate the prescribing of their Assimilable Iron Tonic they have decided to make use of the term "Liquor Ferri Assim. (Sandrons)," in accordance with the advice given to them by several of the leading London medical men who are prescribing the preparation. It is now obtainable in 12 and 18 oz. bottles, unstamped for dispensing, and also, as before, specially labelled and stamped for retail, from the proprietors, at the above address, or from the wholesale houses.

Bath Tablets.—Messrs. Wright, Layman, and Umney, Limited, of Southwark, have lately introduced a series of perfumed tablets for bath and toilet use. They are supplied in vegetable ivory topped tubes with various perfumes. Customers can have their name and address printed on if three dozen tubes are ordered. The tablets readily dissolve in water, and form a very pleasing addition to the bath.

Hand-Made Show Cards.—Messrs. Evans, Lescher, and Webb, 60, Bartholomew Close, E.C., are making a special offer to chemists with the idea of enabling them to make effective displays of Hawley's counter adjuncts. The firm is prepared to get up show cards with whatever wording a chemist may choose, free of cost. These cards are got up in attractive style—12 in. by 7 in.—black letters with red capitals. As they have to be entirely written by hand, the firm stipulates that not less than six dozen of that article be taken for which a show card is required.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

July 13, 1899.

As might have been expected at this time of the year, business has been somewhat quiet during the past week, while the changes in values which have taken place have not been very important. Quicksilver remains very firm; a further advance in price is still expected, although so far it has not taken place. Ipecacuanha is somewhat firmer. Glycerin and Codliver Oil very quiet. Opium firm, especially Persian. Morphia very firm, particularly for immediate delivery. Codeia is also very firm. Bromides and Iodides steady at unchanged prices. Bismuth and Salts unchanged. Mercurials are also unchanged. Quinine quiet, and somewhat weaker, the future course of the article appearing still quite undecided. Acid Citric very firm. Acid Tartaric and Cream of Tartar firm. Acid Carbolic dearer. Santonine has also been advanced in price. Phenacetin and Acetanilide quiet and weak. Antipyrine and Phenazone unchanged. Sulphonal fairly steady. Borax and Acid Boracic quiet, but steady. Sulphate of Ammonia easier. The following are prices actually ruling for some articles of chief interest:—

ACETANILIDE—Weak at 11d. to 1s. per lb. according to quantity.

ACID BORACIC—Unchanged at 25s. per cwt. for crystals and 27s. per cwt. for powder.

ACID CARBOLIC.—Market is very firm at ½d. per lb. advance, say 7d. to 7¼d. per lb. for the 35-36° ice crystal in large drums and over casks, the other qualities and packing being quoted at proportionately advanced prices. Crude, 60° F. 2s. 1d. per gallon; 75° F. 2s. 8d. per gallon. Liquid, 95 to 98 per cent. of pale straw colour, 1s. 2d. to 1s. 3d. per gallon in 40 gallon casks.

AMMONIA COMPOUNDS.—Bromide: 2s. 2d. per lb. Carbonate: 3d. to 4d. per lb., according to packing and make. Muriate, chemically pure, small crystals, 30s. to 32s. 6d. per cwt.; commercial, free from metals, 25s. to 27s. 6d. per cwt. Iodide, 13s. 10d. per lb. Sal Ammoniac: Sublimed firsts 35s., seconds 33s. per cwt.; crushed for batteries, 2s. per cwt. more respectively. Sulphate dull, gray prompt, 24 per cent. London, £12 3s. 9d. per ton; Hull prompt, £12 2s. 6d.; Leith prompt, £12 2s. 6d. to £12 3s. 9d.; Beckton nominal. Beckton terms prompt, £12 2s. 6d. Sulphocyanide, 1s. per lb.

ANTIMONY.—Regulus £39 to £40 per ton, Crude Japan (Black Sulphide) £24 to £24 10s. per ton.

ANTIPYRINE and **PHENAZONE**—Remain quiet, at steady prices.

ASHES.—Pots, 24s.; pearls, 32s.

BISMUTH.—So far, there has been no change in price of either the metal or the salts.

BLEACHING POWDER (CHLORIDE OF LIME)—Steady, but unchanged, at £6 per ton for English.

BORAX—Quiet and unchanged, crystals being still quoted 16s. per cwt., and powder 16s. 6d. to 16s. 9d.

BROMIDES AND BROMINE—Are unchanged at 1s. 10½d. per lb. for potasii bromid, other salts being quoted in proportion.

CAMPHOR—Without change either for the crude or for the refined article.

CASTOR OIL—Easier, Belgian first pressing spot £25, second pressing spot £23 per ton, ex wharf. Hull manufactured guaranteed cold drawn pure pharmaceutical, £28 per ton in barrels, 3¼d. per lb. in cases; pure firsts, £25 10s. per ton; seconds, £24, in barrels; first, 3d. per lb.; seconds, 2⅞d. per lb., in cases, ex wharf London for prompt delivery. London first pressing spot 24s. per cwt., second pressing 23s. per cwt. Medicinal in cases, 3¼d. per lb.; French first pressing 25s. per cwt spot; 23s. to 23s. 6d., f.o.b. Marseilles; second pressing, spot, 24s. per cwt.

CITRIC ACID—Is very firm at 1s. 8d. per lb. for crystals in 5 cwt. casks from the makers, and 1s. 7½d. to 1s. 7¾d. for best makes from second-hand.

CLOVES.—Privately, the market for Zanzibar is very quiet, with sellers for July-August delivery at 3 3/16d., and Oct.-Dec. at 3 7/32. Nothing offered in auction.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 1½d. per gallon; pure, 1s. 3d. per lb. Benzole: Firm, 50 per cent. being quoted for prompt delivery, 8¼d. to 8¾d. per gallon, 90 per cent. 7½d. to 8d. Creosote: 3½d. per gallon. Crude Naphtha: 30 per cent. at 120°C., 3d. per gallon. Solvent Naphtha, 95 per cent. at 160°C., 1s. 5d. per gallon; 90 per cent. at 160°C., 1s. 1½d.; 90 per cent. at 190°C., 1s. 2½d. per gallon. Anthracene: A. 3½d. per unit; B. 2¾d. Pitch: 32s. 6d. per ton f.o.b. Tar: Refined and Crude, 13s. per barrel, 2¼d. per gallon.

COCAINE—Is still unchanged at 11s. 6d. to 11s. 9d. per oz., according to quantity and brand, for the Hydochlorate in 25 oz. tins.

CODEIA—Is very firm at 12s. 6d. to 12s. 9d. per oz. for the pure, and 1s. per oz. less for the salts.

COD LIVER OIL.—Market remains exceedingly quiet, at 56s. to 57s. 6d. per barrel f.o.b. for best new non-congealing Norwegian in tin-lined barrels of 25 gallons.

CREAM OF TARTAR—Is firm at 75s. per cwt. for first white crystals on the spot, and 77s. to 78s. per cwt., according to percentage, for powder.

FISH OILS.—The quantity offered at auction to-day met with a good demand, and fair prices were obtained. St. Vincent Whale: 47 tuns practically all sold, single compass and stroke £14 5s. to £15 10s., double compass and stroke £13 15s. to £15, single compass and nick £14 to £14 15s., nick £13 5s. to £14 5s., stroke £13 to £13 10s., double stroke £12 10s. to £13 5s., dark £12 10s., black £9 5s. per tun. Newfoundland Whale: 8 tuns nearly all sold, double compass and stroke £14 15s. to £15, single compass and stroke £13 15s. to £14, stroke £12, double stroke £10 15s. to £12 per tun. Pale Seal: Of 20 tuns 10 sold at £18. Salmon Oil (in drum): 16 tuns sold at £15. Herring: 20 barrels sold at £12 15s. per ton. Sardine: 20 barrels sold, single compass and nick £15 15s. to £16.

GALLS—Remain quiet. China are firmly held at 59s. per cwt., on the spot, landed, and same price c.i.f. to arrive, for usual shape, while plum shaped are scarce, with little offering. Persian steady, the supplies, especially of green and white, tending to run short, quotations being, blues, 62s. 6d. to 65s. per cwt.; green, 56s. to 57s. 6d., and white, 52s. 6d. to 53s. 6d. per cwt.

GINGER.—Supplies of Cochin were not large, but demand continues slow and only small sales resulted. Of 607 packages offered, 165 sold; bold and medium, roughly cut and scraped, little limed, at 48s. 6d.; fair medium cut and scraped at 45s.; fair washed rough at 23s.; small brown rough, part shrivelled, at 17s. 6d. to 18s. Jamaica in fair demand at steady rates. 667 barrels and 4 half-barrels offered, and about half sold; good bright at 66s. 6d.; ordinary to good ordinary at 52s. 6d. to 58s.; and common to good common at 48s. to 51s.

GLYCERIN—Is very quiet for refined, at 50s. per cwt. for English, and 52s. 6d. to 57s. 6d. per cwt., according to brand, for German, for best white double-distilled chemically pure 1260° quality in tins and cases (2 or 4 by 56-lb. tins in a case), carboys being proportionately cheaper. Crude is firm at about £30 per ton for the quality best suited for refining purposes.

IODIDES and **IODINE**—Are without change at 7½d. per oz. for commercial Iodine and 10s. 6d. per lb. for Potassii Iodid, the other salts being quoted at proportionate unchanged prices.

IPECACUANHA—Market is somewhat firmer, sales having been made at 11s. 6d. per lb. for Carthagena and 15s. to 15s. 6d. per lb. for good Rio. The future course of the market depends now upon the demand and on the question of the possibility of any further arrivals between this and October.

MENTHOL—Is steady at 7s. 3d. to 7s. 6d. per lb. for best dry white crystals in 5lb. tins, 12 tins in a case.

MERCURIALS.—Makers so far made no change in their prices, which remain at 2s. 10d. per lb. for Calomel and 2s. 6d. per lb. for Corrosive Sublimate.

MORPHIA—Continues very firm, especially for prompt delivery, at 4s. 10d. to 5s. per oz. for the hydrochlorate in powder (2d. per oz. more for crystals), while in view of the active demand for prompt delivery, it looks as if the price will be fully maintained, for the present at least.

OILS FIXED and **SPIRITS.**—Linseed easier. London, spot, pipes, £20 10s. to £20 15s. per ton; barrels, £20 17s. 6d., spot: August, £20 10s.; September-December, £19 7s. 6d.; January-April, £19.

Hull easier, spot, naked, £19 7s. 6d. August, £19 2s. 6d.; September-December and January-April (£17 15s. per ton. Rape firm; ordinary brown, spot, £22; August and September-December, £22 5s.; refined, spot, £23 10s.; Ravison, naked, spot, £18; September-December, £18 2s. 6d. Cotton very firm at 2s. 6d. to 5s. per ton advance. London crude, spot, £15 2s. 6d. to £15 5s.; August, £15 7s. 6d. Refined spot, £16 10s. to £17 10s. per ton, according to make. Hull, refined, naked, spot and August, £15 2s. 6d.; November-April £14 2s. 6d. Crude, spot and August, £14 2s. 6d.; November-April, £13. Olive: Mogador, £30 to £31; Spanish, £30 to £32. Coconut quiet. Ceylon, spot, £25 per ton landed; afloat, £23 10s., c.i.f.; July-September and September-November, £23 2s. 6d., c.i.f. Cochin: Spot, £28 to £28 10s. landed; August-October, £25 10s. to £25 15s. per ton, c.i.f. Palm: Lagos, spot, £24. Lubricating Oil: Pale American spot, 5s. 6d. to 7s. per gallon; black, 5s. to 5s. 9d.; pale Russian, 5s. 9d. to 8s.; black, 5s. to 5s. 6d. Turpentine remains firm, and especially for forward delivery. American spot is quoted 30s. 9d. per cwt.; July, 30s. 7½d.; August and September-December, 30s. 3d. to 30s. 4½d.; January-April, 31s. to 31s. 3d. Petroleum: Strong at ⅛d. per gallon advance for American, quotations being: American spot, 6d.; September-December, 6d. to 6⅛d. per gallon; Russian spot and September-December, 5⅛d.; water white spot, 7¼d.; September-December, 7⅜d. per gallon. Petroleum Spirit: American, 9½d.; deodorized, 9¼d. to 9½d. per gallon.

OPIUM—Has been in moderate demand, full prices having been paid for druggists' and manufacturing kinds, while for soft shipping there has been but little inquiry. Persian firm, with a higher tendency, 11s. 9d. to 12s. being asked for good to fine, but only retail sales have been effected.

OXALIC ACID—Is still quoted 3d. to 3¼d. per lb. nett, free delivered London.

PARAFFINE WAX.—Crude, 1⅞d. to 2d. per lb.; refined, 2¼d. to 3d. per lb.

PHENACETIN—Weak at 3s. 4½d. to 3s. 9d. per lb., according to quality and make for both crystals and powder., Bayer's make being quoted 6s. 6d. per lb. and Riedel's 5s. 6d. per lb. in original 1-lb. bottles.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt.; Bichromate, 3½d. per lb.; Bromide, 1s. 10½d. per lb.; Chlorate crystals 3¾d., powder 3⅞d. per lb., spot, London; Iodide, 10s. 6d. per lb. Permanganate somewhat irregular, quotations varying according to quantity and make from 52s. 6d. to 60s. per cwt. for small crystals, and 5s. per cwt. more for large crystals in 1 cwt. kegs. Prussiate: Yellow Beckton, 7¾d.; other English makes, 8d. to 8½d. per lb.; red, 1s. 1d. per lb.

QUICKSILVER.—Unchanged, at £8 7s. 6d. per bottle from first hand. Second hand not offering.

QUININE.—Market remains quiet, with sales from second hand of Sulphate, B. and S., and/or Brunswick, in 100oz. tins and for 1,000oz. lots, at 1s. 3½d. per oz. on spot and 1s. 3¾d. for August delivery, while makers of these brands maintain their price of 1s. 6d. per oz. for similar quantity and packing.

ROSIN.—Strained spot 4s. 3d. per cwt. ex wharf, 4s. per cwt. c.i.f. for October-December and December-February shipment per sailing vessel.

SANTONINE.—In consequence of the reported failure of the crop of semen cinæ in Turkestan, makers of refined santonine advanced price on Monday to 6s. per lb. (2-cwt. lots being subject to a certain reduction). If the news proves correct, we may very likely see a further decided advance on present price, which is still an extremely low one compared with the figure which ruled not so very many years ago.

SHELLAC.—Market remains very quiet, with but little business passing privately. The speculative market is somewhat steadier, with buyers of TN Orange for August delivery at 66s. per cwt., and sellers at 6d. per cwt. more money. The small supplies at auction met a fair demand. Second Orange sold rather irregularly, free descriptions at steady to rather easier prices, but out of condition lac brought full rates; the value of standard TN is now 65s. to 66s. Garnet and Button neglected. A total of 341 cases offered and 228 cases sold. Fine Orange: 18 cases offered and sold, without reserve, fine lemony Octagon B at 85s. to 86s. Second Orange: Of 256 cases 210 sold, a small portion without reserve; dull palish flat free at 65s. to 66s.; fair flat reddish free at 64s. to 65s.; good bright red strong matted at 65s.; ditto cakey at 64s. to 65s. Garnet: 10 cases good curly cakey AC, and 25 cases OCC part hard block all bought in. Button: 32 cases offered and bought in. Since the auction a small quantity of Second Orange found buyers at a slight improvement in price.

SODA COMPOUNDS.—Crystals, barrels 55s. per ton, bags 52s. 6d., ex ship Thames. Ash, £5 to £5 10s. per ton according to strength, quantity, and packing. Bicarbonate, fully bicarbonated, 19s. 6d. to 21s. per cwt.; commercial, 97 per cent., £7 to £8 per ton. Bichromate 2¾d. per lb. White, 70 per cent., £7 10s. per ton; 60 per cent., £6 10s. Hyposulphite (antichlor) 6s. to 8s. per cwt., according to make, quantity, and packing. Iodide 11s. 10d. per lb. Nitrate, commercial, spot, £7 17s. 6d. per ton; refined, £8 2s. 6d.

SPICES (various).—Black Pepper: 20 bags Singapore bought in at 5¾d.; of 122 bags Tellicherry 12 sold at 5¼d.; 150 bags heavy Trang bought in at 5⅝d.; of 382 bags Penang a few bags sold at 4⅝d. to 4¾d. White Pepper: All bought in, Singapore at 8½d. to 9½d., Siam at 8½d., and Penang at 8d. Chillies: Zanzibar bought in at 38s., and African at 45s. Cinnamon Chips: About 600 bags, all bought in from 3½d. to 7d. Cassia Lignea: Of 429 cases only 20 sold, ordinary new selected at 40s., the remainder bought in, including fine old at 50s. Nutmegs: Without demand: 24 cases Penang all bought in; no West Indian offered. Mace dull: 6 cases Penang bought in, fair red at 1s. 6d.; also 6 cases West Indian, fair pale at 1s. 9d. Pimento in rather better demand and steady; of 528 bags 210 sold at 3d. to 3¾d.

STAR ANISEED OIL—Is firmer, a fair business having been done at 5s. 9d. per lb., closing with buyers thereat, but no sellers.

SUGAR OF MILK—Is firm at 60s. to 62s. 6d. per cwt. for finest American brands in powder.

SULPHATE OF COPPER—Is quiet but firm at £24 15s. to £26 10s. per ton, according to brand, and for spot delivery.

SULPHONAL.—Second-hand offers have practically ceased, while the two chief makers maintain their price of 17s. per lb. for both crystals and powder (with 6d. per lb. reduction for 10 lb. lots in bulk).

TAR.—Stockholm, 26s. 6d.; Archangel, 18s. 6d.

TURMERIC.—In auctions no sales were effected, while privately transactions have been small at about previous rates, quotations being: Bengal, 18s. 6d. per cwt. for good fair, 27s. 6d. for good bright Madras fingers, 17s. 6d. to 18s. for Cochin fingers, and 9s. to 9s. 6d. per cwt. for Cochin split bulbs.

Bank rate was to-day advanced to 3½ per cent., it having previously for some considerable time stood at 3 per cent.

Manchester Chemical Report.

JULY 12, 1899.

The Board of Trade Returns published at the end of last week bear testimony to the continued improvement manifested in the chemical trade. Although the imports of chemicals, dye-stuffs, and tanning substances show a decrease of 10.2 per cent., it is more than compensated for by the exports of chemicals and chemical and medicinal preparations, which are returned at £772,680, or an advance of 13.9 per cent. on the corresponding period of June last year. Chemicals and chemical preparations show an increase, the export of alkali being 314,645 cwt., or an increase of 12.9 per cent., and bleaching materials of 112,607 cwt., or 3.3 per cent. It is still more satisfactory to note that the value of alkali was £89,082, or an increase of 18 per cent., although bleach shows a small decrease. The exports of alkali to the United States continues to decrease, but bleaching materials are well maintained. In this district the volume of business is fairly satisfactory, and in heavy chemicals there is no particular change in prices to report. In miscellaneous chemicals, however, there are one or two changes of a downward character. Notwithstanding the high price of the metal, sulphate of copper continues to decline, and to-day business has been done as low as £24 12s. 6d. delivered Manchester. The price of best brands, however, ranges from £25 to £25 10s. per ton. Brown Acetate is lower, and ranges from £4 17s. 6d. to £5 2s. 6d. for prompt delivery. Arsenic is offered at a trifle under last week's rates. On the other hand Yellow Prussiate is firm, as also Epsom and Glauber Salts. Other chemicals are unchanged. The direct oil trade continues active, and six large steamers are on passage or loading at Batoum or Philadelphia for Manchester.

Newcastle-on-Tyne Chemical Report.

July 12, 1899.

Business in Chemicals keeps in a fair way. Shipments are still good to the Baltic, Channel ports, and Mediterranean. Prices, however, do not vary much. Bleaching Powder, however, is a shade more stiffly quoted. Prices are: Bleaching Powder, £5 7s. 6d. to £5 12s. 6d. Soda Crystals, 45s. to 47s. 6d. Caustic Soda, 70 per cent., £7 to £7 5s. Soda Ash, 52 per cent., £4 5s. to £4 10s. Alkali, 52 per cent., £4 5s. to £4 10s. Sulphur, £4 5s. to £5 per ton.

Liverpool Market Report.

July 13, 1899.

A considerable amount of Turkish Canaryseed has changed hands during the week at full rates and prices have gone up. Chilian produce has obtained a good share of attention, Honey, refined Spermaceti, and Quillaya Bark having sold well, though Nitrate of Soda closes slack and at a reduction. In Oils Candia and Levant Olive Oils have advanced in price for shipment, and Spirits of Turpentine are lower but steady.

AMMONIA SALTS.—Sulphate is weaker, £12 5s. per ton.

BEESWAX.—10 bales of Gambier went for £6 15s. per cwt.

CANARYSEED.—Good sales of Turkish—some 1,500 bags in all—have been effected at 35s. to 35s. 6d. per 464 lbs. The closing rate is 36s. and very firm.

COPPERAS—Enjoys good inquiry at 37s. per ton for Welsh, and 40s. per ton for Lancashire.

COPPER SULPHATE—Is dull at £24 15s. per ton.

CREAM OF TARTAR—Continues firm at 75s. to 80s. per cwt., but no sales have been reported.

GINGER.—Fifty bags of old crop Sierra Leone sold from store for 18s. 9d. per cwt., and 25 bags of Cochin, also from store, at 23s.

HONEY.—50 barrels pile 2 Chilian made 19s. 6d. per cwt.

LINSEED.—No sales are reported and the only quotation not nominal is that for North American—viz., 36s. 9d. per 424 lbs.

NITRATE CHILE—Is dull, and the trade doing very quiet at 7s. 6d. to 7s. 9d per cwt.

OILS (FIXED) AND SPIRITS.—Castor is not selling very briskly, business having been confined mostly to Calcutta and small amounts of French, Calcutta "good seconds," 2⅞d. per lb,, and 132 cases have been sold; French 1st pressure, 2 11/16d. to 2¾d. per lb.; 2nd pressure, 2⅝d. ex store, 2 9/16d. ex quay; Madras, 2¾d. per lb. Olive has advanced in price for shipment for Candia and Levant 20s. to 30s. per tun. The supply here is becoming smaller, and Candia has risen to £31 10s. and £32s per tun for spot delivery, and Malaga to £32. Linseed is in limited supply, held firmly for 22s. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed.—Liverpool refined is selling steadily at 17s. to 17s. 6d. per cwt. Spirits of Turpentine are easier at 33s. per cwt.

QUILLAYA BARK.—10 tons of Chilian went for £12 15s. per ton. Holders now ask £13 to £13 10s. per ton.

SPERMACETI.—36 cases of refined Chilian sold on price terms after the auction.

EXTRACTS FROM CONSULAR REPORTS.

The Introduction of Aniline Dyes into Damascus is responsible for a great reduction in the quantity of indigo imported from India, the demand now being considerably less than half what it was a few years ago. Indigo was used for dyeing cotton cloth for the clothing of the lower classes, and though it is by far the best and most durable dye for the purpose, preference is given to the aniline dyes, cheapness being the great desideratum of the Oriental purchaser. Indeed, as Consul Richards remarks, cheapness is the first and last requirement of the Syrian markets, quality is nothing. This is alleged to be the reason why German and Austrian manufacturers have obtained their present footing in the country, especially in the case of ironmongery and tools of all sorts. A good article of fair price will not as a rule sell, whereas an inferior one will so long as it is cheap.

A New Sulphite Factory, calculated to produce on a large scale, Consul-General Dundas states in his report on the trade and commerce of Norway for the year 1898, is expected shortly to commence working near Christiania.

The Liquorice Trade of Damascus is on the decline. The export last year was small, though not, perhaps, below the average of recent years. At one time liquorice held the position of one of the chief articles of export from the country, but for some years past it has ceased to hold that position, because the plant found in Anatolia, according to Consul Richards, is far more plentiful and of a better quality. The bulk of the liquorice exported from Damascus goes to the United States and the rest to Egypt.

The Phylloxera, instead of being cursed, as it usually is wherever it makes an appearance, is blessed, at any rate by some of the agriculturists in Algeria. Some twelve or fifteen years ago almost the whole of the vegetables consumed in Oran were imported from Spain, and a large fleet of small vessels (feluccas) was engaged in the trade. Then the phylloxera broke out in the south of Spain, and in order, it was said, to protect the Algerian vineyards from the scourge, a law was passed forbidding the entry of any fruit or vegetables into Algeria from either Spain or any other country. The consequence was that for some two years all fruit and vegetables were at an exorbitant price. This stimulated the colonists, particularly those in the neighbourhood of towns, to set to work digging wells and searching for water, many finding it where previously it had been considered impossible. The result is that vegetables and fruit are now as cheap in Algeria as in Spain, and, notwithstanding the fact that the interdiction was raised some six years ago, the trade has never attempted to revive, the province of Oran, at least, being now able each year to ship large and increasing quantities of early vegetables and fruit. Hence what was at one time considered a great hardship has in the end proved to be a great benefit to the province and to the colony generally.

The Method of Preparing Indigo in Hupei (China) is somewhat primitive. It is sown towards the end of June and gathered about the middle of September, the plants being either pulled up by the roots or cut down with sickles and tied up into small bundles. A number of wooden tubs of uniform size (3ft. 6in. high and 11ft. 9in. in circumference) with a hole in the side about fourteen inches from the bottom, closed up with a wooden stopper, are filled a little more than half full with clear water; and about forty or fifty bundles of indigo are immersed in each tub and soaked for twenty-four hours. As soon as white spots begin to appear on the leaves, the plants are taken out and strained off into the tub again. Stone lime, dissolved, is added and the whole stirred about with a kind of wooden rake, until it is a mass of foam. It is left to stand for from six to ten hours, and the stopper is then removed and the water allowed to run out. The indigo is next put into large baskets to strain off the rest of the water. This indigo is not exported but used locally for dyeing foreign piece goods, the damaged ones more especially.

Although the Native Exports and re-exports of opium from Ichang (China) fell off in 1898 from the record figure of 10,450 piculs, value £306,464, in 1897 to 7,696 piculs, value £219,903, other branches of the drug trade continue to prosper. In native medicines the exports exceeded the record of 1897 by some £500, being £102,591, against £102,081, while rhubarb, which is one of the most valuable exports, brought in a revenue exceeding that of the previous year by no less than £8,894, the total export being 9,647 piculs, value £27,563, as against 6,534 piculs, value £18,669. White wax did not do quite so well, the export being 10,048 piculs, value £123,447, compared with 10,291 piculs, value £126,432 in 1897. Musk also shows a decrease of considerably over £6,000, the quantity exported in 1897 being 52,288 Chinese ounces, value £70,029, and only 47,440 Chinese ounces, value £63,536 last year.

The Manufacture of Ginseng, which takes place at Songdo (Corea), a royal city about sixty miles from Söul, according to the report of Mr. J. N. Jordan, is now largely financed by Chinese and Japanese, and it is probable that this, the only Corean industry of any importance, with the exception of the tillage of the soil, will soon pass entirely into the hands of strangers.

Obituary.

Tompsett.—On July 4, Walter Hartnup Tompsett, Chemist and Druggist, late of Paddock Wood, Kent. Aged 34.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Cannot Repeat. Sponge Bags, best check (Maw's sizes), No. 2, 5s.; 3, 6s.; 4, 8s. 6d.; 5, 9s. 6d.; 6, 10s. 6d. doz. Bathing Caps, circular, best check, 5s. 6d. Eye Shades, celluloid lined green, rights, lefts, 2s. Enema Syringes, I.R. bottle, bone pipes, best English, red, green, black, 1 oz., 1s.; 2 oz., 1s. 3d.; 3 oz. 1s. 6d.; 4 oz., 1s. 9d. each. 10s. lots post free. Cash returned if sold.—Warnes, Chemist, 333, Gray's Inn Rd., W.C.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Erasmic Soap.—Peplow's Swandown Powder. White. 2s. 6d.—Eastman, Forest Lane, Stratford.

Advertisements.

(Received too late for Classification.)

ASSISTANT WANTED.—About 24, unqualified. Salary, £45. In-doors. References, &c., and photo (if convenient) to BLUNT, Chemist, Shrewsbury.

WANTED immediately, an ASSISTANT as Junior (in-door), permanency, commencing salary £40. State age, height, and full particulars of experience, with address for references, to J. BAILY & Co., Chemists, Margate.

WANTED at once, Qualified ASSISTANT, out-door, about 22, as dispenser in high-class dispensing business. Apply personally if possible to W. H. BATE, 44, Harrington Rd., South Kensington, S.W.

FOR Immediate Disposal.—A good class Family BUSINESS unopposed; situated in good class northern suburb. Returns, £1,200 per annum. *Net profit* over £400. Rent, £70 per annum. Lease about 26 years. Price £1,000, or first reasonable offer accepted. Particulars only at interview, and only those who really mean business need apply. This is one of the finest chances that one will meet with. Apply "ALPHA," c/o Evans, Lescher, & Webb, Bartholomew Close, London, E.C.

Publications Received.

THE MATRICULATION DIRECTORY, No. xxvi. June 1899, with articles on the special subjects for January and June 1900, also including the University Correspondence College Calendar for 1898-9. Pp. 64 + 140. Price 1s. net. Cambridge: University Correspondence College Press. London: 32, Red Lion Square, W.C. From the Publishers.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Abram, Baron, Bennett, Bowen, Butcher, Dhargalkér, Done. Ellul, England, Ferrall, Fox, Grandison, Gregson, Hall, Hardy, Hobson, Kilmer, Kirkby, Mair, Melling, Rennie, Roper, Ross, Routley, Sandrons, Taylor, Tocher, Wain, Wallace, Yates.

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Partnerships Dissolved.

(From the London Gazette.)

Sydney Maskell and Thomas M. Paul (trading as Paul Maskell and Co.), Photographers, 156, Islington, Liverpool. Debts will be received and paid by Thomas M. Paul.

A. R. Jennens, R. W. Jennens and W. H. Wilkins (trading as Jennens Bros. and Co.), Glass Bottle Manufacturers and Druggists' Sundriesman, 60, Summer Row, Birmingham.

Arthur E. Ekins and Ernest H. Fisher, Pharmaceutical Chemists, Market Place and Victoria Street, St. Albans. Debts will be received and paid by Ernest H. Fisher.

Thomas W. Colbeck and Chas. E. Murphy, General Medical Practitioners, Dover, so far as regards Thomas W. Colbeck.

Receiving Order in Bankruptcy.

(From the London Gazette.)

David M. Wilson, Physician and Surgeon, Rowley House, 1 Angel Bridge Villas, Upper Edmonton.

POLITICAL GOSSIP.

What Happened to Dr. Lamont formed the subject of debate in the House on Friday, 14th, when the Scotch Estimates were taken, and in the course of the evening a very edifying revelation was given of local administrative methods in North Britain. It appears that the Doctor, who was medical officer of South Uist, carried out his duties so intelligently and energetically that he made himself obnoxious to some of the local magnates, pretty much in the same way as Tom Thurnall did at Aberalva in Kingsley's delightful story, "Two Years Ago." Dr. Lamont's particular misfortune was to incur the enmity of the Procurator-Fiscal of the Island, and in the result that official apparently utilised his position to give effect to private feeling; for the unfortunate Doctor was dismissed, and subjected to the ignominy of arrest and trial on charges which were referred to in Parliament as trumpery and malicious. Sir C. Cameron started the protest against the action of the responsible officials, and, after a very lame defence by the Lord Advocate, the case was taken up briskly by a number of prominent members. Some of the remarks may not be unworthy of reproduction here, as showing that the action of the Sheriffs in certain Pharmacy Act prosecutions in Scotland is not an isolated instance of public functions being made to coincide with personal antipathies. Sir Walter Foster said the case made him suspicious of the methods by which the law was carried out in Scotland, whilst Admiral Field solemnly gave thanks that there were no such administrators in England. Mr. Asquith and Dr. Farquharson joined in the denunciation, and even Mr. Cross, of Camlachie, referred to the action of the officials as outrageous and scandalous. Dr. Clark went so far as to say that the Procurator Fiscal had apparently aided and abetted a local conspiracy to ruin a man who was trying to do his duty, and suggested that his salary ought not to be voted. Mr. Balfour, in closing the debate, regretted that as the law stood the Government had no power to protect its medical officers, but hinted that as the Procurator Fiscal would be censured, and the effect of the debate would be to show those concerned in the case the sense of the House in respect to their action, some good might accrue. The unpleasant incident may thus bring about wholesome results, for scandals cannot thrive on publicity. We might incidentally express the hope that the Pharmaceutical Society may have the support of the honourable gentlemen mentioned in this paragraph if ever it should be necessary to protest against the methods of the Sheriffs in dealing with Pharmacy Act infringements.

The Food Preservatives Committee has been appointed, as reported last week, but the Food and Drugs Bill has not been withdrawn. On the contrary, the Government is proceeding very briskly with it, despite the high temperature and the numerous calls on Parliamentary time. Mr. Balfour on Monday included the Bill in the list of measures to be passed this Session, and the Minister in charge has given evidence of a stiffening back in respect to the numerous suggestions from the anti-margarine party that the country does not want the legislation proposed. On Monday the first batch of objectors were heard. Mr. Strachey moved the shelving of the Bill because it was only "indifferently honest," and did not go far enough, inasmuch as it did not prohibit the colouring of margarine. Sir J. Leng opposed the Government because they had been forced into their present position in regard to the Bill by an insane hostility to a wholesome nutritious article, to wit, margarine, and by the organised agitation of interested parties. Mr. Lough wanted the Bill withdrawn on the ground of the administrative confusion its clauses introduced, and criticised the provisions as to warranty. "Why," said the honourable gentleman, "the Bill makes an invoice a warranty, but actually does not define what an invoice is." He went on to say that it was ridiculous that a firm should be bound by an invoice written by the worst paid clerk in a commercial establishment. Sir C. Cameron then discharged his thunder, and stigmatised the Bill as a blank cheque to the Government in regard to Orders in Council, which would hit retailers and let wholesale dealers go free. But none of these arguments (and some of them are hardly consistent with each other) prevailed, and the motion for rejection was negatived.

Attempts to Improve the Bill by inserting new clauses to carry into effect the ideas of Sir C. Cameron as to the liability of an employer for the acts of his servant, and also as to the equalisation of liability in regard to wholesale and retail dealers, were also rudely rejected by large majorities. This is not to be wondered at, for there appears to be nothing in the contention that the "big rogues," as Sir J. Leng calls the wholesalers, will be furnished by the Bill with an immunity from liability. If the wholesale dealer is fraudulent the retailer has his remedy under the Act of 1875, and can proceed under his warranty; hence it is difficult to see what further check to dishonest dealing is needed. It is true that there have been complaints that the 1875 Act is a trifle imperfect in regard to prosecuting the wholesale wrong-doer, but it must not be overlooked that under the Bill now being proceeded with the retail dealer who makes a successful defence on the ground of his invoice or warranty furnishes *primâ facie* evidence of fraud on the part of his invoice giver, who might then be hit at common law.

The Board of Reference, beloved of the analyst, and recommended by the Select Committee, has also gone by the board. Mr. Long, on behalf of the Government, urged the rejection of the idea because it would have the effect of transferring the responsibility of a Government Department to an irresponsible committee of experts, and the House did as it was urged, 84 voting for Sir C Cameron's clause and 194 against. The Pharmaceutical Society was to have one nominee on the Board, but it has never manifested any very keen interest in being amongst the experts, and will probably not regret the vote above alluded to. So far as the consideration of the amended Bill has gone up to the present, the debate has been simply a repetition of the proceedings which took place in Committee, and one may pretty safely say that by the time the drug clauses are reached the opposition will have fizzled out.

THE PURITY OF FOOD AND DRUGS.

D. L. Anti-Rheumatic Bread is the name given to a bread recently introduced, according to the *British Baker*, by the firm of Messrs. John Law and Co., Limited, Glasgow. This bread is described as being a boon to bakers and rival to chemists, and is said to be the outcome of careful experiments carried out by a practical baker and an eminent medical practitioner. It is similar in appearance and taste to Sweet Milk Bread, and is said to contain active ingredients which have a powerful effect in curing rheumatism, being eaten as a substitute for, and in the same quantity as ordinary bread, that is to say it should be used regularly if benefit is to be derived. The bread will keep moist for a week, but is best when from one to three days old. It is being put on the market in an attractive form, each loaf being wrapped in a sheet of pure tinfoil.

A Concentrated Essence of Vinic Plants is, in the opinion of a French engineer, the best of all methods for producing an exquisite wine. According to the prospectus issued by this ingenious person, two of his tablets, costing 2 francs 50 centimes each, are sufficient to yield 110 litres of a liquor containing all the qualities of natural wine, from which it is indistinguishable. Not only does the compound possess a most agreeable flavour and a delicate aroma, but it is also said to be unrivalled as a refresher of the slightly damaged wines that are usually used diluted. The tablets are converted into wine by the simple process of boiling in a little water, the decoction, when sufficiently cooked, being further diluted and sweetened to taste. *Food and Sanitation*, **10**, 310.

Adulterated Coffee.—Dr. T. Zammitt, Director of the Analytical Laboratory, Malta, reporting on several samples of raw coffee sent in by the Inspectors of Nuisances, states that the berries were dark and greenish, and soiled the hands, and were found to be coated with a mixture of finely-powdered plumbago and lead chromate. Hundreds of bags of coffee of this quality, chiefly imported from Trieste, were seized and destroyed. Subsequently another quality of coloured coffee was detected. The berries were yellowish, and, to the untrained eye, did not differ from the best coffee berries. Lead chromate proved to be the adulterant, as in the previous case. The percentage of this colouring matter differed in the different samples; in one batch not more than 0·0525 Gm. of chromate per 100 Gm. of berries was isolated, but in a number of samples the berries were dotted all over with the bright yellow lead salt.

Of 370 samples of coffee taken from different shops not less than 261 were found coloured with lead chromate. The object of coating the berries with the chromate is to give to a very inferior article the appearance of that of a better kind. Samples of ground coffee were almost invariably found adulterated with roasted leguminous seeds.—*British Food Journal*, **1**, 46.

Public Analysts' Reports.—During the quarter ending December 31, 1898, the public analyst for the County of Durham, Mr. W. F. K. Stock, examined 242 samples of food and drugs, of which he certified 208 to be genuine, 11 doubtful, and 23 adulterated, the percentage of adulteration being equal to 9·5. Four samples of drugs out of sixteen failed to satisfy the requirements of the B.P.; two, out of five, samples of ground cassia contained an excess of mineral matter to the extent of 4·68 and 10 per cent. respectively; and one sample, out of five, of ground ginger contained 30 per cent. of exhausted ginger. Mr. C. A. Seyler, public analyst for the county of Glamorgan, analysed 243 samples—twenty-three or 9·46 per cent. being adulterated, or excluding butters containing under 0·5 per cent. boric acid, 12, or 4·94 per cent. Of three samples of olive oil, one was a mixture containing 40 per cent. of cotton-seed oil; of nine samples of ground ginger three were very poor; one sample of sweet spirit of nitre was deficient in nitrous ether to the extent of 83 per cent. of the minimum quantity, and was also deficient in alcoholic strength; one sample of compound tincture of cinchona was not equal to the 1885 standard, either in spirit or alkaloidal strength, and in his report Mr. Seyler remarks that as the new Pharmacopœia fixes a definite limit for alkaloidal strength, judging by samples recently examined there must be a great improvement in this article if it is to conform to that standard. The report of Mr. A. E. Ekius, pharmaceutical chemist and public analyst for the County of Hereford, shows that forty-four samples of food and drugs were submitted for analysis, and that the vendors of five (the total) adulterated samples were all prosecuted and fined. Mr. T. Fairley, public analyst for the City of Leeds, examined 353 samples during the year 1898, which number, as he points out, is equivalent to one for every 1,180 of the population of Leeds.

Milk of Sulphur.—John Rees, chemist and druggist, Church Road, Newport, was summmoned at the borough police-court on Friday, July 14, for selling milk of sulphur containing 48·5 per cent. of calcium sulphate.—Mr. F. Lewis, for the defence, held that the case came under the first exception to Section 6 of the Food and Drugs Act, which exempted articles where ingredients were required for production or preservation, and not to fraudulently conceal inferiority of the goods. He further pointed out that there were two articles sold really as milk of sulphur, produced by the same treatment, with the exception that in one instance sulphuric acid was used, and in the other hydrochloric acid, the latter being known as precipitate of sulphur. In the latter case the required sulphurous deposit was obtained, but it was impregnated with calcium sulphate or lime. According to Atkins's 'Treatise on Chemistry,' the proportion of calcium sulphate was sometimes two-thirds of the whole. — William Johnson, the chemist's assistant, held that calcium sulphate was not injurious to health, but Dr. Howard Jones, medical officer of health to the borough, disagreed, saying that it was insoluble in the stomach, and stated that prosecutions had been instituted where 37 per cent. had been present in the article.—Though not unanimous, the Bench imposed a fine of 5s.

Camphorated Oil.—At Smethwick Police-court, Jane Brown, 10, Brasshouse Lane, was summoned for selling on April 28, camphorated oil deficient in proper camphor to the extent of 64 per cent., and containing 80 per cent. of mineral oil. It was pointed out that the defendant could recover from the wholesale dealer the amount of any fine and costs which the Bench might impose. For the defence it was stated that defendant only purchased a dozen bottles of the oil at 8d., and sold them again at 1d. each. A fine of twenty-five shillings, including costs, was inflicted.

Arsenic and Copper in Enamelling Materials.—Specimens of kryolite and of fluor-spar, intended to be used in the enamelling of cooking pans, have been examined by Dr. Van Hamel Roos, of Amsterdam. He reports finding a considerable amount of arsenic in the kryolite, and of copper in the fluor-spar. The German firm which was supplying these substances to certain Dutch enamellers was at once warned to stop the sale, and the facts were made public. Dr. Van Hamel Roos mentions that some time ago he found lead in a specimen of kryolite intended for enamelling, and explains that the presence of these dangerous substances is due to the fact that the minerals in question are associated in the crushing process with minerals containing arsenic, copper, and lead. The great danger attending the use of these poisonous materials for enamelling cooking utensils is too obvious to need comment.—*British Food Journal*, **1**, 69,

Peanut "Butter," according to a recent report, is now being manufactured in Indiana, and is being sold at 15 cents per pound. The shells are first removed, then the nuts are hand-picked, roasted in a rotary oven, and ground into meal. The oil in the grains gives the meal the appearance and consistency of putty as it leaves the mill except that it is of an orange colour. Water is added, but no other ingredient is said to be used. It is put up in tins of various sizes from 1 lb. up to 100 lb. and sealed.

Sulphurous Acid as a Preservative.—Referring to the use of sulphurous acid and its compounds for preserving meat and meat preparations, Dr. Bernhard Fischer, director of the Municipal Laboratory of Breslau, in his annual report remarks that the maximum amount of sulphur dioxide to be allowed is fixed at 0·1 per cent., and that this limit was laid down in 1894 upon medical authority. The researches of Kionka demonstrated that sulphurous acid is not to be regarded as an innocuous substance for food preservation, inasmuch as it acts as a blood poison. Relatively small quantities may be injurious to the human organism, in that it induces bleeding from the capillaries. Dr. Jakobi laid it down that the amount of sulphurous acid must not be allowed to exceed 0·06 per cent., which corresponds to an addition of 1·2 Gm. of crystallised sodium sulphite to one pound of meat.—*British Food Journal*, **1**, 94.

Camphorated Oil.—At the Kensington Petty Sessions, on Tuesday, July 18, William R. Hoare, chemist and druggist, 90, King Street, Hammersmith, London, W., was summoned by the Vestry for selling camphorated oil which was not of the nature demanded, by reason of it being not less than 20 per cent. deficient in camphor. The defendant explained that in the winter time he was careful to see that the camphor was properly dissolved in the oil by means of heat, but in the summer time the camphor was placed in the oil, and allowed to dissolve without the application of heat. In the oil in question it was evident that the camphor had not had time to dissolve properly. There had evidently been slight carelessness on the part of his assistant. Mr. W. Bird (magistrate): It is absolutely necessary for chemists and druggists to be very careful in serving such preparations, and to make up the preparations strictly in accordance with the British Pharmacopœia. This case, however, does not appear to be of a very serious nature, because camphorated oil is used externally, and a little less or a little more camphor in the oil would not do much harm. It is clear, however, that the preparation should be made as prescribed by the British Pharmacopœia, and this the defendant has not done: for such neglect he must be fined 40s., including costs.——John Foster, chemist and druggist, 107, King Street, Hammersmith, was summoned by the Vestry for selling camphorated oil which was not less than 75 per cent. deficient in camphor, and for preparing it with hydrocarbon (mineral) oil instead of olive oil. The defendant admitted the offence, but stated that for all practical purposes he had always found the mineral oil in question satisfactory, and in the case of camphorated oil, the hydrocarbon oil took up as much camphor as olive oil. Mr. Bird: The British Pharmacopœia says that you must use olive oil, but you used paraffin. This is a very bad case. You must be fined £5, including costs.——Percy Wilfred Purdie, chemist and druggist (trading as Feltwell and Co.), 27, Glenthorne Road, Hammersmith, was summoned at the Kensington Petty Sessions, on Tuesday, July 18, for selling camphorated oil which was not less than 13·5 per cent. deficient in camphor. The defendant stated that on the Saturday before the Inspector called at his shop they ran short of camphorated oil, and he advised his assistant to make a fresh supply. The assistant, while preparing the article, was called away to attend to a customer, and forgot the oil for a short time. He could only account for the deficiency by the fact of the oil becoming over-heated.—Mr. Bird: This is not such a serious case, but you must be fined 20s., including costs.

ENGLISH NEWS.

Burnley and District Chemists' Association.—At a Committee Meeting held on Tuesday, July 11, it was decided to have a Picnic, confined to chemists and their wives or lady friends, on Tuesday, August 1. The proposed programme is as follows:—The party will board the train to Skipton, which leaves Barrack at 1.10; Bank Top, 1.12; Nelson, 1.22; Colne, 1.40, arriving at Skipton at 2.5. Then by char-à-banc to Embsay, Bolton Abbey, Barden Tower, Burnsall, where a stay of two hours will be made for tea, etc., then on to Grassington, Linton, Cracoe and Skipton in time to catch the 8.30 train, arriving at Bank Top at 9.34. The inclusive charges will be 7s. 6d. The Hon. Sec., Mr. J. Brown, 7, Manchester Road, Burnley, will be glad to hear from those intending to join the party not later then Saturday, July 22, in order to make positive arrangements.

The London College of Chemistry, Pharmacy, and Botany, 323, Clapham Road, London, S.W., has been established by Mr. Henry Wootton, B.Sc. (Lond.), formerly in partnership with Mr. G. S. V. Wills, of the Westminster College of Chemistry. In arranging and fitting the college Mr. Wootton has especially considered the health and comfort of students, a noticeable feature throughout all departments is that there is abundance of light and air, and plenty of room. The college stands on over a third of an acre of ground, and all sanitary arrangements are new and of the most modern type. The chemical laboratories occupy the whole of the ground floor, and will accommodate sixty-five students without any crowding. Each bench is fitted with gas and water, the sinks draining into large half-round earthenware troughs. There are large fume cupboards, with glazed sides and lift-up fronts, ventilating directly into flues. The balances are placed near windows in a pleasant room built out into the garden. In this room are hung dried specimens of scheduled plants and plant models. The pharmaceutical laboratory is a convenient room, well ventilated, and fitted with all modern requirements. A special room is set apart for performances by students of distillations, nitrometer determinations, etc. The lecture room, on the first floor, is lighted by five large windows, and will comfortably seat sixty-five students, each student having a numbered desk. The walls are hung with a complete set of botanical diagrams, and the materia medica specimens are arranged on shelves in numbered specimen bottles. The microscopes are placed in a good light, and the physical apparatus is available for inspection and use of students. All the departments are separate and distinct, and are lighted throughout by electricity. A special feature of the London College is the botanic garden; a quarter of an acre of ground has been set apart for the cultivation of medicinal and herbaceous plants. The students have access to the garden at all times during college hours.

Hydrochloric Acid.—Herbert White, aged one year and seven months, whose parents live at 8, back 21, Ford Street, Hockley, died in the General Hospital, Birmingham, on Thursday, July 13, from the effects of drinking hydrochloric acid. It was stated that the child, when alone, obtained possession of the bottle containing the poison and drank a small quantity.

British Pharmaceutical Conference.—The following papers have been added to the list of those to be read at the Plymouth meeting:—25. "A New Condenser," by E. W. Lucas; 26. "Notes on (1) Liq. Ferri Perchlor. Fort., P.B., (2) Detannated Wine, and (3) Miscible Liquid Extract of Ipecacuanha," by F. C. J. Bird; 27. "Suggested Standards of Purity for Food and Drugs," by C. G. Moor and C. H. Cribb; 28. "The Salient Features of the Flora of Devonshire," by G. C. Druce, M.A., F.L.S.; 29. "Notes on Hydrogen Peroxide," by C. T. Tyrer; 30. A Paper by Mr. Tyrer.

Meeting of Local Secretaries at Plymouth.—Mr. Freeman W. Hunt, Local Secretary of the Pharmaceutical Society for Plymouth, writes to announce that a meeting of local secretaries of the Society will be held in the Assembly Rooms, Plymouth, on Wednesday next, at 9 a.m., and he hopes that as many as possible will make it convenient to attend.

FRENCH NEWS.

Novel Departure.—From time to time much comment has been indulged in by the medical journals, and dissatisfaction freely expressed, in consequence of the meagre pittance allowed by the authorities to the doctors who have to attend to patients under the Poor Law regulations, the medical fraternity considering the fees out of all proportion to the time and trouble they are called upon and expected to expend in connection with such cases. These fees are regulated according to the nature of the complaint for which the doctor's services are demanded. Weary of agitating, the doctors of Constantin have hit upon a novel idea for professional men, and have decided, one and all, to "strike work" unless the powers that be decide to revise the scale of fees and make it worth their while to continue to hold an office which must assuredly needs be filled. Some few weeks ago the pharmaciens aired their grievance and threatened to do likewise unless they were fairly dealt with; and fearing lest the threat should be carried out, the authorities "climbed down." It is to be hoped they may do likewise in this instance, otherwise they may incur responsibilities *vis-à-vis* the public in general, which they may have difficulty in ridding themselves of. Clearly the doctors have a good case, and considering it is public and not private money that the authorities deal out for this purpose it is hard to imagine their reasons for such closefistedness.

Vol-au-Chloroforme.—What is known as the "Vol-au-Chloroforme" or "robbery with chloroform" has just been successfully practised on a lady travelling between Bordeaux and Paris. When an employé at the Gare d'Orleans was engaged cleaning out the carriages of a train, he came upon a well-dressed lady passenger fast asleep. When with some difficulty the lady was awakened; she seemed as though she had been in a trance, but quickly revived when she discovered that a small leathern bag she carried in her hand when she left home, had vanished, and with it a sum of 70,000 fr. She at once proceeded to the special commissaire of the station, and informed him that after passing Limoges the night before, while the train was in motion, a man in uniform, whom she took to be an employé of the company, entered the carriage and demanded her ticket. At the same time he advanced a small bottle towards her, and from that moment she remembered nothing more. Inquiries were at once made by telegraph, but the only reply received was that Madame G——'s bag had been found empty on the line near Orleans, and a broken phial, which carried a pharmacist's poison label, and which may possibly have contained chloroform, was discovered a few kilometres further up the line. In view of the name being upon the label, it is hoped that this may serve as a clue in ultimately securing the perpetrator of this most audacious robbery.

Fire in a Chemical Works.—On Friday night a fire broke out in the oil-cake and chemical works situated in the Route d'Aix, at Calencelle, in the commune of Marseille. The whole of the material being of an inflammable nature was completely devoured by the flames, notwithstanding the efforts of the fire brigades to overcome them. The amount of damage done is considerable, and, unfortunately, the buildings being completely razed to the ground, a great number of workmen will for some long time be thrown out of employment. An inquiry has been instituted as to the cause of the outbreak, but no light has up to the present been thrown on to the affair.

Madame Bianchini Pardoned.—The 14th July this year will be notable by the numerous pardons granted by the President of the Republic to those who have, in one way or another, transgressed the laws of the country—truly a fitting manner to celebrate the National Fête-day. Amongst those who have thus profited is Madame Bianchini, the "Mrs. Maybrick" of France, an account of whose attempt to poison her husband by atropine appeared in these columns a few months ago. Thanks to the unremitting efforts of her eminent advocate, Maitre Henri Robert, her ultimate pardon has been obtained. Only a month ago her sentence of five years' "solitary confinement" was commuted to five years' imprisonment.

IRISH NEWS.

Pharmaceutical Society of Ireland.—At the last Pharmaceutical Assistants' Examination Mr. F. C. Large passed. One candidate was rejected. At the Registered Druggist Examination Messrs. S. J. Cairns, T. J. Carroll, and J. Maxwell have passed. Two candidates were rejected. At the Pharmaceutical License Examination Messrs. T. W. Corcoran, J. Hewton, J. J. C. Culbert, H. Burns, McDonald, M. Dempsey, D. N. Stewart, and S. W. Curham passed. Fifteen candidates were rejected.

Expert Evidence.—At the Belfast Assizes, before Baron Pallcs, evidence was given in a case of coining. A jeweller, being asked if a certain bottle contained nitric acid, undid the cork, applied the liquid to his finger and tongue, and pronounced it to be nitric. This was part of the expert evidence upon which the prisoner was convicted.

Merchandise Marks Acts.—A further number of cases coming under this Act have been recently decided in reference to false trade descriptions as applied to mineral waters. The inspector of the Belfast Bottling Exchange has prosecuted right and left throughout the province and city. Fines were inflicted in every instance. In one case the defendant argued that the label sufficiently safeguarded the purchaser, but under the Act it was held that the embossed name on the bottle amounted to a "forged trade mark."

TRADE NOTES.

A New Sprinkler.—Mr. Morten Dodge, chemist and druggist 139, Strangeways, Manchester, has just patented a new sprinkler which he considers to be an improvement on the old kinds for perfumes, etc., having great advantages over the metal top variety by preventing any possibility of leakage, being more easily fixed without breakage, and moreover, it can be sold at a small cost. The idea, as will be seen from the illustration, is simply a glass plug fixed in a bored cork. Those shown are exact sizes of corks. In order to fix the sprinkler, the cork is inserted flush with the top of bottle, and the glass plug is then put in. Price 4s. 9d. per gross in two sizes (any size to order).

MORTEN DODGE'S PATENT SPRINKLER.

Hunyadi Janos Wrapping Paper.—Andreas Saxlehner Budapest (Hungary), and Trafalgar Buildings, Charing Cross London, W.C., intimates that his firm is prepared to supply to all chemists who apply for it, quantities of wrapping paper with medical press notices of Hunyadi Jáno's waters, and the name of the chemist to whom the paper is supplied printed thereon. The specimen submitted is of good white paper, attractively printed in red and black.

Valsolum Purum Liquidum.—William Poppelreuter, 54, Portland Street, Manchester, and 19, St. Dunstan's Hill, London, E.C., submits samples of valsolum purum liquidum. This is described as a new introduction of importance in therapeutics, as it will enable chemists to prepare their own solutions of many medicaments, such as iodine, creosote, guaiacol, ichthyol, etc., in any strength required, according to the prescriptions of medical men, or many of the ready-made valsol solutions can be easily reduced in strength with the new plain liquid valsol when required.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Lionel Laurance, announces that he will be holding a class in Manchester, on August 14, for Practical Visual Optics, which will last one week.

Mr. J. C. Brewer, who has been Dispenser at the Birmingham General Hospital for a period of twenty years, is resigning his position at that institution to represent Messrs. Cuxson, Gerrard and Co., of Oldbury, Manufacturers of Surgical Dressings and Appliances.

ITEMS OF INTEREST.

The Purification of Volatile Fluids Without Distillation.—Gawalowski recommends the following methods for purifying various volatile liquids: *Petroleum Ether* is treated with zinc and sulphuric acid with agitation, and then filtered; neutralised with soda or calcium carbonate, again filtered, shaken out with cupric ammonio-sulphate solution, and once more filtered. Petroleum ether thus purified is free from odour, and volatile without residue. *Solution of Ammonia.*—Crude ammonia is shaken with animal charcoal and filtered. Sufficient crystalline barium hydrate to combine with any sulphuric acid present is added, and the liquid is again filtered. If lime, alumina, or iron are present, they are precipitated by means of a little crystallised ammonium phosphate, and filtered out. *Alcohol.*—Crude spirit is first mixed with calcium permanganate and as much sulphuric acid as is necessary to combine with the lime. After standing for several days, when the pink colour has disappeared and a brown precipitate has formed, the solution is filtered, shaken with freshly precipitated copper phosphate, and again filtered. After four to six weeks the alcohol is ready for use.—*Pharm. Centralh.*, **40**, 134, after *Oest. Chem. Ztg.*

Active Constituents of Male Fern.—Bochm, of Leipsic (*Sudd. Apoth. Zeit.*) finds that the anthelmintic value of the oleo-resin of male fern depends on the presence of aspidin as well as of filicic acid. Out of eleven preparations examined, six contained from 2 to 3 per cent. of aspidin, while filicic acid was absent, four contained filicic acid and no aspidin, and one small quantities of both. The author concludes that an oleo-resin rich in aspidin is preferable to one containing filicic acid.—*Therap. Gaz.*, **23**, 179.

Solution of Mercuric Benzoate.—Desesquelle and Bretonneau do not find that mercuric benzoate is soluble, as generally stated, in solutions of alkaline chlorides or iodides, but state that it may be readily dissolved by the aid of neutral ammonium benzoate. For hypodermic injections they employ mercuric benzoate, 60 centigrammes, ammonium benzoate, 3 Gms., distilled water to 60 Gms. This solution does not occasion pain, is less toxic than mercuric chloride solution, and does not precipitate albuminoids.—*Journ. de Pharm. d'Anvers*, **55**, 188.

To Abort a Cold.—Max Nassauer asserts that an incipient cold in the head may be checked if the nose is thoroughly rinsed out with a weak solution of potassium permanganate, which seems to have a specific action upon the germs causing coryza. It checks colds in the first hour or so. He keeps a strong solution of potassium permanganate at hand, about as much as can be taken up on the tip of a small knife to half a litre of water. A few drops of this strong solution are added to warm water until it is coloured a pale pink. After blowing the nose vigorously, both nostrils are well rinsed out with this weak solution, the fluid being allowed to run out through the other nostril and through the mouth. Each nostril is then wiped out with cotton on the finger. A small plug of cotton is then pushed well up into each nostril and the nostrils filled with the weak solution with the head held back, the cotton being allowed to soak it up. The plug is left undisturbed for about an hour, when it can be expelled by blowing the nose. Even an established cold is favourably influenced by this treatment, but it is most effective when the sneezing, tickling, and increased secretion announce the onset of the cold.—*Practitioner*, **42**, 635.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

JULY 20, 1899.

As might be expected at the time of the year, and with the prevailing hot weather, business in the Drug and Chemical Trade during the past week has been anything but brisk, while we can hardly look for any improvement until the holiday season is over, and cooler weather again sets in. The only important change in price to record is a further advance in the price of Santonine. Opium is steady, Persian being specially firm. Morphia is also firm, particularly for early delivery. Codeia is also firm, and in good demand. Quicksilver is steady. Mercurials unchanged. Acid Citric firm. Acid Tartaric and Cream of Tartar steady. Quinine has been somewhat unsettled, but appears to have steadied again; what, however, is in store for the article in the future appears to be a puzzle to the best informed. The following are some of the prices actually ruling for articles of principal interest:—

ACETANILIDE—Is weak at unchanged prices.

ACID BORACIC.—Crystals, 25s. per cwt.; powder, 27s.

ACID CARBOLIC—Very firm at late advance, price now being 7d. to 7½d. for the 35-36° C. ice crystal.

ACID CITRIC—As might be expected, the hot weather now ruling, has had the tendency to stiffen the price, which is still 1s. 8d. per lb. from the makers, for crystals in 5 cwt. casks.

ACID, TARTARIC—Steady; prices being nominally unchanged.

AMMONIA COMPOUNDS—Are without change at prices quoted in our last number.

BORAX.—Crystals, 16s.; powder, 16s. 9d.

BROMINE AND BROMIDES.—No change in price to report.

CLOVES.—Privately Zanzibar quiet, but steady, with sellers for Aug.-Oct. delivery at 3 3/16d., and Oct.-Dec. delivery at 3 5/32d. No Zanzibar offered at auction. Of 6 cases Ceylon 3 sold, fair bright picked at 5½d.

COAL TAR DISTILLATION PRODUCTS—Are without special change.

COCAINE—Makers continue firm at 11s. 6d. to 11s. 9d. per oz. for the Hydrochlorate in 25 oz. tins, stating that they must shortly advance price; from second hand there is still a little offering at something below above figures.

CODEIA—Is in good demand at 12s. 6d. to 12s. 9d. per oz. according to quantity

COD LIVER OIL—Extremely quiet, price being nominally unchanged at 56s. per barrel, f.o.b., for best new non-freezing Norwegian oil, in 25 gallon tin-lined barrels.

CREAM OF TARTAR—Steady, without change in price.

GINGER.—Moderate supplies of Cochin met slow demand, and of 687 bags and 129 cases, only 2 single cases sold, good bold cut little limed, at 75s.; medium and bold brown, cut and scraped, at 71s.; the remainder bought in; good bold cut at 75s. to 80s.; medium and small ditto at 42s. 6d., and small at 27s.; also bright brown cuttings at 17s., and washed rough at 23s. to 24s. Jamaica, also in moderate supply, went off slowly at rather easier rates. Of 520 packages 256 sold, fair to good bright at 66s. to 69s., but chiefly ordinary to middling at 53s. to 60s.; good common at 48s. to 51s. 6d.

GLYCERINE.—Crude is fairly firm. Refined quiet and weak at 48s. to 50s. per cent. for English, and 50s. to 57s. 6d. for German, according to quantity and brand, for best white double distilled, chemically pure, 1260 quality in tins and cases.

IODINE AND IODIDES—Are without change from last week.

MENTHOL—Rather firmer at 7s. 3d. to 7s. 6d. per lb. for best dry white crystals in 60lb. cases (5lb. tins.)

MERCURIALS.—So far makers made no alteration in their prices, which remain at 2s. 10d. per lb. for calomel, and 2s. 6d. per lb. for corrosive sublimate.

MORPHIA—Is firm at 4s. 10d. to 5s. per oz., according to packing, for the hydrochlorate powder.

OILS (FIXED) AND SPIRITS. There being, comparatively speaking, so little business passing in these articles, and prices being nominally about the same as last week, we refrain from quoting, referring our readers to our last week's issue.

OPIUM—Steady for both druggists and manufacturing kinds. In soft shipping kinds there is not much doing. Persian is in good demand, with a tendency to further advance.

PHENACETIN—Weak at nominally unchanged price.

POTASH COMPOUNDS.—No alterations of any importance to record in the articles usually quoted under this heading.

QUICKSILVER.—Firm at £8 7s. 6d. in bottle from the importer.

QUININE.—Makers' price remains at 1s. 6d. per oz. for the best German brands of sulphate in 100 oz. tins and for 1,000 oz. lots, there being, however, sellers of these brands from second hand at fully 2d. per oz. below makers' price. The future of the article remains somewhat of a puzzle. Certainly those who have bought at 1s. 4d. per oz. should not think of selling except at a profit.

SANTONINE.—Makers again advanced price on Saturday to 7s. 6d. per lb. for smaller quantities; lowest for 2 cwt. lots being 6s. 3d. per lb. It is stated that a further advance may possibly be necessary owing to short supply of the article.

SODA COMPOUNDS—Ar practically without change from last week.

SPICES (various).—Black Pepper: 24 bags Ceylon sold at 5⅛d. to 5⅜d., no Singapore offered. White Pepper: Singapore all bought in, good to fine at 9d. to 11d. Chillies: Of 278 packages Japan only 10 sold, fair bright at 35s. Cassia Lignea: 70 bales Broken bought in at 32s. Cinnamon: 3 bales offered and 1 bale sold, firsts at 9d. Nutmegs neglected: 27 cases Penang mostly bought in, 66's at 2s. 2d. and 81's at 1s. 8d. to 1s. 9d.; 3 casks West India sold, 90's at 1s. 7d. Pimento easier: Of 537 bags 116 sold, middling to fair at 3⅛d. to 3¼d.

SULPHONAL.—Makers still quote 17s. per lb. for both crystals and powder. There is now very little indeed offering from second hand.

To-day's drug sales passed off quietly, a considerable number of the lots offered being bought in. The following are particulars of prices realised or required by holders:—

ACONITE ROOT.—10 bags good Japan bought in at 28s. per cwt.

ALOES.—5 cases very soft Zanzibar sold at 35s. per cwt. 54 kegs soft Socotrine were taken out at 75s. per cwt. 26 boxes capey Curaçoa realised 16s. per cwt. 19 cases Cape all bought in at 26s. per cwt. for fair hard bright quality.

AMBERGRIS.—1 tin of quite low quality taken out at 10s.

ANTIMONY.—40 cases crude Japan (Black Sulphide) were taken out at £24 per ton.

ASAFETIDA.—14 cases brown sandy block sold without reserve at 29s. per cwt., down to 21s. for very inferior.

ARECA NUTS.—23 bags good sound, bold, bought in at 30s. per cwt.

BALSAM COPAIBÆ.—5 casks pale Maranham taken out at 1s. 6d. per lb. 10 cases, part sold at 1s. 5d., per lb.

BALSAM PERU.—8 cases were bought in at 8s. per lb.

BALSAM TOLU.—4 cases sold at 1s. 4d. per lb.

BIRD LIME.—1 case genuine Japanese fetched 1s. 9d. per lb.

BUCHU LEAVES.—2 bales, 1 round 1 oblong, taken out at 5d. per lb. Medium rounds part sold at 4¼d. to 5d. per lb.

CAMPHOR OIL.—20 cases black Japan taken out at 25s. per cwt.

CARDAMOMS.—Really fine, bold Ceylon Mysores sold at 3s. 4d. to 3s. 6d. per lb., one case being taken out at 3s. 7d., lower grades selling at 3s., down to 1s. 3d., according to size, shape, and colour. 3 cases spurious, catalogued as wild China, sold without reserve at 3d. per lb. Fair seeds fetched 2s. per lb.

CASTOR OIL.—5 cases Calcutta taken out at 4d. per lb.

CHIRETTA.—6 bales were bought in at 3½d. per lb.

CINCHONA BARK.—1 bale crown bark sold at 4d. per lb. 36 bales flat Calisaya sold at 7d. to 8½d. per lb.

CIVET.—5 horns, quality of which left much to be desired, part sold at 10s. per oz.

COLOCYNTH.—8 casks fair Turkey were bought in, a bid of 1s. 2d. per lb. being declined. This shows a considerable advance

in value of this article, which sold not long since in public sale at 11½d.

COLOMBO ROOT.—7 bags fair washed were taken out at 42s. per cwt.

CUBEBS.—14 bags, dusty, stalky, and inferior, sold without reserve at 20s. 6d. per cwt.

CUTTLE FISH BONE.—75 mats fair sorts, part sold at 3d. per lb. 4 bags small at 2d. 3 cases really fine bold bought in at 1s. per lb.

DRAGON'S BLOOD.—4 cases of medium quality were bought in at £10 to £12 per cwt., while for another lot of 8 cases £12 10s. per cwt. was bid and declined for good fair, and £9 and £10 for less desirable quality.

EGG ALBUMEN.—16 cases fair pale, were taken out at 1s. 9d. per lb.

ERGOT OF RYE.—14 bags Russian sold without reserve at 1s. to 1s. 1d. per lb. Good Spanish was bought in at 1s. 6d. per lb.

ESSENTIAL OILS.—Two cases Cassia Oil stated to contain 81 per cent. cinnamon aldehyde, sold without reserve at 4s. 1d. per lb. 3 cases Oil Neroli Bigarade were taken out at 2s. 8d. per oz. 1 case Dodge and Olcott's Oil Wintergreen bought in at 5s. 6d. per lb. ; 1 case Dodge and Olcott's Bay Oil at 10s. 6d. per lb., 2 cases Dodge and Olcott's Sassafras Oil at 1s. 6d. per lb. 10 cases dementholized Japan Peppermint, taken out at 3s. 6d. per lb. 1 case Michigan Peppermint at 3s. 1d. per lb. 1 case Clove Oil at 2s. 4d. per lb. 1 case Cedar Wood Oil at 11½d. per lb. 5 cases Nutmeg Oil at 2¼d. per oz. 10 cases Cajeputa at 3s. 6d. per bottle (of 20 oz. net). 5 cases fair commercial Eucalyptus at 1s. 3d. per lb.

FŒNUGREC SEEDS.—6 bags realised 6s. per cwt.

GAMBOGE.—11 cases fair pipe bought in at £9 per cwt.

GUAZA (CANNABIS INDIC.).—77 robbins part sold at 4d. for good tops, which shows a decided decline in price ; part dusty and stalky only realised 3d. to 3¼d. per lb.

GUM ARABIC.—2 cases picked gum sold without reserve at £6 2s. 6d. per cwt. 7 cases fair grey part sold at £6 10s.

GUM BENJAMIN.—Fair Palembang was held for 48s. per cwt. Good seconds Sumatra were bought in at £9 to £10, down to £7 for lower quality. 3 cases medium to fair Siam at £15.

GUM GUAIACUM.—2 cases good block bought in at 1s. 8d. per lb.

GUM KINO.—2 cases genuine Cochin bought in at 3s. 6d. per lb. This shows a decidedly lower value as against price hitherto ruling.

HONEY.—Medium Jamaica realised 19s. to 20s. per cwt., 5 casks of rather better quality being held for 21s. ; 1 cask and 2 barrels good liquid sold at 20s ; 5 crates, each containing 6 by 14 lb. tins Canadian, sold at 22s. 6d. per cwt. ; 20 cases white set Californian bought in at 38s. per cwt.

INSECT POWDER.—35 kegs, quality of part of which was somewhat doubtful, were taken out at 7d. to 10d. per lb.

IPECACUANHA.—13 packages were all bought in at 12s. per lb. for Carthagena, and 16s. per lb. for Rio ; later on holders met the market, selling fair Rio at 15s. and Carthagena at 11s., which shows a weaker market for the article.

KAMALA.—1 case of inferior quality taken out at 5d. per lb.

KOLA NUTS.—5 bags, medium to fair quality, sold at 4d. per lb., 5 bags good bold being bought in at 5½d.

LICORICE ROOT.—8 bales thin decorticated were taken out at 40s. per cwt.

LIME JUICE.—7 puncheons sold at 1s. 6d. per gallon.

MENTHOL.—2 cases good dry white crystals, Kobayashi brand, bought in at 7s. 3d. per lb.

MUSK.—4 caddies Tonquin were bought in at 37s. 6d. to 62s. 6d. per oz., according to quality.

MUSK SEED.—1 bag East Indian sold at 1s. 3d. per lb.

QUINCE SEEDS.— 4 bags good African were bought in at 1s. 6d. per lb.

RHUBARB.—Of 51 cases practically nothing was sold, medium to fair flat Shensi was bought in at 1s. 4d. to 1s. 6d. per lb. ; round at 1s. 3d. to 1s. 6d.

SARSAPARILLA.—Medium Lima Jamaica more or less chumpy sold at 6d. to 6½d. per lb. 3 bales fair native Jamaica fetched 10d. per lb., really good Jamaica selling at 1s. 4d. to 1s. 7d. per lb. 6 serons Honduras taken out at 1s. 5d. per lb.

SOY.—20 casks of good quality bought in at 1s. 6d. per gallon.

STAR ANISEEDS.—2 bales bought in at 45s. per cwt.

TONQUIN BEANS.—7 cases bought in at 2s. 5d. per lb. 1 cask of better quality of Angosturas at 3s. 3d.

TURMERIC.—34 bags Madras, part sold at 19s. per cwt. ; 20 bags China at 18s. per cwt.

SENNA.—3 bales, fair bold Tinnevelly, bought in at 6d. per lb. which is about value as market stands at present. 3 bales ditto, good bold green, were held for 7d. per lb. Low broken and yellow leaf sold at 1¼d. to 2¾d.

WAX was again rather easier, medium Jamaica selling at £6 15s. per cwt. ; rather better quality at £7 2s. 6d. ; yellow Calcutta, of doubtful quality, taken out at £5 10s. ; fair Zanzibar at £6 ; fair Madagascar at £6 10s. ; somewhat lower quality realising £5 10s. 6 bags ceresine wax sold without reserve at 30s. per cwt. 50 cases Japan bought in at 30s. 6d. per cwt.

WOOD OIL.—7 barrels China bought in at 35s. per cwt.

Newcastle-on-Tyne Chemical Report.

JULY 19, 1899.

This market continues to find more shipping orders passing from all directions. Bleaching Powder is a special feature at the moment, and as the article is scarce, prices from the various and special markets are more stiffly quoted. More inquiries are in circulation for Soda Crystals and Caustic Soda, but prices are not disturbed. Quotations are : Bleaching Powder £5 10s. to £5 12s. 6d. Soda Crystals, 45s. to 47s. 6d. Caustic Soda, 70 per cent., £7 to £7 5s. Soda Ash, 52 per cent., £4 5s. to £4 10s. Alkali, 52 per cent., £5 5s. to £5 10s. Sulphur, £4 15s. to £5 per ton.

Manchester Chemical Report.

JULY 18, 1899.

Strange as it may seem, the cricket match between England and the Australians greatly affected the attendance on 'Change to-day, and such was the interest felt that even two of Her Majesty's Judges adjourned their courts at an early hour in order that they themselves, counsel, jurymen, and the public might have an opportunity of witnessing the unique match at Old Trafford. Under the circumstances there was not the usual turn over, although in the manufacturing centres the volume of business in heavy chemicals is regarded as satisfactory. Prices remain unchanged, and in miscellaneous articles tin salts are somewhat higher. The arrivals of Brown Acetate are fairly larger, and as low as £4 15s. is reported for Welsh and American, in quantity. Sulphate of Copper is also somewhat lower at £24 12s. 6d. to £25 per ton, best brands, Manchester. In some respects, coal tar products are firmer, especially Pitch and Creosote. Chlorate of Potash tends upwards. Foreign White Sugar of Lead is dull at £22 to £22 10s., c.i.f., but Acetate of Soda is firm at £13 10s. per ton. Arsenic is easier at £19 to £19 5s. Yellow Prussiate is unchanged at 8d. to 8½d. for best Lancashire make. The local oil trade is brisk. Salt Cake is lower and irregular at 21s. to 25s. per ton, in bulk, on rails, and this causes an easier feeling in Glauber's Salts.

Liverpool Market Report.

JULY 13, 1899.

AMMONIA SALTS.—Carbonate firm, 3¼d. per lb. Salammoniac, 33s. to 35s. per cwt.

BEESWAX.—25 packages Conakry made £6 2s. 6d. per cwt.

CANARYSEED.—300 bags Turkish sold at 35s. 6d. to 36s. 6d. per 464 lbs., 100 bags at 36s., 500 bags at 36s. 6d., and latterly 1,120 bags at 37s. 6d. to 38s. Prices are very firm now, holders wanting 39s.

CHILLIES.—14 bags fair Sierra Leone went for 42s. 6d. per cwt. ex store.

COPPER SULPHATE—Quiet at £24 15s. per ton.

COPPERAS.—37s. to 40s. per ton; very firm.

GINGER.—156 bags Sierra Leone changed hands at 18s. per cwt. ex quay.

LINSEED.—Forward business in Calcutta is at a standstill owing to high prices wanted by holders. River Plate ex quay is offered at 37s. per 416 lbs., but there are no buyers. American is firmer, 36s. 9d. per 424 lbs. being asked.

OILS (FIXED) AND SPIRITS.—Castor is steady with slow demand. Calcutta offers at 2⅞d. per lb. ; French 1st pressure at 2¾d. ; 2nd pressure 2$\frac{9}{16}$d. ; second sulpher 2⅝d. ex quay ; Madras 2¾d. per lb. Olive is in improved inquiry, but amount of business done is not large. Candia £31 10s. to £32 per tun ; Spanish £32 to

£32 10s. Linseed is unaltered, with a steady market at 21s. 9d. to 22s 6d. per cent. Cottonseed is firm at 17s. to 17s. 6d. per cwt. Spirits of Turpentine are dull, and there are sellers at 32s. 6d. per cwt.

POTASH SALTS.—Bichromate 3¼d. per lb; Chlorate 3½d. to 3¾d. per lb; Cream of Tartar is firm at 75s. to 80s. per cwt., but transactions are few. Pearlash 32s. per cwt.; Potashes 22s. 9d. per cwt.; Prussiate is very firm at 8d. to 8½d. per lb.

QUILLAYA BARK.—Sales have been made of Chilian at £13 5s. per ton, and £13 10s. is now wanted.

SODA SALTS.—Bicarbonate £6 5s. to £6 15s. per ton; Borax 16s. to 17s. per cwt.; Caustic, scarce and firm, 76 per cent. to 77 per cent., £7 15s. per ton; Crystals £3; Nitrate 7s. 6d. to 7s. 9d. per cwt.

STARCH MOUNTANTS.

BY "ERUDIO."

Starch as an adhesive for photographs of all descriptions cannot be too well recommended, being at once extremely clean drying, easy to make, and at the same time free from the impurities that prevail in many made-up mixtures. It is not soluble in cold water but hot water forms it into a mucilage of almost any consistency required, a small quantity of best white starch being mixed up in cold water to the thickness of cream, and after adding boiling water, stirred till thick enough, or boiled in a saucepan until it thickens. Used in this form there is nothing to beat it. If this preparation is allowed to stand, the result is that in a short time fermentation soon starts, and we get a lot of water out; and even in this state it is hardly fit to use for any delicate work owing to this decomposing matter giving off acetic acid, ammonia, and sundry other unwelcome constitutents. In fact, the starch loses a great deal of its adhesive qualities when in this form.

To stop and retard this decomposition is one of the chief aims, and to do it efficiently would probably be the right road to obtain a suitable starch mountant. The preservatives that are usually recommended being salicyclic acid and also alum and several other chemicals, they certainly act in their way, but may, to a great extent, be looked upon as necessary evils.

If some best white starch is obtained, and a quantity made up in the usual way of fairly thick consistency, glycerin and a small quantity of rectified spirit will be found to be about the best preservative one can use, both with regard to the length of time the starch solution will keep and also from the absence of any ill effects to the picture, it being really a neutral solution. In fact, the starch will keep good for an indefinite length of time. One or two drops of some essential oil may be added to scent the mixture. The spirit may to some extent be found to evaporate, but a small quantity should be added from time to time. In adding the glycerin it must be done when the starch is hot, and well mixed, which may be done with an egg whisk, or shaking up in a bottle, the spirit being afterwards added, shaken well, and then corked up till cool, when it will then be found in an excellent condition for use. The best glycerin should be used.

There are many pastes that will not stand an acid or alkaline test, otherwise they may have everything to recommend them; but for a delicate subject like a photograph the most assiduous care must be taken in choosing a mountant free from any substance that tends to keep the paste and spoil the photograph, and a penny book of test papers will quickly set at rest any question of this sort one way or the other.

Two excellent preparations, for use other than mounting photographs, are dextrine, or British gum, which makes a distinctly acid preparation; and also a solution of cold starch, added to a strong solution of potash. This forms an excellent stickfast, but at the same time, being so strongly alkaline, it is not fit to mount photographs with.—*Photographic News.*

PHOTOGRAPHIC NOTES.

Transferring Photographic Films.—To remove gelatin films from celluloid, or other transparent support, W. Jennings dips the film for about half a minute in a 10 per cent. solution of alum and water, then lays it on a plate of glass, and at the upper corners proceeds to roll back the gelatin film gently with the fingers. It readily separates from the support, and in this rolled-up condition it is washed in running water for about five minutes, to take out the wrinkles and eliminate the alum. Then place a clean plate in a tray containing a 10 per cent. solution of glycerin and water. Next take the separated film and spread it out (printing side up on the glass plate in the tray), then lift up the plate and place the film on the plate, under slowly running water. This will drive out the bubbles. Use the finger or the tip of the tongue for a squeegee. The film will dry perfectly flat and free from grain. When dry it may be intensified, reduced, or retouched, as usual. This is an excellent way to save film negatives having joints in the celluloid, and there is no trouble in transferring fifty 4 by 5 films in an hour. Positive pictures can just as well be transferred from this supporting film on to other things than plates of glass as one's fancy may choose.—*Scientific American.*

Toning Gelatino-Chloride Papers.—We frequently hear conflicting experiences of the behaviour of toning baths other than sulpho-cyanide, which are from time to time recommended for gelatino-chloride prints. The discrepancy arises generally from the fact that a toning bath which will give good results with one brand of paper will not necessarily suit all. The sulpho-cyanide bath seems to suit all kinds, but the results are characteristic and not always desirable. In papers of the kind it is essential that, in addition to silver chloride, there should be an organic salt of silver, but there is a wide choice of the organic salts which are available. Those most commonly employed are the citrate, the tartrate, and the acetate. Free silver nitrate may also be present, and variations in the method of preparation and in the conditions under which the emulsion is formed are also factors which affect the result.

It is not surprising that the use of the generic term—gelatino chloride—for sensitive surfaces of such widely different nature as it is possible to produce, consisting of emulsified silver chloride as a part, should lead to difficultics. In the present state of our knowledge of the action of light, which is hardly rudimentary—we do not even know of what the reduced image consists—and our almost as fragmentary knowledge of how the toning bath acts, the only course that seems open to the practical photographer is to experiment with various samples of paper and various toning baths until he obtains the result he requires, or as near it as possible, and then to stick to the same brand of paper and the same method of treatment. In publishing experiences which relate to a commercial article, the particular article referred to is rarely mentioned, owing, probably, in most cases to the fear that an advertisement or a "puff" might be suspected, and, as a rule, this is wisdom, and leads to no difficulty. Gelatino-chloride paper, however, as we have pointed out, is not of a specific nature, and a well-meaning hint, which might be a valuable one to many, is liable to pass unheeded on account of the impossibility of identifying the actual material to which it applies unless the maker's name is given.

Simple Method of Preparing Potassium Chloroplatinite.—The following simple method for preparing this salt, much used in photography, is due to Vèzes. Platinic chloride is added to water in considerable excess, so that a portion of the salt is left undissolved, even on boiling, for every 100 parts of platinic chloride employed, about 37 parts of neutral potassium oxalate are added, and the mixture heated to boiling, CO_2 is evolved, the platinic salt is reduced to the platinous state, the solution assumes a bright red colour, and the undissolved platinic chloride is taken into solution. On evaporating and crystallising the chloroplatinite separates out: in this way 80 per cent. of the theoretical yield may be obtained, while the rest may be precipitated from the mother liquor by the addition of alcohol.—*Sci. Amer.*, **80**, 325, after *Bull. Soc. Chim.*

SODIUM SULPHATE FOR PHENOL BURNS.—B. Weiss suggests that washing with a solution of sodium sulphate should be employed in the treatment of accidental cases of phenol burning. He finds that this application is more effectual than that of alkaline solutions, as generally recommended in text-books, the resulting sulpho-carbolate formed being quite devoid of caustic action, whereas the combination of phenols with alkalis still retain irritant properties. Pain and burning sensation is at once relieved by washing the parts with an 8 per cent. solution of sodium sulphate, followed by the application of compresses saturated with the same solution.—*Nouv. Rem.* **15**, 215.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Holloway's Wines, half face value.—Balchin, Gosport.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. EDWARD PECK, East Dereham,

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

WANTED JUNIOR for August and September; outdoors; time for study. Suitable for one entering for October examination. Must be an accurate dispenser. London experience preferred. Apply, either personally, between 3 and 8 p.m. on Friday, or on Monday, or by letter in first instance. C. E. TURNER, 20, Bury St., Bloomsbury.

SOUTH WALES.—In Bankruptcy, *re* G. H. J. Cullwick.—The Official Receiver in Bankruptcy has instructed the undermentioned to sell by Private Sale the Stock-in-Trade and Shop Fittings; no reasonable offer will be refused, an early clearance being desirable. For particulars and to view, apply to BOWLING BROTHERS, Auctioneers, Pembroke Dock.

TERMS OF SUBSCRIPTIONS.

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COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Andrews, Burns, Clarke, Cowley, Cruickshank, Cumber, Dazell, Ferrall, Gould, Hardy, Jameson, Kent, Loosmore, Lovis, Mackie, Masters, Naylor, Parker, Payne, Schaefer, Shepherdson, Stewart, Taylor, Thompson, Watson, Wheeler, Woods, Wootton, Young, Zimmer.

Marriage.

Gould—Harman.—On July 16, at Argyle Chapel, Bath, by the Rev. J. Turner-Smith, Sydney Hartforth Gould, M.P.S., fifth son of Henry Collins Gould, of Woodside, S. Godstone, to Isabel, youngest daughter of Stephen Harman, of Bexhill-on-Sea.

Obituary.

Wilson.—On July 5, Robert Morris Wilson, Chemist and Druggist, Nefyn, Carnarvonshire. Aged 65.

Donaldson.—On July 7, William Donaldson, Chemist and Druggist, Brora, Sutherlandshire. Aged 51. Mr. Donaldson had been a member of the Pharmaceutical Society since 1892.

Youngman.—On July 11, Edward Youngman, Pharmaceutical Chemist, Bury St. Edmunds. Aged 71. Mr. Youngman had been a member of the Pharmaceutical Society since 1853.

Pellow.—On July 15, James C. Pellow, Chemist and Druggist, Bude, Cornwall.

Calendar for the Week.

Sunday, July 23. 8th after Trinity. Sun rises 4.12; sets 8 0.

Monday, July 24. Sun rises 4.13; sets 7.59.

BRITISH PHARMACEUTICAL CONFERENCE, Assembly Rooms, Royal Hotel, Plymouth, at 6 p.m.—Meeting of the Executive Committee, followed at 8 p.m. by a Reception by the President of the Conference.

Tuesday, July 25. Sun rises 4.15; sets 7.58.

BRITISH PHARMACEUTICAL CONFERENCE at 10 a.m.—Opening of the Sessions of Conference at the Law Courts, Plymouth, by the Mayor (Alderman J. Pethick, J.P.), followed, at 4.30 p.m., by an excursion from Plymouth along the Cornish Coast to Looe.

Wednesday, July 26. Sun rises 4.17; sets 7.56.

BRITISH PHARMACEUTICAL CONFERENCE at 10 a.m. and 2 p.m.—Sessions of Conference at the Law Courts, Plymouth, followed, at 8 p.m., by a Ladies' Drawing-room Concert and a Smoking Concert, at the Assembly Rooms, Plymouth.

PHARMACEUTICAL SOCIETY.—Meeting of Local Secretaries at the Assembly Rooms, Plymouth, at 9.30 a.m.

Thursday, July 27. Sun rises 4.18; sets 7.55.

BRITISH PHARMACEUTICAL CONFERENCE at 9.30 a.m.—Excursion from Plymouth to Mount Edgcumbe Park and Gardens and up the River Tamar.

Friday, July 28. Sun rises 4.19; sets 7.53.

BRITISH PHARMACEUTICAL CONFERENCE.—Visit to the Dockyards. Garden party given by the Mayor of Plymouth, at "Down House," Yelverton.

Saturday, July 29. ☾ 0.43 A. Sun rises 4.21; sets 7.52.

WHOLESALE CHEMISTS' AND DRUGGISTS' CRICKET CHAMPIONSHIP.—Davy Hills' *v.* Hewlett's, at Brockley.

Partnerships Dissolved.

(From the London Gazette.)

M. Baines and Eustace W. P. Baines, Physicians, 11, Cranley Place, South Kensington.

C. E. Wilkinson and E. H. Flower, Chemists and Druggists, Hemel Hempstead.

Publication Received.

THE QUARTERLY THERAPEUTIC REVIEW. A record of all the published new remedies, special applications and preparations of medicines and of new formulæ. Vol. XVII., No. 66, July, 1899. London: Baiss Brothers and Stevenson, Jewry Street, E.C. From the Publishers.

complete skeletons; hog was especially prominent, but cave lion and rhinocerous were present, also associated with teeth and bones of man.

Man and hyæna both appear to have been residents. The hyæna left proof of his active presence in the form of gnawed bones; man afforded evidence of his occupation in the presence of charcoal and a nodule of flint.

The remains of fifteen or sixteen human beings of both sexes and very various ages were found. Sufficient of the bones were recovered to practically represent every principal portion of the human skeleton. The race was a short one, averaging under five feet. The tibiæ were exceptionally flattened or platyenemic. No skull could be obtained intact, but the form can be definitely stated as orthocephalic. The teeth were exceptionally good, in many cases much worn, but with no trace of decay. Associated with the human remains were those of some five-and-twenty species of animals—rhinoceros, lion, hyæna, fox, badger, bison, urus, red deer, roe deer, hog, goat, etc.

The human remains are the most perfect and complete in this country that have yet yielded information as to the physical characteristics of the men who lived as neighbours with the mammoth, rhinocerous, and cave-lion. Dates, eras, or geologic periods are dangerous handling. Suffice it to say that the bone caves and fissures around Plymouth demand a fluctuation of the level of land of some hundred and twenty feet during their infilling. One which was a den lies by the present sea level; others, filled with apparently fluviatile deposits, lie some hundred feet above; everything points to a lengthened period, the nearest date in which would be vastly remote from our own time. The northern mammoth and man endured each other's society; the latter had already armed himself with flint, either to attack therewith his neighbours or to defend himself therefrom. The land was a sportsman's paradise, and probably a palæolithic man's purgatory. We talk of the stress of modern life: nerves would be more excusable if, back at the fore end of the ages, we were planted down to play hide-and-seek with Machairodus and pick bones with the cave hyæna. Beyond joke or quip there must have been good stuff in the human race that has lived to discuss its own survival from the horrors of pre-historic nightmare.

FINANCIAL STATEMENT FOR THE YEAR ENDING JUNE 30, 1899.

The Hon. Treasurer in Account with the British Pharmaceutical Conference.

1898.	*Dr.*	£ s. d.	£ s. d.
July 1.	To assets forward from last year:—		
	Cash in Secretary's hands	2 10 0	
	Cash at Bank	33 1 8	
			35 11 8
1899.	,, Subscriptions not cleared June 30, 1898		3 15 0
	,, Sales of 'Year Book' by Publishers		24 13 4
	,, Advertisements, 1898 Vol.		66 0 9
	,, Sales of Index, by Publishers		—
	,, Secretary		0 2 6
	,, Sale of Unofficial Formulary, by Publishers		0 5 8
	,, Members' Subscriptions from July 1, 1898, to June 30, 1899	—	352 19 6
	,, Liabilities on Open Accounts—		
	Butler and Tanner	10 3 11 10	
	McCorquodale and Co.	8 15 0	
	David Nutt	6 0 6	
			118 7 4
	,, Assistant Secretary's Salary and Rent, April 1 to June 30, 1899	—	13 15 0
			£615 10 9

1899. June 30.	*Cr.*	£ s. d.	£ s. d.
	By Expenses of 'Year Book'—		
	Printing, Publishing, and Binding	198 1 2	
	Banding	3 18 2	
	Postage and Distributing	13 9 1	
	Advertising, Publishers' Charges, and Commission	18 1 2	
	Editor's Salary	150 0 0	
	Foreign Journals for Editor	6 0 6	
			389 10 1
	,, Unofficial Formulary:—		
	Advertising and Publishers' Charges		0 0 7
	,, Sundry Expenses:—		
	Copies of President's Address, etc.	1 12 6	
	Assistant Secretary at Belfast Meeting	10 0 0	
			11 12 6
	,, Assistant Secretary's Salary:—		
	From July 1, 1898, to June 30, 1899	45 0 0	
	Rent of Office	10 0 0	
			55 0 0
	,, Blue Lists:—		
	Printing	3 5 0	
	Postages	2 9 6	
			5 14 6
	,, Grant for Research:—E. J. Parry	—	5 0 0
	,, Postages	12 16 6	
	,, Printing and Stationery	11 11 6	
	,, Petty Cash expended	3 18 9	
			28 6 9
	,, Bank Charges, 1d., 3d., 1d.; Tranfer of Consols, 7s.		0 7 5
	,, Liabilities of last year, since paid:—		
	Assistant Secretary's Salary and Rent	—	13 15 0
	,, Cash in Secretary's Hands:—		
	Petty Cash	1 4 9	
	Stamps	0 0 6	
			1 5 3
	,, Cash at Bank	—	104 18 8
			£615 10 9

THE BELL AND HILLS FUND.

1898.		£ s. d.	£ s. d.
July 1.	To Balance on hand	18 5 9	
1899. June 30.	,, One Year's Dividend on Consols	9 11 8	
			27 17 5
1898.	By Purchase of Books for Belfast		9 3 11
	,, Balance at Bank		£18 13 6

Assets—
Cash Balance at Bank 18 13 6
£360 2¾ Consolidated Stock 360 0 0

July, 1899. Examined and found correct.

THE STUDENTS' COLUMNS.

EXPLANATORY NOTES ON THE B.P. 1898.

Pix Carbonis præparata.—By fractional distillation coal tar may be separated into five fractions, which are distinguished as follows, the figures representing the average proportions of each:—

1. Ammoniacal water	5	per cent.
2. Light oils	3	,, ,,
3. Carbolic and creosote oils	20	,, ,,
4. Anthracene oils	12	,, ,,
5. Pitch	60	,, ,,

The commercial coal tar by gently heating in an open dish will lose the greater portion of the ammoniacal water and the prepared coal tar so produced is used in medicine on account of its strong antiseptic and parasiticide properties. These properties are due to phenol and its homologues, various hydrocarbons, such as naphthalene, basic bodies of the pyridine and acridine class, and sulphur compounds such as thiophene. When prepared coal tar is digested in tincture of quillaia, made with 90 per cent. alcohol (*vide* Liquor Picis Carbonis B.P.), most of the constituents of fractions 2, 3 and 4 are dissolved, and the greater part of the pitch is left as a black insoluble residue. The filtrate constitutes liquor picis carbonis. This is used chiefly in the form of a lotion diluted with water. On dilution the greater part of the hydrocarbons and the higher phenols are precipitated but remain emulsified, forming a milky fluid owing to the presence of the saponin derived from the quillaia bark.

Plumbi Acetas.—When lead acetate is dissolved in water it is dissociated slightly into an oxysalt and free acetic acid. This oxysalt is the cause of the turbidity mentioned in the official characters and test, while the acetic acid produces a slight reddening with blue litmus paper. Acetic acid added to the faintly turbid solution counteracts the dissociating effect of the water, and converts the oxysalt into normal lead acetate. In applying the hydrochloric acid test for silver, remember the sparing solubility of lead chloride in water. Hence a precipitate of lead chloride may be obtained if the acid be added to a strong solution of lead acetate. Lead chloride may, however, be easily distinguished from silver chloride by its solubility on boiling with more water, in which silver chloride remains insoluble. The quantitative test with sulphuric acid requires that the salt shall be practically pure.

$$\underbrace{Pb(C_2H_3O_2)_2 3H_2O}_{376.15} + \underbrace{H_2SO_4}_{97.34} = PbSO_4 + 2HC_2H_3O_2 + 4H_2O$$

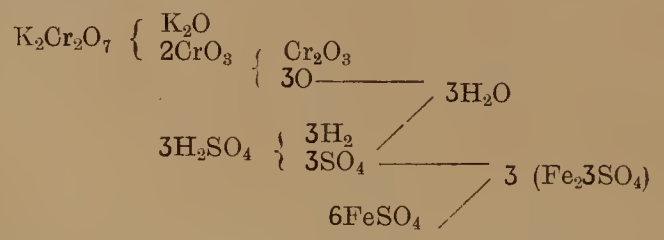
Since 1 litre of N/10 H_2SO_4 solution contains $\frac{97.34}{20}$ Gms. of H_2SO_4 it will be equivalent to $\frac{376.15}{20} = 18.8075$ Gm. of lead acetate.

Each C.c. therefore indicates .0188075 Gm. and 53.1 C.c. are capable of precipitating .0188075 × 53.1 = .998 Gm. of lead acetate.

Potassii Birchromas.—The volumetric test with ferrous sulphate requires the bichromate to be practically pure. It depends upon the conversion of ferrous into ferric sulphate which gives no blue colour with potassium ferricyanide.

$$\left.\begin{array}{c} K_2Cr_2O_7 \\ + \\ 6(FeSO_4,7H_2O) \\ + \\ 7H_2SO_4 \end{array}\right\} = \left\{\begin{array}{c} K_2SO_4 \\ + \\ Cr_2 3SO_4 \\ + \\ 3(Fe_2 3SO_4) \\ + \\ 49H_2O \end{array}\right.$$

The reaction and quantitative relationship between potassium bichromate and ferrous salts are best remembered by the aid of the following diagram:—



The diagram shows that one molecule of bichromate is capable of yielding three available atoms of oxygen for oxidising purposes, the K_2O and Cr_2O_3 forming (in presence of free acid which must be added in order that the reaction may be carried out) the corresponding salts—K_2SO_4 and $Cr_2 3SO_4$ with sulphuric acid, or 2KCl and Cr_2Cl_6 with hydrochloric acid. Note also that the free acid is necessary, not only to form salts with the bases, but to enable the ferrous to form the ferric salt, which contains, relatively to the ferrous, a larger proportion of acidulous radicle. According to the diagram and equation one molecule of bichromate ($K_2Cr_2O_7$ = 292 3) is capable of converting six molecules of ferrous sulphate ($6FeSO_4,7H_2O = 6 \times 276.10 = 1656.60$) into ferric sulphate. From this it follows that 1 Gm. of potassium bichromate is capable of oxidising 1656 60 ÷ 292.30 = 5.667 Gms. of crystallised ferrous sulphate under the conditions described.

Potassii Iodidum.—The Pharmacopœia now gives a minimum and maximum figure for the quantity of N/10 silver nitrate solution required for the complete precipitation of 1 gramme of the salt.

$$\underbrace{KI}_{164.73} + \underbrace{AgNO_3}_{168.69} = AgI + KNO_3$$

16·473 grammes of pure potassium iodide require, therefore, 1 litre of N/10 solution of silver nitrate.

$$\therefore \text{ 1 gramme KI} = \frac{1{,}000}{16.473} = 60.70 \text{ C.c. N/10 } AgNO_3.$$

60·70 is the mean of 59·5 and 61·9. If titration of the salt yields results outside the Pharmacopœia limits, it indicates on the one hand presence of more than traces of chlorides and bromides which require more silver nitrate for complete precipitation than an equal weight of iodide, owing to their lower molecular weights. If the volume of silver nitrate falls below the minimum value given, then presence of more than traces of impurities have no action on silver nitrate are indicated.

Potassii Permanganas.—When strongly heated the salt is decomposed, yielding oxygen, manganese dioxide and potassium oxide. The latter with water forms potassium hydroxide.

$$K_2Mn_2O_8 = K_2O + 2MnO_2 + O_3$$

The volumetric test is based upon the oxidation of oxalic acid to carbon dioxide and water

$$\underbrace{K_2Mn_2O_8}_{313.74} + 5\underbrace{(H_2C_2O_4,2H_2O)}_{5 \times 125.1} + 3H_2SO_4 = K_2SO_4 + 2MnSO_4 + 10CO_2 + 18H_2O$$

The oxalic acid solution referred to in the official test as containing 62·58 grammes of oxalic acid per litre is probably meant to be the normal solution, which contains 62·55 grammes per litre, *i.e.*, $\frac{1}{2}(H_2C_2O_4,2H_2O)$, the molecular weight of oxalic acid according to the table of atomic weights given in the B.P. appendix being 125·1. Assuming this to be so it will be seen from the equation that 313·74 grammes of potassium permanganate will require for decolorisation 10 litres of normal oxalic acid solution.

$$\therefore \text{ 1 Gm. } K_2Mn_2O_8 \text{ will require } \frac{10{,}000}{313.74} \text{ C.c.} = 31.87 \text{ C.c.}$$

The potassium permanganate is by this test only required to be 97·9 per cent. pure.

POLITICAL GOSSIP.

Poor Law Analysts.—In reply to a question by Mr. Macaleese (N. Monaghan) on Monday, respecting the qualifications required by the Irish Local Government Board for the appointment of analytical chemists to the Irish Poor-law Unions, Mr. Gerald Balfour stated that for persons other than Public Analysts under the Food and Drugs Act the Board required educational attainments equal to those possessed by such of the Fellows or Associates of the Institute of Chemistry as had obtained the certificate granted by that body in therapeutics, pharmacology, and microscopy. It would seem that the Department does not regard the mere pharmaceutical chemist as being competent to conduct the official analysis of drugs, but there is some lingering doubt on the point. What is meant by "educational attainments" equal to the diploma of the Institute, and who is to be the impartial judge of the equality? Perhaps, being interpreted, the reply of Mr. G. Balfour signifies that if the Board cannot get a F.I.C. they will make shift with the services of the lowly licensee under the Pharmacy Act.

Trade Marks certainly require a statute to themselves, and every effort towards the simplification and codification of the law relating to these essential aids to the development of trade will bespeak the interest of the whole commercial community. The Trade Marks Bill of Mr. Fletcher Moulton (Launceston), which was introduced into Parliament on the 21st inst., will therefore be closely scrutinised by a large number of electors. Of course, there is no intention of proceeding with the Bill this year, and it is simply submitted as a sample of what Mr. Moulton, backed by his friends, Messrs. Butcher, Kearley, and Provand, can do when they set to work seriously to devise remedies for our faulty Patents, Designs, and Trade Marks Acts. The chief features of the new proposal are (1) the appointment of a legal and commercial assessor for the guidance of the Board of Trade; (2) provision for registering a geographical name if it has, or is capable of having, a meaning totally distinct from its geographical signification; (3), registration of a combination of colours as part of the mark; (4) disclaimer of exclusive right to non-essential portion of any registerable mark; (5) provision for continuing application for registration through the legal representatives of deceased applicants; (6) power to assign one of a series of registered marks; and (7) power to erase a mark of which public use is not made within a period of two years.

Sir Mancherjee Bhownaggree will move this week for portions of the annual report of the Indian Section of the Imperial Institute embodying the more important details of the working of that section, and the results obtained in the scientific investigations of natural products from India carried on at the Imperial Institute. Is the representative for Bethnal Green and India cultivating an uneasy suspicion that the Empire is not getting its money's-worth out of the Institute's researches?

Lady Shop Assistants may even now get their seats this Session. The Lords have formally intimated to the Lower House that they have passed a Bill entitled "Seats for Shop Assistants Bill," which was formerly restricted to England and Ireland, but now embraces the whole of the United Kingdom. But unless the Government is prepared to elevate the measure to the dignity of official rank it is difficult to see how the Lords' amendments can be considered. From the confident assurance with which Mr. Balfour on Monday told Mr. Channing that the Bill would pass before the end of the Session it may be assumed that the ministerial "star" will be placed against its name. Sir Blundell Maple will not be over-pleased with his party.

Alarms and Excursions in the House of Lords on the subject of the Companies Bill continue to vex the soul of unwary journalists who are unacquainted with the Lord Chancellor's little ways. Last week Mr. Balfour told his colleagues in the Commons that the Bill would not be taken this Session, and most people jumped to the conclusion that it would therefore be withdrawn from the list of Bills in progress in the other Chamber. As a matter of fact, even as Mr. Balfour was speaking the Lord Chancellor was engaged in pushing the defunct measure (for it is quite dead) through the Committee stage, and dissolving the Select Committee, which had for so long been deliberating on the virtues and the evils of unlimited opportunities for company promotion. In the course of his remarks his Lordship took occasion to eulogise the Select Committee in unmeasured terms. There never was such a perfect Committee, according to its Chairman; its legal elements, its business elements, and its general knowledge of the world constituted it in very truth a *Select* Committee in the very best sense of the adjective. The three years' labour of the Committee having resulted in a practically unanimous report on a subject of so much importance to the mercantile community, it could not be said, still according to the Chairman, that the time had been wasted. On this point, however, there may be some diversity of opinion, but it is not of much advantage to discuss that now. What may be questioned is whether the Committee were really unanimous in deciding that while it is contrary to public policy that a company should be a doctor, it is in accord with equity that a company should masquerade as a chemist. There is no evidence that this particular phase of the Bill was ever discussed by the Committee, hence the promised detailed explanation of the Lord Chancellor on Friday, when the third reading is due, should be interesting, though it may not be satisfying to the pharmaceutical mind.

The Principle upon which the Committee has based its work—namely, prevention rather than cure, is one with which we have no quarrel. To stop *ab initio* the formation of improper concerns is infinitely more statesmanlike and just than to devise pains and penalties for the punishment of those engaged in undesirable or doubtful practices. But why should the principle be allowed to operate unequally—why, in fact, that should midwives be within the argument and chemists outside? Is the Legislature disposed to paraphrase Hosea Biglow and say that "equity's a sort of thing that doesn't suit a chemist"? The official statement on Friday may contain an answer to these speculations. It may be remarked that the Pharmacy and Medical Bills have neither been advanced nor withdrawn up to the time of going to press.

The Food and Drugs Bill has passed through Committee and been read a third time. Most strenuous opposition was exhibited at every step, but the Government has carried its point and the Bill. The chief alteration to be noted is the omission of the words in clause 19 which provided that an invoice should be deemed to be a warranty without the addition of specific words of guarantee. The promotion of an invoice to the rank of a warranty was the act of the Standing Committee, so that the Bill now goes back to its original form, and the invoice will continue to be nothing more than a fancy description of goods purchased, unless indeed, the Lords think fit to support the contention of the Grand Committee. Mr. Heywood Johnstone (Horsham) was the prime instigator of the omission, and his work was facilitated by the open-minded attitude of the Minister in charge, Mr. Long, who pointed out that whilst he left the matter in the hands of the House, he was advised that to give an invoice the force of a warranty would be fraught with very great danger from the point of view of the successful detection and prosecution of the defendant. This may be good advice, but one cannot help feeling that a very valuable check upon a possibly fraudulent wholesale dealer has been removed from the Bill. It might have been better, as Mr. Bryce suggested, to so modify the clause that words importing quality or description on an invoice would be deemed to impart the force of a warranty.

On the motion of Mr. Long, an addition was made to the effect that Scotland should be included in the provisions of the Bill. This is particularly hard on some of the Scotch members who have been most conspicuous in their hostility. Sir C. Cameron, for instance, crystallised his opinion in a very scathing denunciation. The measure, he said, would only benefit one class of Her Majesty's subjects, and that class was the lawyers; it would also render still more complicated the confusion already existing in the adulteration laws. Furthermore, the Government had successfully resisted all attempts to protect the public against fraud by getting at the wholesale adulterator, and in this connection the honourable baronet had a number of supporters who acted as chorus. Before the third reading was agreed to Sir Charles's words had taken effect, for Mr. Long intimated that ere the Bill reached Committee in the Lords the Government might be able to find words which would clear up any doubts as to the legitimate use that ought to be made of an invoice.

THE PURITY OF FOOD AND DRUGS.

Copper in Peas.—Mr. Fairley, public analyst for the City of Leeds, in his annual report states that the whole of six samples of preserved peas contained copper in small quantity, but a prosecution in one case was dismissed on the ground that these peas are "a perishable article." Mr. Fairley admits that they are perishable after the tin is opened, though not so as to affect in the slightest degree the presence or absence of copper, or its amount. He goes on to show that there are divergent opinions amongst magistrates as to the necessity for opening the tins of such articles before dividing them for analysis. One magistrate ruled that three tins may be regarded as one sample, and that the division into three parts, according to the Act, may be simply carried out by allotting one tin to each recipient, while another magistrate ruled that the tins must be opened before the division of the contents of one or more tins among the recipients. Mr. Fairley points out that so long as the goods remain in a sound sealed tin they are not perishable in any ordinary sense, and that it would be well if a reliable opinion could be obtained as to the proper mode of division of tinned goods, and of the proportion of copper, if any, which ought to be permitted in them. In his own experience he has observed copper-poisoning where the metal was present in minute quantity in drinking-water, and he is of opinion that wherever copper is used for preserving the green colour of preserved vegetables it ought to be declared, so that the buyer may know of the presence of copper.—*British Food Journal*, **1**, 49.

Factitious Sulphate of Copper.—The consulting chemist to the Bath and West and Southern Counties Society, Dr. J. A. Voelcker, has examined a sample of a material sold as "vitriol for wheat dressing." He reports that though made up to look like sulphate of copper (bluestone or blue vitriol), and the purchaser believing it to be and buying it as such, it was found in reality to be nothing but the far cheaper and ineffectual material sulphate of iron (green vitriol), coloured with Prussian blue so as to make it look like sulphate of copper. He states, further, that there is reason to believe that there has for some time past been a great deal of defrauding practised upon the farmer in this respect. As Dr. Voelcker points out, if farmers do not make use of the facilities in regard to chemical examination which are so readily placed at their disposal by the Council of the various Agricultural Societies it can hardly be wondered at that they will from time to time be imposed upon.—*British Food Journal*, **1**, 50.

Seidlitz Powder.—Roger Upton, of Devonshire Road, Chiswick, was summoned at Brentford on Friday, July 21, for having sold a seidlitz powder deficient in tartaric acid to the extent of 68.8 per cent., and a blue powder deficient in sodium bicarbonate to the extent of 15 per cent.—The summons was amended by altering the name to Harriet Upton, she being the owner of the shop.—The defence was that the powders were sold as they were received from the wholesale dealers.—Mr. Tyler, the inspector under the Act, said he must ask for a conviction in order that he might be able to take proceedings against the wholesale dealer.—A fine of £5 and costs was imposed.

The Composition of Sausages.—The question as to what kind of preparation can be regarded as a genuine sausage has been under the consideration of the Directors of the British Analytical Control, and they are of opinion that the unacknowledged admixture of bread or farina, in any quantity, constitutes adulteration. The term "sausage" without any qualifying designation, is held to mean a preparation consisting of meat and spice only; therefore sausages which consist merely of bread and fat, coloured with a ferruginous earth or an aniline dye, or of a mixture of bread and fat with a small amount of meat, are considered to be fraudulent adulterations.—*British Food Journal*, **1**, 130.

Gregory's Powder.—At Lambeth Police-court on July 13, a fine of £2 19s., including costs, was inflicted upon G. R. Turner, described as a chemist of Camberwell Road (the name G. R. Turner does not appear on the Register of Chemists and Druggists for 1899.—Ed., *P.J.*), for selling Gregory's Powder, which was certified by Dr. F. Teed to contain 66·7 per cent., of magnesium carbonate.

Food and Drug Analysis in the City.—Dr. W. Sedgwick Saunders, the medical officer of health and public analyst for the City of London, in his annual report to the Corporation states amongst other things that his district comprises an area of 672 acres divided into 113 parishes. The night population was 29,121 and the day population 334,050. Two hundred and thirty analyses were made during the year of butter, cocoa, cream, drugs, lard, malt liquor, margarine, milk, mustard, pepper, spirits, suet, sugar, tapioca, tea, vinegar, and water. Nine prosecutions were ordered, and fines inflicted.

Vinegar.—James Pass was charged at Marlborough Street Police-court, W., last week with selling vinegar containing 50 per cent. of added water. Defendant was fined £3 and costs.——In the case of Mr. Morrell, 37, Carnaby Street, the charge was that the vinegar contained sulphuric acid.—Dr. Edmunds gave evidence to the effect that he had examined a sample of vinegar purchased from the defendant, and found it to contain sulphuric acid. This was not an ingredient of vinegar, but was added in place of acetic acid, and was injurious to health.—Mr. B. E. R. Newlands and Mr. Lee Taylor, public analyst for Hackney, both gave evidence on behalf of the defendant to the effect that there was no free sulphuric acid in the sample.—The case was adjourned for six weeks in order to send a sample of the vinegar to Somerset House.

Camphorated Oil.—Thomas Butler, drysalter, Hook Road, Surbiton, was charged, at Kingston-on-Thames Police-court, on July 13, with selling camphorated oil deficient in camphor to the extent of 40 per cent. For the defence it was stated that the oil was sold in exactly the same condition as received from the wholesale house.—The case was dismissed.—A summons had also been taken out against the firm who supplied the oil—Messrs. Bell, Sons and Co., Ltd., Liverpool—and a fine of £5, and 13s. 6d. costs, was imposed.

Adulteration of Flour.—According to a recent report, the Secretary of the State Board of Agriculture (Maine, U.S.A.), during the past year issued a circular notice for the information of the public, cautioning them against an adulterant termed "mineraline," which the manufacturers claimed was being extensively used in high and medium grade flour, also in bread and feed-meal. Chemical analysis is said to have proved "mineraline" to be ground soapstone. The manufacturers, in urging its adoption and sale, claimed that when mixed with flour, the latter became whiter, and that by this adulteration an increased profit to the retailer was assured.

Food and Drug Inspectors on Wheels.—The Surrey County Council at its meeting on Tuesday, July 25, according to the *Daily Telegraph*, sanctioned an expenditure of £67 4s. in purchasing bicycles for the county inspectors under the Foods and Drugs and the Weights and Measures Acts.

ENGLISH NEWS.

Leeds College of Pharmacy.—On Saturday last the district of East Keswick, which is one of the richest, botanically, in England, was visited by the students of this college. Many specimens of the rarer British flora were discovered, and though the weather was unpropitious, a most enjoyable afternoon was spent.

Carbolic Acid for Ginger Beer.—On Tuesday, July 18, Mary Alice Sutcliffe, aged fifteen, the daughter of John Sutcliffe, of Rodick Street, Woolton, went into the parlour for some ginger-beer, the bottles being kept under the sofa. By mistake she picked up a bottle containing carbolic acid, and drank a quantity. She immediately threw the bottle down, and screamed. Constable Rutter and Inspector Adamson were quickly on the scene, and Dr. Pethick was sent for, who used a stomach pump, with the result that it is expected that the girl will recover. There was no label on the bottle to denote its contents. This case, although fortunately it had not a fatal termination, adds another link to the long chain of evidence showing the necessity for some kind of regulations with regard to the sale and distribution of carbolic acid, and nothing will answer the purpose so well as its being scheduled under the Pharmacy Act of 1868.

Cricket.—At a match between "Allenbury's" C.C. and "Davy Hill's" C.C., played on Saturday last at Wadham Lodge, the former scored 62 runs, against the latter's 142 for eight declared.

Sheffield College of Pharmacy.—The students of this college, accompanied by the Principal (Mr. J. W. J. Turner) and Dr. R. B. Greaves, went for a botanical ramble through the Loxley Valley on Tuesday afternoon, July 25. A large number of specimens were collected and described. A halt was made when the Bradfield reservoir was reached. The return journey was made at 6 p.m. The outing proved most instructive.

Newcastle-on-Tyne and District Chemists' Association.—The annual excursion took place on Thursday, July 20, to Morpeth. The party, which numbered over 30, reached Morpeth at 2.20, and was met at the station by the President, Mr. F. E. Schofield, who conducted them to the Castle, where, through the kindness of County Councillor Nicholson, the Castle itself, gardens and grounds, were inspected, and greatly admired. The old Church of St. Mary on the Kirk Hill was visited, and its history and items of interest pointed out by Mr. J. R. Hardy. Newminster Abbey was afterwards explored, and after a substantial tea had been partaken of, the party returned to Morpeth in time to catch the three minutes past eight train to Newcastle. Arrangements had been made to visit Mitford, but on account of the unfavourable state of the weather, had to be cancelled.

Professor Dewar Threatened.—Charles Bomberger, 54, an instrument maker, of Swiss nationality, living at 42, King's Cross Road, was charged on Tuesday, July 25, on a warrant before Mr. Denman, at Marlborough Street Police-court, with using threats towards Professor James Dewar, of the Royal Institution, Albemarle Street, whereby that gentleman went in fear of his life or some bodily injury. Professor Dewar said that on June 5 he received one of the two letters now produced, written in German, and last week the second one arrived. In consequence of the contents of the letters he went in fear of the writer of them. He had never seen or heard of the prisoner before. Having consulted a gentleman of high authority in mental diseases he was advised to proceed against the prisoner, who appeared to be a danger to the community. The letters having been read, the prisoner was asked if he wished to make any statement, and in reply said, "I have only to say that the persons who persecute me told me that it was Mr. Dewar, and I wrote the letters only to ask him about it. If he is offended I am very sorry." Bomberger was remanded to Holloway for a week, and by the magistrate's direction he will receive special medical attention.

Inland Revenue Prosecution.—At Retford, on Monday, July 24, George Eyre, of Leicester, was summoned by the Inland Revenue authorities for selling medicine without a stamp, and also for not having a licence. Mr. Hawkins, from Somerset House, represented the authorities. For the prosecution, it was argued that under Section 2 of George III., chap. 150, it was required that all packages, boxes, etc., containing drugs kept ready for sale should have a 1½d. stamp affixed. The defendant was seen selling pills to be used for the cure of indigestion, gout, and other disorders affecting the human body. Mr. A. J. Heatley, officer of Inland Revenue, said he was in the Retford Market Place, and saw the defendant speaking to a crowd of people about boxes of pills, which he was offering for sale. He stood at a stall, and recommended the pills as being good for indigestion, dropsy, gout, and several other ailments. He went on to say that neither the Revenue officers nor the police could touch him for selling, but if he printed any of the letters which he exhibited attached to a sheet as testimonials, then he would be liable to a penalty of £20, and would have to put a stamp upon every box of pills he sold. There was no Revenue stamp on the boxes sold to witness, or on those sold to other persons.—The defendant gave evidence, and stated that four years ago he had a recipe given him for making pills and other articles, and he asked the Inland Revenue authorities at Leicester what it was necessary for him to do to enable him to sell his pills at the markets. He was told that he could not advertise them by any public notice, or print any testimonials respecting them, or he would be liable to the Inland Revenue, but if he did neither of these things, and took out a pedlar's licence, he could sell wherever he liked.—The Bench fined the defendant £1, including costs.

Boots', a Book, and a Coroner.—On Wednesday, July 19, the Coroner of Derby (Mr. John Close) held an inquiry respecting the death of Edith Freeborough, aged fourteen months, daughter of George Wm. Freeborough, 59, Macklin Street. Ruth Freeborough, the mother, stated that the deceased had been suffering from measles. Witness had given her certain "Children's cooling powders" and a pill by a patent medicine vendor which contained aconite. Witness administered the pill on Monday afternoon, and the child afterwards seemed to be very much easier in her breathing, but about eight o'clock she was taken suddenly worse. Witness then sent for Dr. Vaudrey, but the child expired before he arrived. No doctor had previously attended the deceased, and witness did not think it necessary until deceased was taken worse. — The following dialogue is reported to have then occurred:—The Coroner (holding up a pamphlet): Where did you get this book from?—Witness: From Boots'.—The Coroner: Have you read it?—Witness: I think I have.—The Coroner: Why did you not send for a doctor to see the deceased?—Witness: I did not think she was ill enough to send for a doctor.—The Coroner: What led you to that opinion?—Witness: She took her food pretty well all day, and appeared to be going on quite well.—The Coroner: Was it in consequence of what you read in this book that you did not send for a doctor?—Witness: I could scarcely answer that question. I thought that what I was giving her was quite right.—The Coroner: Was it in consequence of reading a clause at the commencement of this book you did not send for a doctor?—Witness: Yes; I thought I was doing quite right.—The Coroner then read a clause out of the book previously mentioned, and which stated that "mothers may rest satisfied that no doctors have any means or remedies superior to this, here recommended, and that if anything will save the child's life this will do so."—The Coroner: Was the book wrapped up with the medicine, or was it sent separately?—Witness: No, sir, I think my little boy brought it to me.—Dr. Vaudrey, Friar Gate, stated that he was called to see the deceased on Monday evening. She was quite dead on his arrival, the cause of death being measles. Witness did not think that medicine containing aconite ought to be sold to people who were going to administer it themselves. As most people were aware, aconite was a very dangerous poison, and he was of opinion that it ought only to be administered by a skilled medical man. It was certainly doubtful whether the pill which the mother had given the child contained any aconite at all, but this would only be ascertained by means of analysis.—The Coroner: Do you think the powder or pills had anything to do with the cause of death?—Witness: None whatever.—The Coroner, in summing up, endorsed the remarks made by Dr. Vaudrey, and added that he had been given very little time to examine the book referred to, but would do so, and take such steps as were deemed necessary.—The jury returned a verdict in accordance with the medical testimony, and added as a rider that they quite concurred with the observations of the Coroner.

Proposed Presentation to Mr. J. C. Brewer.—We are requested to announce that a proposal is on foot amongst the "Lady Dispensers," who have been pupils at the Birmingham General Hospital, to make a presentation to Mr. J. C. Brewer on the occasion of his resignation (see last week's issue, page 74d). All former pupils of Mr. Brewer who are in favour of a presentation to him are asked to communicate their views to Miss R. Kathleen Spencer, Cadarga, Knowle, Birmingham.

IRISH NEWS.

Mr. Robt. F. Blake, F.I.C., Demonstrator of Chemistry, Queen's College, Belfast, has been appointed analyst to the Banbridge Board of Guardians at a salary of £10 per annum.

The Monaghan Guardians have been informed by the L. G. B., that Mr. R. H. Lennon Wilson, whom they appointed as analyst, is not eligible as he is not a Fellow of the Institute of Chemistry, and has no certificate of the Institute in therapeutics, pharmacology, or microscopy. It was mentioned that the Pharmaceutical Society was sending a deputation to the L. G. B. regarding the subject of qualification, and the Guardians postponed further action pending the Conference.

The Secrets and Mysteries of Science are not all divulged or cleared up yet. There is opportunity for original research to solve the as yet unexplained fatal action of chloroform in certain isolated cases. In the Royal Hospital, Belfast, a young man of 18 years of age, who was certified as a perfectly fit subject for chloroform prior to undergoing an operation, succumbed to the administration of the drug. The jury returned a verdict of chloroform poisoning, due care and attention being exercised by the surgeons.

SCOTTISH NEWS.

Mr. Henry Fraser, Ph.C., Aberdeen, has just completed his third professional examination with Double Honours for the degree of M.B. ChB. at Aberdeen University. Mr. Fraser's career as a student of pharmacy and medicine has been of exceptional brilliancy. During his apprenticeship he attended the Evening Science and Art Classes at Gordon's College and secured first-class certificate in Advanced Organic Chemistry (Theoretical and Practical), Advanced Inorganic Chemistry (Theoretical and Practical), and Advanced Botany—being Queen's Prizeman in Botany and Organic Chemistry. He passod the Minor in April, 1895, and after three months at Bloomsbury Square he passed the Major and obtained the Pharmaceutical Society's Silver Medal. In October of the same year he was appointed teacher to the Aberdeen School of Pharmacy and also commenced the study of medicine at the University. His record there has been one long series of prize taking:—First Prizeman in Osteology, Twice Prizeman in Anatomy, First Prizeman in Botany, Double Medallist in Physiology, First Prizeman in Materia Medica (Senior), Medallist in Practice of Medicine, Medallist in Pathology, First Medallist in Forensic Medicine, Fife-Jameson Gold Medallist in Anatomy, Keith Gold Medallist in Systematic and Clinical Surgery. In his second year he was first in Bursary List—obtaining a three years' Bursary. He has Double Honours in First, Sccond and Third Professional Examinations. He was class assistant in materia medica and physiology and prosector in anatomy. He takes a great interest in student affairs, being Vice-President of the Students' Representative Council and President of the University Medical Society.

TRADE NOTES.

Thompson's Food Warmer and Heater. — Charles Thompson, 159, Stratford Road, Sparkbrook, Birmingham, proprietor of Thompson's atmospheric gas jet for soldering, sealing, etc., sends specimens of his food warmer and water heater, with kettle and saucepan, some of the advantages of which are, that the heater will fit on any ordinary gas bracket; that a pint of hot water can be obtained in less than five minutes without interfering with the ordinary light in a bed or other room; that food can be kept warm at any desired temperature; that the kettle may be used as a bronchitis kettle; that it may be used as a water bath by placing an evaporating basin either on the kettle or saucepan, according to the size required; and that the adjustable ring forms a useful support for holding a lady's curling iron. The price of this ingenious and extremely useful contrivance is 2s. 6d., nickel plated, with one kettle or saucepan, postage 3d. extra. Kettles and saucepans may be had, price 9d. each, to fit the adjustable ring.

"Newbery's Catalogue."—Messrs. F. Newbery and Sons, 1 and 3, King Edward Street, Newgate Street, E.C., send a copy of the nineteenth annual issue of their catalogue of druggists' sundries, medicines, perfumery, mineral waters, etc. It contains extracts from the Medicine Act, remarks on the medicine duty, lists of medicated wines, etc., regulations affecting sales of "poisons," and eight hundred illustrations. Several changes in the proprietary goods' section have been made, and the druggists' sundries and photographic sections have also been considerably extended. Great care appears to have been taken to exclude obsolete articles, and the typographical arrangement, comprehensive indexes, etc., facilitate ready reference to any part of the work. Messrs. F. Newbery and Sons also send a copy of a tastefully printed pamphlet setting forth the advantage of Messrs. W. R. Warner and Co.'s specialties, which is being distributed to members of the medical profession throughout the United Kingdom. Amongst the most recent of this firm's novelties are Carlsbad Water Centiforms, which afford a ready method of producing a draught similar to that of the natural springs, and Nervitone Tablets, a nerve tonic and stimulant. Messrs. Newbery have also recently placed on the market an effervescent saline which they style the "Niagara Health Salt." The tins retail at 4d., and it is supplied to the trade on terms yielding a good profit.

"Practical" Poison Bottle.—We have received samples of a "Practical" Poison bottle which has been designed to meet the requirements of the recent poison regulations. The shape differs from any other previously introduced; it is a combination of the flat and octagon. The front is made as rough as possible with prominent ribs at the edges so as to make it distinguishable to the touch, and the back is smooth to take the label. It is made in sizes from half ounce to twenty ounce capacity in dark blue or actinic green glass. Stocks are held by Messrs. Maw, Son, and Thompson, Evans, Lescher and Webb, and Evans, Sons, and Co., of Liverpool, from whom prices and further particulars may be obtained.

Flyodoomo Gum in collapsible tubes is the most recent form in which Mr. John H. Smith, pharmaceutical chemist, of Newark-on-Trent, supplies his useful article for destroying flies. The *modus operandi* is to suspend a piece of string from some convenient object, and pass the mouth of the tube along it, thus leaving a small quantity of the gum which can be made to cover the surface by passing a piece of stiff paper to and fro.

Conversion of Business.—Messrs. Hearon, Squire, and Francis, 38, Southwark Street, London, S.E., announce that they have decided to convert their business into a private limited liability company as from June 30 last. As the step taken is entirely of a private nature, no shares will be offered to the public or the trade. The directors who will all take an active part in the management, will be Messrs. G. Bult Francis (chairman), and W. H. Francis (the late partners), together with Messrs. W. A. H. Naylor, R. J. Reynolds, T. B. Ridgwell, W. J. Rogerson, and R. Sharrah. Each of these latter gentlemen is widely known in the trade, and all have for many years been intimately associated with the success and traditions of the house.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. J. Milner, M.P.S., Chemist and Druggist has commenced in business at 85, Woolwich Road, Greenwich.

Mr. F. J. Evans, M.P.S., Chemist and Druggist, has opened the East End Pharmacy, St. Anne's-on-the-Sea, Messrs. Ayrton and Saunders, of Liverpool, supplying him with the entire fittings.

Mixer for Compound Powders.—The following simple piece of apparatus has been devised by T. Garraud, and is stated to afford a mixer for powders, in which the admixture is more intimate and more rapidly obtained, than by rubbing down in a mortar; and which also has the further great advantage of not being accompanied by any loss, or making the least dust. A much flattened spheroidal box is fitted with a tight lid of similar shape, so that the vertical section of the vessel forms an ellipse. A convenient size is that having a diameter of 7 by 4.5 centimetres. Inside this, three glass marbles having a diameter of 10 to 15 M.m. are placed. After introducing the ingredients the whole is shaken round with a rotary movement. In two minutes a perfectly homogeneous mixture will be obtained. In addition to being more efficacious than the mortar, the box greatly adds to the comfort of the dispenser when irritating powders, such as salicylic acid, podophyllin or naphthol have to be dispensed.—*Bullet. de la Soc. de Pharm. de Bordeaux*, **39**, 112.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

July 27, 1899.

As might have been expected at the time of the year, business has been excessively quiet during the past few days, and it cannot be expected that we shall see any renewed activity in the Drug and Chemical trades until after the holidays. The chief incident of the week has been a set-back in makers' price of Quinine, which must have proved a serious disappointment to speculators in the article. Opium is quiet, but fairly firm, at late rates. Morphia remains firm and very scarce for immediate delivery. Codeia is also very firm. Cod Liver Oil and Glycerine dull and weak. Cocaine very firm, with a rise in value confidently predicted. Quicksilver and Mercurials firm, there being no price from second hand for the former article, which looks as if a further advance in price was not improbable. Sulphonal steady. Acetanilide and Phenacetin dull and weak. Camphor very quiet both for crude and for refined. Shellac dull. Rape Oil firm. Turpentine dearer, especially for distant delivery. Sulphate of Ammonia quiet. Iodides and Bromides steady at unchanged prices. Bismuth and Salts unaltered. Citric and Tartaric Acid and Cream of Tartar steady at firm prices. Acid Carbolic in good demand. Santonine maintains its advanced price. Borax and Acid Boracic quiet. The following are actual quotations for some articles of chief interest:—

ACETANILIDE—Continues weak and slow of sale at 11d. to 1s. per lb. according to quantity and packing.

ACID BORACIC—Quiet, but fairly steady at 27s. per cwt. for powder, and 25s. per cwt. for crystals.

ACID CARBOLIC—Very steady at 7d. to 7¼d. per lb. for 35-36° C. ice crystal in 2½cwt. drums and over casks, 7½d.-7¾d. per lb. for 39-40° ice crystals, and 8½d. to 8¾d. per lb. for the B.P. quality, 39-40° C., in detached crystals. Crude, 60° F. 2s. per gallon; 75° F. 2s. 6d. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 2d. to 1s. 3d. per gallon, in 40 gallon casks.

ACID CITRIC—Is quiet, but firm at 1s. 7d. to 1s. 7½d. per lb. for crystals in 5-cwt. casks.

ACID TARTARIC—Quiet but steady at 1s. 1d. per lb. for English on the spot, and 1s. 0¼d. per lb. c.i.f. for foreign.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb.; Carbonate, 3d. to 4d. per lb., according to make, etc. Muriate Commercial, free from metals, 25s.to 27s. 6d. per cwt.; chemically pure small crystals, 30s. to 32s. 6d. Sal Ammoniac: Firsts, 35s.; seconds, 33s. per cwt.; crushed for batteries, 37s. and 35s. per cwt. respectively. Sulphate quiet but steady. Gray, prompt, 24 per cent., London, £12 2s. 6d.; Hull, prompt, £12; Leith, prompt, £12 1s. 3d. to £12 2s. 6d.; Beckton, nominal; Beckton, terms, prompt, £12. Sulphocyanide, 1s. to 1s. 1d. per lb., according to quantity.

ANTIMONY.—Regulus is quoted £39 to £40 per ton, and Crude Japan (Black Sulphide) £24 to £24 10s. per ton.

ANTIPYRINE and **PHENAZONE**—Steady, at unchanged prices.

ASHES.—Pots, 23s. 9d.; pearls, 32s.

ATROPINE—Firm, in consequence of scarcity and dearness of suitable raw material, makers' prices being 17s. 10d. per oz. for the pure and 15s. 6d. per oz. for the Sulphate B.P.

BISMUTH—Is unchanged, both for the salts and for the metal.

BLEACHING POWDER (CHLORIDE OF LIME)—Unchanged at £6 per ton for English.

BORAX—Very quiet at 16s. per cwt. for crystals, and 16s. 6d. per cwt. for powder.

BROMINE AND BROMIDES—Are in good demand at 1s. 10½d. per lb. for Potassii bromid, 2s. 1½d. per lb. for Sodii bromid, and 2s. 2d. per lb. for Ammon bromid. Bromine, 2s. 1d. to 2s. 2d. per lb. according to quantity.

CAMPHOR.—The market for crude continues extremely quiet, with little or no demand, buyers' ideas being about 120s. c.f. and i. The quotation from China to-day comes 128s. to 129s. c.f. and i. according to importer. Refined is quiet and without change, English makers still quoting 1s. 7½d. per lb. for Bell's and Flowers in half-ton lots.

CASTOR OIL—Quiet. Belgian first pressing spot £25, second pressing spot £23 per ton, ex wharf. Hull manufactured guaranteed cold drawn pure pharmaceutical £27 15s. per ton in barrels, 3¼d. per lb. in cases. Pure firsts £25 5s., seconds £23 15s. per ton in barrels, first 3d. per lb. in cases, seconds 2 13/16d. prompt delivery, ex wharf London. London first pressing spot 24s. per cwt., second pressing 23s. per cwt.; medicinal in cases 3¼d. per lb. French first pressing 25s. per cwt. spot, 23s. to 23s. 6d. f.o.b. Marseilles, second pressing 24s. per cwt.

CLOVES—Privately, the market for Zanzibar is very quiet, but prices steady, with buyers Oct.-Dec. and Jan.-March deliveries at 3 7-32d, and sellers at 3¼d.. No Zanzibar or Penang were offered in auction.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 2d. per gallon; pure, 1s. per lb. Benzole: Firm, 50 per cent. prompt, 10d. per gallon; August-December, 10½d.; 90 per cent. prompt, 8½d. to 9d.; October-December, 9d. Creosote: 3½d. per gallon. Crude Naphtha: 30 per cent. at 120°C., 3d. per gallon. Solvent Naphtha: 95 per cent. at 160°C., 1s. 5d. per gallon; 90 per cent at 160°C., 1s. 2d.; 90 per cent. at 190°C., 1s. 3d. per gallon. Anthracene: A., 3½d. per unit; B., 2½d. per unit. Pitch: 35s. per ton, f.o.b. Tar: Crude and refined, 13s. per barrel; 2¼d. per gallon.

COCAINE.—Makers are very firm at 11s. 6d. to 11s. 9d. per oz. for the Hydrochlorate in 25-oz. tins; they will, however, only book orders after same have been first submitted to headquarters.

CODEIA—Is very firm, and in good demand at 12s. 6d. to 12s. 9d. per oz., according to quantity.

COD LIVER OIL.—Market is very quiet at about 56s. to 57s. 6d. per barrel, f.o.b., according to brand, for best new non-congealing Norwegian oil in 25 gallon tin-lined barrels.

CREAM OF TARTAR—Steady at 75s. per cwt. for first white crystals on the spot, and 77s. to 78s. per cwt., according to percentage for powder.

GINGER—The smaller supply of Cochin in auction went off slowly at about steady prices. Of 256 bags and 206 cases offered, 162 packages sold. Calicut rough in case, bold and medium brown hard at 26s. to 28s. 6d., fair bright cuttings sold, chiefly without reserve, at 16s. to 16s. 6d., the remainder bought in, including good medium and bold cut little limed at 80s. Jamaica in reduced supply, met a fair demand at steady rates, 398 barrels and 2 half-barrels offered, and mostly sold, fine bright at 75s., ordinary middling to middling 53s. to 60s. 6d., common to good common at 47s. to 52s., Rhatoon at 45s.

GLYCERIN.—Crude is steady at about £30 per ton for quality most suitable for refining purposes. Refined is very quiet at 48s. to 50s. per cwt. for English, and 52s. 6d. to 57s. 6d. per cwt. according to brand, for best German, double distilled, chemically pure white, 1260° quality, in 56 lb. tins, 2 or 4 tins in a case; carboys being proportionately cheaper.

IODINE AND IODIDES—Makers' present prices are Potasii iodid. 10s. 6d. per lb., sodii iodid. 11s. 10d. per lb., ammon. iodid. 14s. 6d. per lb., iodine resublimed 12s. per lb., iodoform crystals, powder or precipitated 13s. 10d. per lb. Price of commercial iodine also remains unchanged at 7½d. per oz.

MERCURIALS—Are firm and unchanged at 2s. 10d. per lb. for Calomel and 2s. 6d. per lb for Corrosive Sublimate.

MORPHIA.—Makers are still unable to book fresh orders for prompt delivery, while for delivery after beginning of September 4s. 9d. to 5s. per oz., according to quantity, is asked for the Hydrochlorate powder, crystals costing 2d. per oz. more money.

OILS (FIXED) AND SPIRITS.—Linseed quiet. Spot London pipes, £20 to £20 2s. 6d. per ton; barrels, £20 7s. 6d.; August, £20 5s.; September, £19 2s. 6d.; January-April, £18 15s. Hull spot, naked, £19 7s. 6d.; August, £19 5s.; September-December, £17 15s.; January-April, £17 10s. Rape firm. Ordinary brown spot, August and September-December, £22; refined spot, £23 5s. Ravison dearer, spot, naked, £18 to £18 5s.; September-December, £18 10s. Cotton very firm. London crude spot and August, £16 10s.; refined spot, £17 15s. to £19, according to make. Hull, naked, refined spot, and August, £15 15s.; September-October, £15 7s. 6d.; November-April, £14 5s. Crude spot and August, £14 15s.; November-April, £13 5s. Olive: Mogador, £30 to

£31; Spanish, £30 to £32 per ton. Palm: Lagos spot, £24 per ton. Cocoanut: Ceylon spot, £25 per ton landed; afloat, £23 5s. c.i.f. July-September and September-November, £23 2s. 6d. Cochin: Spot landed, £28; August-October, £25 15s. c.i.f. Lubricating oil: Pale American spot, 5s. 6d. to 7s.; dark, 5s. to 5s. 9d. per gallon; dark Russian, 5s. to 5s. 6d.; pale, 5s. 9d. to 8s. Turpentine dearer. American spot, 31s. to 31s. 6d. per cwt.; August, 31s. to 31s. 3d.; September-December, 31s. 6d. to 31s. 9d.; January-April, 32s. 3d. to 32s. 6d. per cwt. Petroleum steady. Russian spot, and September-October, 5⅛d. to 5¼d. per gallon. American spot and September-December, 6¼d.; water white spot and September-December, 7½d. Petroleum spirit: American, 9d.; deodorized, 9¼d. to 9½d. per gallon.

OPIUM—A quieter tone has prevailed and, with less demand for manufacturing and druggists' kinds, only a limited business has been put through at about previous prices. Soft shipping is without alteration. Persian remains firm, although quieter, with small sales at 11s. 9d. to 12s.

OXALIC ACID—Is still quoted 3d. to 3¼d. per lb. nett, free delivered London.

PARAFFINE WAX.—Crude, 1⅞d. to 2d. per lb.; refined, 2¼d. to 3½d. per lb.

PHENACETIN—Weak, at 3s. 4½d. to 3s. 9d. per lb., according to quantity, for both crystals and powder. Bayer's make in original 1lb. bottles is quoted 6s. 6d. per lb. and Riedel's 5s. 6d. per lb.

PITCH—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt.; Bichromate, 3½d. per lb.; Bromide, 1s. 10½d. per lb.; Chlorate crystals, 3¾d., powder, 3⅞d. per lb., spot, London; Iodide, 10s. 6d. per lb.; Permanganate, 52s. 6d. to 60s. per cwt., according to make and quantity, for small crystals in 1 cwt. kegs, large crystals costing 5s. per cwt. more. Prussiate: Yellow Beckton, 7¾d.; other English makes, 8d. to 8½d. per lb.; red, 1s. to 1s. 1d. per lb.

QUICKSILVER—Firm, at £8 7s. 6d. per bottle from the importer; second-hand not offering.

QUININE.—Contrary to expectation the makers on Monday reduced their price 2d. per oz., the favourite German brands of Sulphate being now quoted 1s. 4d. per oz. for 1,000oz. lots in 100oz. cases, while same are obtainable from second-hand at 1½d. per oz. less money. Messrs. Howards and Sons' price is now 1s. 5d. per oz. for the sulphate in bulk, and 1s. 7d. per oz. in vials for 1,000 lots, in limited quantities and for prompt delivery only.

ROSIN.—Strained spot 4s. 4½d. per cwt. landed, and 4s. 1½d. per cwt. c.i.f. for December-February shipment per sailing vessel.

SANTONINE—Is firm at the late advance, 7s. 6d. per lb. being now the price in smaller quantities.

SEEDLAC—Quiet. 10 cases fine bright Madras in auction were bought in at 10s. 5d. per cwt.

SHELLAC.—Market remains exceedingly quiet, with almost entire absence of demand. Privately, however, a few sales have taken place. For arrival TN October-December steamer there are buyers at 63s. 6d., being steadier, but importers do not offer this position; near at hand quoted 61s. 6d. c.f. and i. For August delivery the nearest value is 64s. 6d., and no business is reported. At auction to-day small supplies were catalogued, which met a slow demand, and only a small proportion found buyers, Second Orange at a further decline of 6d. to 1s., making Standard TN now 64s. 6d. Garnet neglected. Button chiefly bought in, only odd lots sold at about previous rates. A total of 538 cases offered and 124 cases sold. Second Orange: Of 161 cases 112 sold, fair curly red at 64s., ordinary red cakey at 62s. to 63s., flat free liver at 61s., dark ditto at 59s.; the remainder bought in, including good bright diamond SG and SR at 80s. Garnet: 172 cases offered and bought in, chiefly good curly cakey AC at 66s., also weak thin, nondescript mark, at 56s. Button: Of 205 cases 12 sold, cakey 2's at 66s., weak circle 2's at 61s., ditto 3rds at 57s., common resinous circle 4's at 36s.; the remainder bought in, including so-called pure, stamped, 1st at 85s. to 90s., 2nd at 75s., circle 2's at 67s. 6d. to 70s., and dark tongue at 70s.

SODA COMPOUNDS.—Crystals: Barrels, 55s. per ton; bags, 52s. 6d., ex-ship Thames. Ash, £5 to £5 10s. per ton, according to strength, etc. Bicarbonate, commercial, £7 10s. to £8 10s. per ton; fully bicarbonated, 19s. 6d. to 22s. 6d. per cent. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic White, 70 per cent., £7 10s.; 60 per cent., £6 10s. per ton. Hyposuphite (Antichlor), 6s. to 8s. 6d. per cwt., according to make, quantity, and packing. Iodide, 11s. 10d. per lb. Nitrate, commercial, spot, £7 15s.; refined £8 per ton.

SPICES (various).—Black Pepper: Of 202 bags Telicherry only 6 bags sold at 5⅝d.; no Singapore offered. White Pepper: Only 88 bags Penang offered and bought in. Capsicums: 21 bags Bombay sold at 29s., also 9 bales Natal at 80s. to 95s. 6d. Mace steady: 11 cases and 10 half-cases Penang offered and 10 cases sold, fine pale at 2s. 5d., fair at 1s. 7d., broken at 1s. 5d.; 3 cases Ceylon also sold, fair, pale, part mouldy and wormy, at 1s. 7d. to 1s. 8d. Pimento in fair supply met slow demand, and of 645 bags only 115 bags sold, ordinary to good at 3d. to 3¼d. Nutmegs quiet but steady: of 36 cases Penang offered only 7 cases sold, 65's at 2s. 3d., and 79's at 1s. 8d. to 1s. 9d. 3 cases damaged Ceylon also sold at 5d. to 6d.

STAR ANISEED OIL—Remains quiet, but fairly firm on spot, Business has been done at 6s. 1d. per lb., holders, however, now ask 6s. 2d., while for arrival the quotation is 6s. 1d. to 6s. 2d. per lb. c.i.f. for Aug.-Sept. steamer shipment.

SULPHATE OF COPPER—Quiet, but steady, £24 10s. to £26 5s., according to make, for spot delivery.

SULPHONAL—Makers maintain their price of 17s. per lb. for both crystals and powder (10 lb. lots 6d. per lb. less), while there appears to be comparatively little still available from second hand.

TAR.—Stockholm, 26s. 6d.; Archangel, 18s. 6d.

TURMERIC—Quiet, and in slow demand at auction, and 196 packages offered were all bought in, comprising fair bright Madras finger at 25s. Cochin split bulbs, ordinary rough to fair bright at 8s. to 9s., and Japan dark finger and bulbs at 10s.

Newcastle-on-Tyne Chemical Market.

JULY, 25, 1899.

The chemical business of this district is rather the turn better all round. Bleaching Powder is still in good request, with Soda Crystals following suit. Inquiries for Caustic Soda are on a larger scale. Sulphur is somewhat scarce. Quotations: Bleaching Powder, £5 10s. to £5 12s. 6d. Soda Crystals, 45s. to 47s. 6d. Caustic Soda, 70 per cent., £7 to £7 5s. Soda Ash, 52 per cent., £4 5s. to £4 7s. 6d. Alkali, 52 per cent., £5 to £5 5s. Sulphur, £5 per ton.

Manchester Chemical Report.

JULY 26, 1899.

An upward movement has at last set in in heavy chemicals, and an advance of 7s. 6d. per ton has been made in Caustic Soda, which now ranges from £7 17s. 6d. to £8 2s. 6d. for 77 per cent.; £7 12s. 6d. to £7 17s. 6d. for 74 per cent.; £7 5s. to £7 10s. 70 per cent.; and £6 5s. to £6 10s. 60 per cent. on rails at works. Bleaching Powder is also higher, and is quoted £4 5s. to £4 10s. per ton, softwood casks, on rails. Ammonia Alkali, 58 per cent., Soda Crystals and Bicarbonate of Soda are unchanged, but firm. Sulphate of Ammonia continues quiet, although most Lancashire makers are fully sold for some time to come. Brown Acetate of Lime is a trifle firmer at £4 17s. 6d. to £5 2s. 6d. for Welsh and American, delivered Manchester. Glycerin is in better request, and the figure of £42 per ton, for chemically pure, tins and cases on rails or f.o.b., is quoted. White Sugar of Lead is dull at £22 10s. per ton, c.i.f. With the better turn of affairs in the Transvaal, Yellow Prussiate has an upward tendency at 8d. to 8½d. for best Lancashire make. Coal Tar products are without material change, although Carbolic Acid maintains the recent advance well, and Naphthas are scarce. Glauber Salts firm at 32s. 6d. to 35s., and Epsoms 55s. per ton, in bags, on rails. Sulphate of Copper is fairly steady at £24 12s. 6d. to £25 per ton, according to brand, delivered Manchester

Liverpool Market Report.

JULY 26, 1899.

Though prices are only slightly changed from last week, good business has been done in Canaryseed at full rates which have risen a shade since. A fair amount of attention has been attracted by sales of Chilian Honey and Quillaya Bark, and also by sales of Arabic sorts, for which there is an improved inquiry. Oils generally are unchanged since last week, but there is a steady demand at firmer prices for Olive. The Chemical market here has been dull, with limited business done, but better inquiry.

AMMONIA SALTS.—Sulphate is dull at £12 2s. 6d. per ton.

BEESWAX.—36 packages of Sierra Leone sold for £6 2s. 6d. per cwt.

BLEACHING POWDER—Is steady at £5 per ton.

BORAX—Continues very firm, £16 to £16 10s. per ton.

CANARY SEED.—100 bags of Turkish went for 38s. 6d. per 464 lbs., and smaller sales subsequently at 39s. 6d. Price at close is firm at 39s. to 39s. 6d.

CASTOR SEED.—Brazilian has been selling ex quay at 9s 6d. per cwt.

GUM.—Arabic sorts 10 serons changed hands at 65s. per cwt.. The market is steadier in tone with improved inquiry.

HONEY.—About 200 barrels of Chilian sold at prices varying from 19s. 3d. to 19s. 6d. per cwt.

LINSEED—Is very dull both on the spot and to arrive, with no desire evidenced either by sellers or buyers for business. American seed is easier and is quoted at 35s. 9d. per 424 lbs. c.i.f. for July-August shipment.

NITRATE CHILI.—Amount of trade doing is only retail, but the price remains steady at 7s. 6d. to 7s. 9d. per cwt.

OILS (FIXED) AND SPIRITS.—Castor oils are steady and unchanged for all varieties, with fair sales of Calcutta "good seconds," of which 100 cases sold, ex store, at 2⅞d. per lb. and 50 cases, ex quay, at the same rate. French, 1st pressure, sells at 2¾d. per lb; second pressure, 2$\frac{9}{16}$d.; and 2nd sulphur, at 2⅝d. Madras, 2¾d. per lb. Olive is in reduced stock here, and, though sales are not extensive, prices have a tendency upwards. Malaga, for shipment, is quoted at £31 10s. per tun. Linseed of Liverpool pressure is quiet, with sellers asking 21s. 9d. to 22s. 6d. per cwt. Cotton Seed is quietly selling at 17s. to 17s. 6d. per cwt. Spirits of Turpentine are offering at 32s. 6d. per cwt., but business is in small amount.

PEARLASHES—Are slow of sale at the easier rate of 30s. to 31s. per cwt.

POTASHES—Are lower in price, 21s. 6d. to 21s. 9d. per cwt.

QUILLAYA BARK.—Chilian has sold at £13 5s. per ton; but £13s. 7s. 6d. to £13 10s. is now asked.

TARTAR.—75s. to 80s. per cwt., with little business and smaller inquiry.

Partnerships Dissolved.

(From the London Gazette.)

W. G. Harvey and W. F. Peak, Scientific Instrument Makers, 56, Charing Cross Road, W.C. Debts will be received and paid by W. G. Harvey.

C. E. Peckover and C. F. Haines, Surgeon-Dentists, Worthing.

Receiving Order in Bankruptcy.

(From the London Gazette.)

David Moseley, Mineral Water Manufacturer, Short Cross, Halesowen.

New Reaction for Bile Pigments in Uaine.—Twenty C.c. of urine is shaken up in a separator with 5 C.c. of chloroform for three minutes. After allowing the mixture to stand for half an hour the chloroforn emulsion is drawn off. To it are added an equal volume of absolute alcohol and 2 C.c. of solution of para-diazo-nitraniline. The mixture is well shaken, when, if the least trace of biliverdin or bilirubin be present, a red colour will be developed, and the red coloured chloroform will separate out. The chloroform separated with this normal-urine test from normal urine will be only faintly yellow. The para-diazo-nitraniline reagent is prepared by dissolving para-nitraniline, 5 Gm., in water, 25 C.c., and sulphuric acid, 6 C.c., shaking until complete solution is effected. Water, 100 C.c., is then added, and also another 3 Gm. of para-nitraniline in water, 25 C.c. The whole is then diluted to 500 C.c. with more water. In the dark, this solution keeps well.—*Schweiz. Woch.*, **37**, 237.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. EDWARD PECK, East Dereham.

Cannot Repeat. Sponge Bags, best check (Maw's sizes), No. 2, 5s.; 3, 6s.; 4, 8s. 6d.; 5, 9s. 6d.; 6, 10s. 6d. doz. Bathing Caps, circular, best check, 5s. 6d. Eye Shades, celluloid lined green, rights, lefts, 2s. Enema Syringes, I.R. bottle, bone pipes, best English, red, green, black, 1 oz., 1s.; 2 oz., 1s. 3d.; 3 oz. 1s. 6d.; 4 oz., 1s. 9d. each. 10s. lots post free. Cash returned if sold.—Warnes, Chemist, 333, Gray's Inn Rd., W.C.

Moulds—Suppository, Pessary, Bougie, Capsule; Maw's patterns, some new. Particulars free. Warnes, Chemist, 333, Gray's Inn Road, W.C.

Capital Clock, suitable chemist's shop; perfect order. Robbins, 118, Fenchurch St., London.

Homœopathic Medicines.—Watson and Wate's three guinea case; complete, new. Offers to HOMŒOPATH, 5, Serle Street, W.C.

Holloway's Wines, half face value.—Balchin, Gosport.

Bismuth Scarb., 5/3 lb., 4 lb. £1; Iodoform Precip., 13/- lb.; Crystal, 12/6; Cocain. Hydroch., 10/6 oz.; 36 Munyon's, 22/6; 36 Daisies, 24/-. Offers wanted for 16 doz. Tetlow's Gossamer and 20 doz. Swandown. Eastman, Forest Lane, Stratford.

Complete Set of Fixtures, in mahogany, comprising 2 4-ft. nests; 1 8-ft. nest drawers, glass labels and glass handles, 120 drawers in all, with contents; 2 8-ft. mahogany-top counters; dispensing screen, fitted with glass case; 2 1½-ft. mirrors, 4½-ft. high, framed in mahogany; mahogany cornice, faced shelving, pilasters, and side-counter; 2 bottle-lockers; 2 counter-stands; 6 counter-drawers; soda-water stand, with carved mahogany front; 3 large carboys, cut-glass stoppers; 2 specie-jars, and other sundry effects: the whole in excellent condition; any reasonable offer accepted. can be seen any time. W., c/o E. Owers, 104, West End Lane, W. Hampstead (Metropolitan Railway).

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash. —P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

WANTED, Indoor ASSISTANT, not under 22, for good class Dispensing business. Apply, with usual particulars, to J. N. KENNETT, Chemist, Weybridge.

STICKLAND & CO., South Kensington, will require by August 7th, a qualified ASSISTANT, who has been accustomed to a first-class dispensing business; aged 23 or 24.

Publications Received.

WEST INDIAN BULLETIN. The Journal of the Imperial Agricultural Department for the West Indies. Vol. I., No. 1, pp. 142. (Double number), price 6d. Barbados: The Commissioner. London: Dulau and Co., 37, Soho Square, W.C. 1899. From the Commissioner.

THE BOTANIC BREWERS' GUIDE, with special hints and notes on the production of beers, so as to avoid infringement of the Excise regulations. Pp. 36. London: Potter & Clarke, Artillery Lane, E. 1899. From the publisher.

SERVANTS OF ALL. A Brief Review of the Call, Character, and Labours of Officers of the Salvation Army, by Bramwell Booth. Pp. 168 + 32. London: Headquarters of the Salvation Army, 101, Queen Victoria Street, E.C. 1899. From the Author.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Abram, Andrews, Bartlett, Bennett, Bienvenu, Booth, Burns, Clark, Damancy, Devereux, Dudderidge, Elborne, Finingan, Gardner, Gilderdale, Greaves, Gregson, Hird, Idris, Jackson, Jones, Kent, Kidd, Kirkman, Knott, Lennox, Milner, Morris, Nicholls, Peck, Sergeant, Shipperson, Spooner, Tocher, Turner, Turney, Tyrer, Whyte, Wilson.

Obituary.

Petty.—On July 10, Thomas Petty, Chemist and Druggist, Deddington, Oxon. Aged 76.

Callaway.—On July 11, George Frederic Callaway, Pharmaceutical Chemist, Seven Sisters Road, London, N. Aged 38.

Richardson.—On July 21, William Henry Richardson, Pharmaceutical Chemist, Dudley. Aged 44.

Marriages.

Knott—Gregory.—On the 19th inst., at St. Matthew's Church, Bolton, by the Rev. E. S. Richardson, Vicar, Mr. Herbert Knott, of Knott Brothers, chemists, Bolton, to Miss Edith Mather Gregory, of Bolton.

Dickson—Flattely.—At St. Saviour's Church, St. George's Square, S.W., on the 22nd inst., by the Rev. R. Reid, John Dickson, Pharmaceutical Chemist, to Gertrude, younger daughter of J. C. Flattely, Esq., 3, Cambridge Terrace, S.W.

POLITICAL GOSSIP.

The Chancellor's Promised Manifesto and declaration of faith in regard to the Companies Bill bear a strong resemblance to the "Amen" of Macbeth, inasmuch as there appears to be difficulties in the way of delivery. At any rate, the looked-for pronouncement had not reached his Lordship's lips at the time of going to press. By deferring his speech from Friday, July 28, to the following Monday, then to the next day, and finally till Thursday, the interest centred in the Bill has very cleverly been maintained long after the fate of the measure has ceased to be a matter for speculation. The procedure to be adopted when the President of the House of Lords finally resolves to take the final stage of this Bill will probably be an imitation of that sometimes adopted in the Lower House in similar cases. A brief statement is made by the Minister in charge, and remarks on the more important details follow by those interested in the subject, the order for the third reading is then read and the Bill discharged, that is to say, withdrawn. But there is, of course, the possibility of their Lordships going through the farce of passing the Bill, and solemnly reporting to the Commons that they have done so; for it is a point of etiquette with the two branches of the Legislature to politely ignore each other's business programme. In any case, it is expected that references will be made by the Lord Chancellor to the Pharmacy and the Medical Bills introduced by him, and still on the list of "Bills in progress," though they have never made any.

Great Expectations need not be entertained by pharmacists in respect to what the Lord Chancellor will be willing to do for them. It has become more than ever apparent this session that the pharmaceutical calling must rely entirely upon itself, and must be prepared to work out its own salvation. Next session may possibly be the last of the present ministry, and this circumstance might be turned to account, if between now and November chemists and druggists could agree to a definite line of action. The value of whatever Lord Halsbury may say will lie in revealing the particular path along which it may be most expedient to travel. Nothing more need be looked for. The political straw will not always indicate an ideal hurry, but the pharmaceutical organisation should make itself ready to utilise any wind with a favourable point in it.

The Food and Drugs Bill proceeds apace in the House of Lords, where a good deal of very foolish talk has been indulged in respecting some of its provisions. Evidently the noble Lords are unacquainted with the subtleties of margarine, and failed to see why its adulteration with more than 10 per cent. of butter fat should be prohibited. Viscount Cross could not explain it, hence the puzzled peers left the problem alone. A new clause relating to taking of samples of food was added, and then Viscount Cross proceeded to Clause 19, which dealt with the question of warranty. The following clause was inserted:—"Every person who in respect of an article of food or drug sold by him as principal or agent gives to the purchaser a false warranty in writing shall be liable on summary conviction for the first offence to a fine not exceeding £20, for a second offence to a fine not exceeding £50, and for any subsequent offence to a fine not exceeding £100, unless he proves to the satisfaction of the Court that when he gave the warranty he had reason to believe that the statements or descriptions contained therein were true." This is a very poor fulfilment of Mr. Long's promise to devise a reasonable measure of protection for the retailer, and it is not surprising to find the grocers up in arms on the invoice question. A petition for amendment of Clause 19 was presented to the House by a trade association of Bristol, but it does not appear to have borne much fruit whilst lying on the table. The Bill as amended in Committee is now awaiting further consideration prior to third reading, after which it will have to go to the Commons again in order that the Lords' amendments may be agreed to—or otherwise.

Ben Nevis Observatory is still in a poor way financially, and Mr. Buchanan has failed to impress the Government with the necessity for allocating a special grant of £1,000 to enable the work of observation to be carried on for another two years. It appears that the Meteorological Council receives £15,300 a year of public money, and a strong effort was made last year to bring Government pressure to bear on the Council with a view to having a sufficient grant awarded to Ben Nevis. Mr. Hanbury has now informed the Scotch members that the pressure was duly exerted, but that apparently no good effect has resulted. The North British representatives are proportionately wrathful, and their expressions of opinion in the House had to be cut short by the cry of "Order" from the Chair. It is represented that the Royal Society does not believe in the particular form of work done at the observatory in question.

The Home of the London University will henceforth be South Kensington, the Imperial Institute having agreed to surrender a portion of the Institute buildings under terms made public in a Treasury minute dated July 13, and reproduced in the *Times*. The consideration to be given for the assignment appears to be the payment of a mortgage of £40,000 on the Institute building and a further sum of £15,000 in respect of Institute debts. For this sum the University will acquire the eastern and central portion of the main block, and a portion of the upper floor of the inner block, as well as the temporary structure now standing in the south-eastern court; an amount of accommodation which is said to be much in excess of that furnished by the Burlington House premises. It is intended to make use of the new buildings of the Royal College of Science for the purpose of holding the practical examinations of the University in Chemistry and Physics. The University will thus stand to the Institute as landlord to tenant, with the important difference that the tenant is to pay no rent.

At the moment of going to Press we learn that the Companies Bill, introduced by the Earl of Dudley, was read a third time in the House of Lords, on Thursday.

THE PURITY OF FOOD AND DRUGS.

A Mercurial Metal-Polishing Powder has been examined by Dr. Van Hamel Roos, of Amsterdam, who, according to the *British Food Journal*, states that the powder is of a reddish colour, and contains mercury in considerable amount. When used for polishing metal, it leaves a brilliant layer of mercury upon the metal. Our contemporary in pointing out the dangerous character of the powder referred to remarks that the daily use of forks and spoons covered with a thin layer of mercury is the more dangerous because immediate and violent poisonous effects are not likely to be produced except under special circumstances; the injurious effects are likely to be gradual, but none the less sure, if comparatively slow.

Alum in Baking-Powder.—Dr. Hope, Medical Officer of Health, in submitting a list of the prosecutions under the Sale of Food and Drugs Act at a meeting of the Health Committee of the Corporation of Liverpool, recently referred to the fact that a very much-used article—baking-powder—had been held not to come within the scope of the Act on account of its being neither a food nor a drug, and consequently, in the present state of the law, no proceedings could be taken in respect to baking-powder preparations, many of which were likely to be prejudicial to health. One preparation had been found to contain 30 per cent. of alum.—*British Food Journal*, **1**, 135.

Antiseptics in Food.—During the three years ending March, 1899, Dr. Alfred Hill, public analyst for the City of Birmingham, examined 2,300 samples of food for preservatives. In 460 instances, or 20 per cent., boric acid, formic aldehyde or salicylic acid was detected. This, in his opinion, showed that the use of preservatives in food had risen to very large dimensions, and required serious consideration by all interested in the health of the community. Boric acid was found in 35 per cent. of 882 samples of butter and margarine, and in 15 of 24 samples of bacon, sausage, and other animal foods. For preservative purposes a mixture of boric acid and borax was generally used. In a paper read before the Society of Medical Officers of Health, Dr. Hill deals with the subject of antiseptics in food, and suggests that there is at command a means of food preservation which is available for every kind of food, and is open to none of the objections that attach to the material antiseptics; he meant refrigeration. This method possessed several advantages. It is more effective than any other; it adds nothing and takes away nothing, not even water, in no material sense altering the quality of the article treated. It also causes no change of appearance or taste, leaving the meat or other substance substantially in its original condition, neither rendering it less nutritious nor less digestible.—*British Food Journal*, **1**, 142.

Camphorated Oil.—At the County Petty Sessions, on Monday, July 24, Allan Treadaway, described as a vendor of drugs, Ashford, was summoned for selling camphorated oil which was deficient in camphor to the extent of 76 per cent., and had been compounded with mineral oil instead of olive oil.—The defendant stated that he purchased the oil as being in accordance with the B.P. from a firm at Battersea.—Fined 2s. and 10s. 6d. costs.

Camphorated Oil.—Richard Smith, shopkeeper, Swadlincote, was summoned at Swadlincote Petty Sessions by Capt. Sandys, inspector, for selling camphorated oil which was not prepared in accordance with the British Pharmacopœia. Defendant's wife said that the bottles of oil were sold as they were received at the shop.—Captain Sandys said that the small retailers were somewhat harshly dealt with, as it was the wholesale dealers who made the money out of adulterated articles.—The Chairman said that the Bench were unanimously of opinion that the defendant had no intention to defraud, and as the costs were 20s. 6d. defendant would be fined 6d. only.——Wm. Hart, shopkeeper, of Woodville, was also summoned for selling adulterated camphorated oil, and was fined 1s. 6d and 10s. 6d. costs.

Seidlitz Powders.—James Lord, drysalter, Wootton Bassett, was summoned at New Swindon Petty Sessions on Thursday, July 20, for selling seidlitz powders which were not of the nature, substance, and quality demanded. Defendant pleaded that the powders were sold in exactly the same conditions as he received them from Messrs. J. Bell, Sons, and Co., of Liverpool. Fined 1s. and 10s. 6d. costs.--A summons issued against Messrs. Bell, Sons, and Co., for applying a false trade description to the seidlitz powders supplied to Mr. Lord, was adjourned so that it might be re-issued against the individual members of the firm and not against the company.

Heavy Magnesia.—Arthur Mitchell Carr, chemist, of Gresley, was summoned, at Swadlincote Petty Sessions, for selling 4oz. of magnesia to the prejudice of the purchaser in that it consisted entirely of magnesium carbonate.—Defendant pleaded not guilty. Mr. Timms defended.—Captain Sandys said that magnesium carbonate would cost 3s., and the heavy magnesia 10s.—A witness stated that he asked for heavy magnesia distinctly, and no remark was made.—Defendant, examined, stated that he had been in business over forty years. There were two substances in the trade known as heavy magnesia. He supplied a special substance known to the trade as heavy magnesia, and unless specially asked, he would supply that article. There were two prices, but the medicinal properties were exactly the same.—Captain Sandys held that there were not two heavy magnesias in the new British Pharmacopœia as the defendant had stated.—The case was adjourned while the defendant went for a copy of the book, and on his return with it Mr. Timms admitted, after reading the Pharmacopœia, that he must plead guilty.—The Bench considered that defendant had not wilfully defrauded, and reduced the fine and costs to 10s. 6d., refusing the analyst's fees.

Public Analysts' Reports.—*Birmingham.*—The annual report of Dr. Alfred Hill, public analyst for Birmingham, shows that a total of 1,146 samples of food and drugs were examined during 1898, which is equivalent to one sample for every 445 of the population. The average of the five years, 1892-96, was one per 458 persons. The number of adulterated samples in the year under notice was 203. These consisted of, milk, 91; butter, 88; coffee, 8; self-raising flour, 5; Scotch whisky, 1; sherry, 1; ale, 1; gin, 1; compound tincture of benzoin, 3; tincture of iodine, 1; borax, 3. There were also 22 cases under the Margarine Act. Boric acid was present in 16 samples of milk, in quantities varying from 3 to 130 grains per gallon. Formic aldehyde was detected in 32 samples of milk. The adulterated sample of ale contained 105 grains per gallon of chlorides, expressed as common salt. The 3 adulterated samples of borax contained sodium bicarbonate in the percentages of 35, 35, and 25 respectively. The adulterated samples of tincture of benzoin were each deficient in solid ingredients to the extent of 16, 23, and 65 per cent. respectively; the latter sample also contained 20 per cent. of water and 25 per cent. of glycerin. The condemned sample of tincture of iodine contained 17 per cent. in excess of the proper amount. The 5 samples of self-raising flour were adulterated with 8 to 40 per cent. of maize flour. The total amount paid in fines was £269 18s. 6d., of which £101 6s. was under the Margarine Act. The average fine inflicted under the Sale of Food and Drugs Act was £2 8s. 11d., and under the Margarine Act £5 12s. 7d. The legal costs paid by the vendors amounted to £49 1s.——*Cheshire.*—During the March quarter of the present year the Cheshire County Council's Chief Inspector under the Food and Drugs Act submitted to the public analyst a total of 258 samples, consisting of 66 butters, 89 milks, 23 spirits, 13 condensed milks, 11 coffees, 3 peppers, 2 cheese, 2 arrowroot, 2 iodine liniments, 1 camphor liniment, and one tincture of rhubarb. Of these 13 were reported by the public analyst as adulterated, namely, 3 butters, 7 milks, 1 coffee, 1 spirit, and 1 iodine liniment. The liniment was certified to be deficient in iodine to the extent of 70 per cent. This, it was pointed out, was no doubt due to some error on the part of the dispenser in serving the sample, for it was not iodine liniment, but tincture of iodine.——*Dudley.*—Mr. T. C. Brown, Inspector under the Food and Drugs Act to the Borough of Dudley, in his report for the year ending March 31, 1899, states that several of the popular nostrums sold by small shopkeepers were submitted to the public analyst, but none were found to contain poison or anything particularly injurious. One sample of camphorated oil was certified as being deficient in camphor to the extent of 8 per cent. He also states that it is believed that the sale of paregoric in Dudley by other than properly qualified chemists has ceased. Several of the samples of drugs were taken from the shops of chemists, and were all found to be in accordance with the requirements of the new B.P.—*British Food Journal*, **1**, 179.

ENGLISH NEWS.

Presentation to Mr. H. Wootton, B.Sc.—On Monday, July 31, at the Swan Hotel, Clapham, Mr. Wootton, B.Sc., formerly of Westminster College, was the recipient of a handsome present in the form of a polariscope and an illuminated address from his former pupils as a small token in recognition of the esteem in which he is held by them. Mr. Fred Ashford occupied the chair, and in the course of his remarks alluded to the good work Mr. Wootton had done, and to his kindness and consideration as a teacher, and expressed a hope that he would have health and be long spared to continue his useful work. Mr. Roberts, in making the presentation, read extracts from several letters of subscribers who were out of London and unable to attend, all of whom testified to Mr. Wootton's kindness. Mr. Wootton, in reply, thanked the students for their valuable and useful present, and assured them how glad he was to hear of the success of old students from time to time. They had had success in the past, and he would do his best in the future to achieve even greater success. During the evening songs were given by the students and the clever imitations of Dan Leno and Joe Elvin by Mr. George Drayton (an old student) were greatly appreciated. After the usual toasts had been honoured, the pleasant evening concluded with the singing of the National Anthem.

Laudanum Poisoning in Manchester.—During the past week, writes our Manchester correspondent, two inquests have been held on persons who have died from laudanum poisoning. One of the victims was named "Laudanum Lily" by her associates, and for five years she had been accustomed to take laudanum in place of food. She sent, in the usual way on Monday, a one and a half ounce bottle to a chemist, who was so accustomed to seeing it that he filled it and asked no questions. In fact, sometimes she sent it twice a day. The Manchester Deputy Coroner remarked on the frequency of the cases of laudanum poisoning which came before him, and said that if it had been whisky they would have had interference from half a dozen societies to put it down. In reply to a juror, the Coroner said that opium was not scheduled under the Poisons Act (*sic*), and, although chemists put a label "Poison" on the bottle, it was more for the protection of the people themselves than their own. Dr. Melland, surgeon at the Manchester Infirmary, said that the woman died from exhaustion. No doubt her past life had much to do with it. In reply to the Coroner, witness said they dealt with a great many cases of laudanum poisoning. They had had three cases in three days, and they appeared to be on the increase. The facilities for obtaining it were very great. A verdict of accidental poisoning was returned.

Medicated Wine.—The action of Coleman and Co. *v.* Brown and Co. came before Mr. Justice North on Wednesday last, on a motion by the plaintiffs for an injunction to restrain the defendants from using the name of "Vincalis" in connection with medicated or other wine, on the ground that it so closely resembled the name of the plaintiffs' wine, "Wincanis," as to be calculated to deceive intending purchasers of the plaintiffs' wine. It appeared from the evidence filed in support of the motion that plaintiffs' article consisted of port wine and Liebig's Extract of Meat and Malt Extract, and that it was specially recommended for invalids. The defendants' wine, which had recently come on the market, it was contended, being pronounced Vincarlis, and also being recommended for invalids, would be calculated to deceive customers of the plaintiffs' wine. The defendants contended that their wine was a pure wine, and had been specially recommended for sacramental purposes by the Archbishop of Nottingham. His Lordship refused to grant the injunction, holding that there was no intention to deceive on the part of the defendants. Mr. Macnaghten, Q.C., and Mr. Austen-Cartmell appeared for the plaintiffs; Mr. H. Terrell, Q.C., represented the defendants.

British Pharmaceutical Conference.—Owing to the fact that the authors of several papers read at the Plymouth meeting last week did not return their corrected proofs in time, it was found impossible to make some of the corrections in last week's issue of the Journal. Several errors have also crept into the report of the discussions on the papers read. Thus, at page 122, column 2, line 47, for "1·2" read "1·6," and at line 52, for "Bunsen filter pump" read "Buchner's filter"; at page 124, column 1, line 51, for "order" read "odour," and at col. 2, lines 26 and 28, for "colour" read "odour"; at page 127, col. 2, line 9, for "would" read "might," and at line 10, for "grammes" read "milligrammes." Any other errors that may be deteced by readers should be promptly notified, in order that they may be corrected in the official report, to be included in the 'Year-Book of Pharmacy.'

FRENCH NEWS.

Savants Meet.—On Thursday evening, July 27, the Society of Hypnology and Psychology held its annual séance in the Salons of the Restaurant Lapérouse, Quai des Grands-Augustins, after which a banquet was served and presided over by Monsieur le Doctor Jules Voisin of the Saltpêtrière Hospital. Among the guests present were Dr. Berillon, general secretary of the Society, Dr. Paul Richer, member of the Académie de Médicine; Dr. Dauriac, professor at the Sorbonne; Monsieur Molcot, Advocate-General of the Court of Cassation; Drs. Paul Maguin, Baradue, Apostoli, and Dr. Bilhaut, Surgeon of the International Hospital. At dessert many short speeches were indulged in, dealing chiefly in eulogising past and departed members of the Society. Then M. Jules Voisin drank to the prosperity of the Society. Other toasts were drunk to the memory of the precursors and masters of hypnotism, viz., Charcot, Dumont-pallier, Durand, De Gros, Liebeault, etc. It was decided to open a subscription list for the erection of a monument in honour of Dumont-pallier; and after fixing the date of the National Congress of Hypnotism for August 12, this assembly of "savants" dispersed, having spent a very enjoyable evening.

The Beer Tax.—About the beginning of the year, pharmaciens were loud in their protestations against the infliction of an Octroi tax which had been some time before imposed upon alcohol, and which later on had been proved to be outside the jurisdiction of the authorities, resulting in the enforced "remboursement" by the "Ville de Paris" of the surtax which had been levied. As an offset, it would appear, the powers that be, ever tenacious in piling on the agony, have decided to recoup in some manner, for a few months ago the people of Paris who drink beer were surprised to find that table beer had "gone up" in price; it had been sold at 20 c. the litre, and had increased to 25 c. and 30 c. The Paris brewers contended that the increase arose from the steps taken by the Chamber by the Budget of 1890, which, while not increasing the tax nominally, had extended the powers of investigation of the agents of indirect taxation, had increased the work of the officers on night duty and prevented the clandestine manufacture of beer. A petition was got up and shortly received 300,000 signatures. It was addressed to the Municipal Council, and asked for such a reduction in the Octroi duties as would correct the increased cost resulting from the measures taken by Parliament. The Municipal Council saw the point, but were doubtful how best to deal with it. The precautions taken with the cheap beer meant as much cost per litre as with the more expensive beer, and in reducing the charges on all sorts of beer it was clear that the necessary reduction was not going to be effected on the table beer, while it would mean an appreciable loss on the local Budget. The real way out of the difficulty was to reduce the local tax on small beer. But the question was how to distinguish it at the fortifications from beers of higher gravity. Another way was proposed in order to get out of the difficulty—to let the brewers off the payment of the Octroi duty on the condition of a commuted payment. The Municipal Council agreed to the latter course, which has been adopted, but is only to exist for six months, while further measures are taken to deal with the question in such a way that the man who drinks cheap beer has not to pay the same taxation per litre as he who drinks the more expensive qualities.

Mysterious Poisoning Case.—La France also has her artists in poisoning, for, says the *Matin*, a mysterious case of poisoning is being investigated by the judicial authorities of Paris. About a year ago, M. Fernand Couderc, the representative of a large brandy house, married Mdlle. Rocz, the daughter of a wholesale hatter. The young couple, who lived in a handsome flat in the *chic* quarter of the Boulevard Hausseman, had an income of something like 20,000 f. (£800) a year, and they expected a considerable legacy from the grandmother, an old lady living at Asnières, in the outskirts of Paris. It was known that the old lady meant to leave a considerable income to a little girl of whom she was very fond, Marie Saintenoy, whose mother, née Rocz, had contracted a second marriage with a police sergeant named Blanc. The Blancs had no direct relations with the Couderes, but Marie often told her parents that Madame Coudere used to meet her as she was leaving school, caress her, and make her little presents. When Marie left school on Friday evening in company with two or three other little girls, a fashionably dressed lady, wearing a thick white veil, approached her and said: "Don't you know me?" "Why, you are my cousin," replied the child, and the lady, after distributing sweets to the little girls, said to Marie "You are rather pale, my dear; take this capsule, and it will give you strength." Marie obeyed, went home, and whilst relating what had occurred, was seized with violent pains. A doctor was called in and administered an emetic, but it was too late, for Marie died a few minutes later. Her stepfather at once proceeded to the police station and accused Madame Coudere of having poisoned Marie, to obtain her expected legacy. An investigation was begun, and Madame Couderc arrested on suspicion. An autopsy is to be made upon the child's body at once.

Franco-American Trade Convention.—On the subject of the Franco-American Commercial Convention of July 24, the *Temps* publishes further information communicated by the Minister of Foreign Affairs. It is to be observed that the liberty of action of the two Governments in the matter of Customs tariffs is not restricted for any given length of time. France simply pledges herself to grant the United States the benefit of her minimum tariff, whatever it may be, with certain specified exceptions, and the United States accords France, besides the most favoured nation's treatment for the products enumerated, the reductions on the general tariff which are enumerated. Either of the contracting parties may bring this arrangement to an end by giving twelve months' notice. Hitherto pharmaceutical products of American origin have been burdened with an absurdly heavy tax, and much trouble and annoyance given to pharmaciens in consequence, inasmuch as it was not too clearly defined upon the tariff what was meant by "American product." For instance, if upon the label of a specialty which was in reality English there appeared "Houses in New York and Paris," that sufficed to make the "all-knowing" Customs officer come to the conclusion that it must be American, "because he saw New York on the label." The result was a fine for false declaration of origin. Explanation was useless; he knew better. But now a better order of things may be expected. In so far as pharmacy is concerned, the following articles figure in the new list for reduction. Perfumery (alcoholic), 10 per cent.; dyes, 20 per cent.; glycerin,

10 per cent.; olive oil, 15 per cent.; colours and varnishes, 10 per cent.; potash, 10 per cent.; drugs, 10 per cent.; perfumery (non-alcoholic), 10 per cent.; soaps, 10 per cent.; soda (and products derived from it), 10 per cent.; cements, 10 per cent.; bottles, 15 per cent.; flasks, and other glass receptacles, 5 per cent.; and mineral waters, 20 per cent.

The Dangers of Cosmetics.—Monsieur Roussel, doctor to the "Hotel-Dieu de Saint-Etienne" has just made known another cause of intoxication, viz., the employment by nurses and mothers of a cosmetic with a lead base for the cure of cracked nipples. It appears that recently in the Departement of the Loire many children have been brought to the above doctor for treatment, suffering invariably from colic and constipation. He noticed that many of the mothers and nurses suffered from cracked nipples, and upon enquiry learned that they had treated themselves upon the advice of their intelligent (?) neighbours with a quack heal-all, sold in their neighbourhood at a low price by an old hag who posed as a public benefactor. It was a pale yellow, limpid liquid with an acetic odour, and was ordered to be painted upon the cracks with a camel-hair brush, and covered with a leaden cap somewhat resembling a "Wandsworth nipple shield." When suckling the child this was supposed to be removed and the nipple wiped previously to feeding the child; but apparently the mothers forewent this necessary precaution, especially at night when sleepy, with the result that the child imbibed a portion of the cosmetic. Monsieur Duchet, pharmacien en chef at the Hotel Dieu, analysed the cosmetic, and stated its composition to be acetate of lead and dextrine, containing 12 grammes 990 centigrammes of neutral acetate of lead per litre, corresponding to 7 grammes 211 centigrammes of metallic lead. Hence the mystery was solved. The youngsters were suffering from saturnine colic, with attendant constipation, and, being treated for such, were speedily brought back to health. But for the fortunate observation by the doctor of the cracked nipples, it might have been otherwise, as many of the other signs of lead intoxication, one for instance the "Burton" line on gums and teeth, are absent in the new-born child.

IRISH NEWS.

Pharmaceutical Society of Ireland.—The monthly meeting of the Council was convened for Wednesday, the 2nd inst., at 67, Lower Mount Street, Dublin, at three o'clock, but did not take place in consequence of a sufficient number of members not attending to form a quorum. A resolution passed by the Council at a former meeting directed that the President should adjourn at a quarter-past three o'clock if a quorum were not present then. On this occasion the Vice-President, Mr. George Beggs, waited until within a minute or two of four o'clock. The following gentlemen attended:—The Vice-President, and Messrs. Michie, Brittan (Drogheda), Wells, Simpson, and Dr. Walsh. The President, Mr. Downes, was absent through having met with a severe accident whilst alighting from a tramcar. The members present requested the Registrar to convey to Mr. Downes their regret at what had befallen him.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. W. Miles Bramley, Chemist and Druggist, M.P.S., has opened the Regent Pharmacy, at 77, Rookery Road, Handsworth, Birmingham. All communications should now be sent to that address.

Mr. R. J. Downes, President of the Pharmaceutical Society of Ireland, particulars of whose narrow escape from a violent death were reported in our last week's issue, is progressing favourably, and his fractured arm is healing satisfactorily.

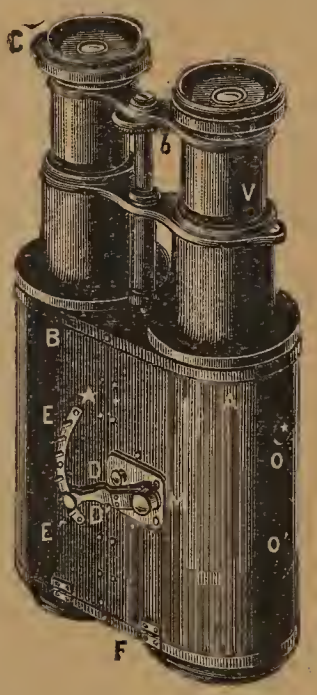
Professor Tichborne asks us to state that he was amongst those delegates who were unable to attend the Conference at Plymouth. He would not like to appear discourteous to his friend the President or to the Conference, but his letter to the Hon. Secretaries must have miscarried.

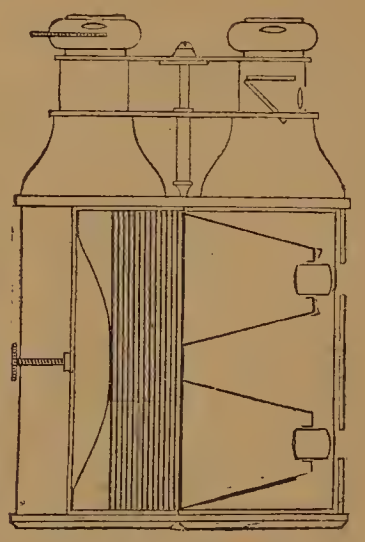
SCOTTISH NEWS.

Presentation to Mr. and Mrs. T. Maben.—On Friday, July 14, at Marlfield House, Hawick, Mr. T. Maben was presented with an illuminated address by the members of, and the teachers under, the Burgh of Hawick School Board, of which he was until lately chairman. Mr. Mark Currie made the presentation, and accompanying the address was a handsome gold albert with appendage, an aneroid barometer with carved walnut case, and a diamond and sapphire bracelet for Mrs. Maben. The barometer bears the following inscription:—"Presented to Mr. and Mrs. Maben, with diamond and sapphire bracelet, by the teaching staff and members of the Burgh of Hawick School Board with their best wishes—July 14, 1899."

TRADE NOTES.

A New Stereoscopic Binocular Camera.—Messrs. W. Watson and Sons, 313, High Holborn, London, have recently introduced an ingenious instrument for taking stereoscopic photographs of people and objects without fear of detection. As will be seen from the illustration, this camera resembles in appearance and size an ordinary binocular glass, and when taking a picture it is applied to the eyes in a precisely similar manner. It differs, however, from any other camera, in that it in no way betrays its purpose, *the picture being taken from the side* and not from the end of the apparatus. Thus it is possible to approach quite nearly to any object that it is desired to photograph, without being detected.





SECTIONAL VIEW,
SHOWING POSITION OF PLATES.

The camera is fitted with a pair of lenses, by means of which the stereoscopic images are taken. A shutter is fitted, giving varying degrees of exposure, and the plates (12 in number) are contained in a magazine in one of the tubular bodies of the camera. The changing of the plates is perfectly simple and effective; the back is opened at F and a bag pulled out, into which the exposed plate is dropped and then replaced in the back of the magazine. When the whole of the plates have been exposed and changed there remains an aluminium sheet which keeps the magazine light-tight, thus enabling it to be withdrawn in daylight, and another magazine inserted. An exposure indicator, by means of which the number of pictures taken may be recorded, is provided. The sectional view given above shows very clearly the construction of the camera. The view-finder is placed in the left tube in exactly the same plane as the lenses. Fitted with rapid rectilinear lenses and with sling case complete, the price of the camera is £10.

Boxes of Assorted Corks.—Messrs. Ayrton and Saunders, Liverpool, submit a sample box of corks, such as they are supplying to chemists post free for 2s. 6d. The idea is that the chemist can keep the sample box by him, so that when ordering he may know exactly what corks to specify. The box, which is divided into ten compartments, contains from 2½ to 3 gross of corks of various sizes; thus apart from the advantage of having samples handy, the purchaser gets fair value for his half-crown.

ITEMS OF INTEREST.

Detection of Bacillus Coli Communis and Typhoid Bacillus in Drinking Water.—Peptone bouillon about 150 Gm. are mixed with carbolic acid, 1 Gm., and made up to 1 litre with the water to be tested. The flask is placed in the incubator for 12 to 30 hours. Test tubes filled with a mixture of bouillon, 100; carbolic acid, 1; peptone, 5; water, 900, are inoculated, then ordinary bouillon, and finally gelatin (if necessary, with the addition of potassium iodide). B. coli communis is distinguished from typhoid bacillus by its behaviour with milk sugar bouillon, in which it sets up fermentation; with litmus tincture, with which it gives a red colour; and with milk, with which it causes coagulation. The typhoid bacillus gives none of these reactions.—*Pharm. Centr.*, **40**, 144.

Caution on the Use of Orthoform.—Asam Murnau calls attention to nine cases met with in his practice which leads him to suggest that the presumed innocuousness of orthoform may not be entirely relied on. In the instances referred to a kind of necrosis, similar to that caused by phenol, resulted from the local application of the remedy. In nearly all these cases the tissues were badly nourished, which may have been a predisposing cause of the unfavourable action.— *Med. Chron.* (3), **1**, 135, *after Munch Med. Woch.*

Pipitzahoac is the name given in Mexico to the root of *Peregia adnata*, which grows in abundance near Salvateria. It is aperient in action; from it Rio de la Loca has isolated pipitzahoinic acid, which is considered to be the active principle. Mylius states that the acid also acts like a quinone, and Wild gives it the formula $C_{30}H_{20}O_6$. The dose of the powdered root is 4 Gm. in four gelatin capsules taken simultaneously, or 1 Gm. of the acid in ten pills. It is used in haemorrhoidal affections as a substitute for jalap.—*Pharm. Post*, **33**, 251.

Lute for Chloroform Bottles.—Allain recommends the use of bichromate gelatin as a lute for the stoppers of chloroform bottles. Gelatin, 100; distilled water, 300; glycerin, 10, are dissolved together. To every two parts by weight of this solution, one part of 10 per cent. potassium bichromate solution is added, both solutions being warm. The mixture is kept at 55°-60° C. during use.—*Journ. de Pharm.* [3,] **9**, 571.

Cupric Sulphate to Destroy Charlock.—A solution of 2 lbs. of copper sulphate in 10 gallons of water, applied to the growing crops by means of a strawsonizer, in the proportion of 25 to 50 gallons per acre, is said to be an effective poison for charlock, but not to damage cereal or leguminous crops. The solution should be applied during dry weather, and at an early period of the growth. —*Cape Agric. Journ.*, **14**, 482, after *Mark Lane Express.*

Beryllium-Sodium-Fluoride, $BeFl_2NaFl$, is a whitish powder readily soluble in water, which has lately attracted notice as being the source of the production of beryllium by the electrolytic method of Lebeau.—*Merck's Report*, 1898, 41.

An Impudent Fraud is described by a correspondent of the *Morning Post*, who states that, during his absence from London, a boy who professed to come from some drug establishment in the neighbourhood, called at his house with a bottle of medicine done up in white paper and addressed to him, with "7s. 4½d. to pay" written on the parcel. He asked the servant for payment, which was refused, as no bill was brought with the parcel, and her master was not at home. The boy deposited the bottle, and after a short interval returned, saying the bill was at the shop and when the order was given instructions had been left that the parcel was to be paid for on delivery. The servant, however, refused to pay without the production of the bill. The boy went away and returned the third time with a receipted bill from the drug establishment for 7s. 4½d., and the money was duly paid. The whole thing, however, proved to be a fraud. The boy had originally made a purchase amounting to 4d. at the drug store and been given a receipted bill, which he altered to 7s. 4½d. Then with a bottle of tonic, which he had in all probability purloined from somewhere, as the label was written in a professional hand, he called at the correspondent's house and succeeded in imposing upon the servant.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

August 3, 1899.

Business in the drug and chemical trade has been restricted during the past few days, and with the near approach of Bank Holiday we shall now probably see slack times until after the commencement of September. The principal incident of the week has been an advance in the price of Salicine, while Quinine has also somewhat improved in tone. Opium is very quiet, while Morphia and Codeia remain firm. Same may also be said of Quicksilver and Mercurials. Iodides and Bromides remain steady. Camphor is in a somewhat anomalous position as regards the crude. Cocaine firm. Linseed Oil dearer. Sulphate of Ammonia slightly easier. Borax and Acid Boracic, Acid Citric, and Tartaric and Cream of Tartar steady and unchanged. Turpentine again dearer. Acid Carbolic in good demand. The following are the prices of some articles of principal interest:—

ACETANILIDE.—Weak at 11d. to 1s. 2d. per lb., according to quantity, etc.

ACID BORACIC—Is unchanged at 25s. per cwt. for crystals, and 27s. per cwt. for powder.

ACID CARBOLIC.—Very steady, partly no doubt in consequence of the hot weather. Quotations are: 35-36° Ice Crystal in 2½ cwt. drums and overcasks, 7¼d. per lb.; other qualities and packing in proportion. Crude: 60°F., 2s. 1d.; 75°F., 2s. 7d. per gallon. Liquid: 95 to 98 per cent. of pale straw colour, 1s. 2d. to 1s. 5d. per gallon, according to quantity, filled in 40-gallon casks.

ACID CITRIC—Has, in common with most other articles, been somewhat quiet, in spite of the hot weather, the article being obtainable at 1s. 7d. to 1s. 7½d. per lb., according to make, for crystals in 5-cwt. casks.

ACID TARTARIC—Steady at 1s. 1d. per lb. delivered for English, and 1s. 0¼d. to 1s. 0½d. per lb. c.i.f. for Foreign.

AMMONIA COMPOUNDS—Are steady, and without appreciable alteration in value, with the exception of Sulphate, which is rather easier, quotations being nominally:—Gray prompt, 24 per cent. London, £12 1s. 3d. to £12 2s. 6d. per ton; Hull prompt, £12; Leith prompt, £12 1s. 3d.; Beckton, August, £12 1s. 3d.; Beckton terms, prompt, £12; September, £12; October-March, £11 5s.

ANTIPYRINE and **PHENAZONE**—Are quiet and without change in value.

ANTIMONY—Regulus is quoted £39 to £40 per ton, and Japan crude (Black Oxide) 24s. 6d. per cwt.

ATROPHINE—Is very firm at 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure alkaloid.

BISMUTH.—Makers quote Metal pure 7s. per lb. Carbonate B.P., 5s. 8d. per lb., Subnitrate B.P. 5s. 1d. per lb., Citrate 5s. 5d. per lb., Oxide B.P. 7s. 7d. per lb., and the Salicylate B.P. 5s. 9d. per lb. The price of the Commercial quality of the metal remains unchanged at 5s. per lb.

BLEACHING POWDER (CHLORIDE OF LIME)—Quiet at £6 per ton for English make.

BORAX—Quiet but steady at 16s. per cwt. for crystals, and 16s. 9d. per cwt. for powder.

BROMIDES AND BROMINE.—There is no change to report. Prices remain the same as those quoted in our last week's issue.

CAMPHOR.—Crude is very firm, prices quoted by holders being: China, 122s. 6d. per cwt. on the spot, and 136s. per cwt. c.i.f. for arrival; Japan, 130s. spot, and 135s. per cwt. c.i.f. for arrival. For refined English makers maintain their price of 1s. 7d. per lb. for Bells and Flowers in ton lots, in spite of a reduction to 1s. 6¾d. per lb. on part of the Hamburg refiners.

CASTOR OIL—Quiet. Belgian, first pressing, spot, £25 10s., second pressing £23 per ton, ex wharf. Hull manufactured, guaranteed cold drawn, Pharmaceutical quality, £27 10s. per tun in

barrels, 3¼d. per lb. in cases. Pure firsts £25 per tun, seconds £23 10s. in barrels; firsts 2 15/16d., seconds 2 13/16d. per lb., in cases for prompt delivery, ex wharf, London.

CLOVES.—Privately the market for Zanzibar is quiet but firm, business comprising August-October delivery at 3 1-32d., and October-December at same figure. At auction 79 bales Zanzibar offered and 11 bales sold at 3d.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 3d. per gallon; pure, 1s. per lb. Benzole: Firm, 50 per cent. prompt, 10d.; August-December, 10½d. per gallon; 90 per cent. prompt, 8½d. to 9d.; October-December, 9d. Creosote: 3½d. per gallon. Crude Naphtha: 30 per cent. at 120°C., 3½d. per gallon. Solvent Naphtha: 95 per cent. at 160°C., 1s. 6d. per gallon; 90 per cent. at 160°C., 1s. 2d.; 90 per cent. at 190°C., 1s. 3d. per gallon. Anthracene: A. 3½d.; B. 2½d. per unit. Pitch: 35s. per ton f.o.b. Tar: Crude and Refined, 13s. per barrel; 2d. per gallon.

COCAINE.—The market is very firm at 11s. 6d. to 12s. 3d., according to brand and quantity, for the Hydrochlorate in 25 oz. tins, these being makers' prices, while secondhand holders do not appear very desirous of selling at anything below above figures. Crude remains very firm, and in quite limited supply.

COD LIVER OIL.—Market continues extremely quiet, at nominal prices of 56s. to 57s. 6d. per barrel, f.o.b., according to brand for new, non-congealing Norwegian oil, in tin-lined barrels of 25 gallons.

CODEIA—Continues extremely firm at 12s. 6d. to 12s. 9d. per oz. for the pure, and 1s. per oz. less for the salts.

ESSENTIAL OILS.—Business has been quite inactive—is, in fact, at a standstill for most of the above. Star aniseed oil is quoted 6s. 1½d. per lb. in warehouse on the spot, and 6s. 2d. per lb. c.i.f. for August-September steamer shipment.

GALLS—Have remained quiet and, in the absence of demand, few sales have occurred in any description, but sellers remain firm. Persian blues quoted 62s. 6d. to 65s., green 55s. to 57s. 6d., and white 50s. to 52s. 6d.

GINGER.—Large supplies of Cochin met a slow demand. Of nearly 1,700 packages only 290 sold; good, bright medium, and bold cut and scraped at 50s. to 50s. 6d.; medium native cut and scraped, little limed, at 43s.; small ditto. at 27s. 6d. to 28s.; ends at 22s. to 23s.; Calicut rough at 20s. to 23s. Jamaica, in moderate supply, realised rather higher prices. Of 415 packages, 332 sold, fine bright at 76s.; fair to good at 66s. to 71s. 6d.; low middling to middling at 55s. to 64s. 6d.; common to good common at 48s. to 54s.; Rhatoon, 45s. to 47s.

GLYCERIN.—In spite of the firmness of the crude article, the quality of which best suitable for refining purposes is quoted as high as £32 to £33 per ton, the refined article remains exceedingly dull and weak at 48s. to 50s. per cwt. for English, and 52s. 6d. to 60s. per cwt., according to brand, for German, best white, double-distilled, chemically pure 1,260° quality in tins and cases. It is stated that at present figures the English refiners, if they are not actually losing money, are at least making no profit.

IODIDES AND IODINE—Quiet at the prices quoted last week. The commercial quality of Iodine is also unchanged at 7½d. per oz.

IPECACUANHA.—There has been an unexpected arrival this week of about 20 bales Rio, which has so far, however, had no effect on the market, which remains steady at 15s. to 15s. 6d. per lb. for Rio; there is, however, no business reported. A few bales of Carthagena have, it is said, changed hands at 11s. 6d. to 12s. 3d. per lb.

LITHIA SALTS—Are in good demand at 11s. to 11s. 3d. per lb. for the Carbonate, the other salts being quoted in proportion according to quantity.

MERCURIALS—Are unchanged at 3s. 3d. per lb. for White Precipitate, 2s. 6d. per lb. for Corrosive Sublimate, 2s. 10d. per lb. for Calomel, 3s. 2d. per lb. for Red Oxide, 3s. 3d. per lb. for Yellow Oxide, 2s. 3d. per lb. for White Sulphate, and 2s. 2d. per lb. for Sulphuret with sulphur.

MORPHIA—Very firm, especially for early delivery, at 4s. 10d. to 5s. per oz., according to quantity, etc., for the Hydrochlorate Powder.

OILS (FIXED) AND SPIRITS.—Linseed—The market is firmer, especially for forward delivery. London, spot, pipes, £20 to £20 2s. 6d. per ton; barrels, £20 5s. to £20 7s. 6d.; September-December, £19 7s. 6d. to £19 10s.; January-April, £19. Hull, spot, naked, £19 10s.; September-December, £18; January-April, £17 15s. Rape steady; ordinary brown spot, £21 17s. 6d. to £22; September-December, £22; refined, spot, £23 5s. Ravison, naked, spot, and September-December, £18 10s. Cotton firm; London crude, spot, £17 5s.; August, £17 10s.; refined, spot, £18 15s. to £20, according to makes. Hull, naked, refined, spot, August and September-October, £16; November-April, £14 5s.; crude, spot, and August, £15; November-April, £13 5s. per ton. Olive: Mogador, £30 to £32; Spanish, £32. Cocoanut firm; Ceylon, spot, £25 per ton in warehouse; July-September and September-November, £23 to £23 5s., c.i.f.; Cochin, spot, £28 10s., landed; August-October, £25 15s., c.i.f. Palm: Lagos, spot, £24 per ton. Lubricating Oil: Pale American, spot, 5s. 6d. to 7s. per gallon; black, 5s. to 5s. 9d.; Russian, black, 5s. to 5s. 6d.; pale, 5s. 9d. to 8s. per gallon. Turpentine: Market very strong and again dearer, owing to short supplies in America. Quotations are: American, spot, 32s. 9d. to 33s. per cwt.; September-December, 33s. to 33s. 3d.; January-April, 34s. to 34s. 3d.. Petroleum quiet; Russian, spot, 5⅛d. to 5¼d.; September-December, 5⅛d. to 5¼d. per gallon; American, spot and September-December, 6¼d.; water white, spot, and September-December, 7½d. Petroleum spirit: American, 9d.; deodorised, 9¼d. to 9½d. per gallon.

OPIUM—There is no change to report, the business which has taken place having been only of a retail character. Persian is firmly held at 11s. 9d. to 12s. for fine. Demand for same has, however, also become slow.

OXALIC ACID—Is unchanged at 3d. to 3¼d. per lb. nett free delivered London.

PERMANGANATE OF POTASH.—There appears to be some uncertainty as to the exact position of this article, the agents of the make most in favour quoting 60s. per cwt. for small crystals and 65s. per cwt. for large crystals in 1-cwt. kegs. There are, however, offers in the market of inferior makes as low as 50s. per cwt. It is said that the late low prices actually showed makers a loss.

PHENACETIN—Continues dull and weak at 3s. 6d. to 3s. 9d. per lb. for crystals and for powder in quantity.

POTASH COMPOUNDS—Are quiet, but fairly steady at nominally same prices as were quoted last week.

QUICKSILVER—Is only quoted from first hand. Importers' price is £8 7s. 6d. per bottle of about 76lbs. net. The fact that second-hand does not offer points to the probability of a further advance in price before very long.

QUININE.—Makers of best German brands still quote 1s. 4d. per oz. for the Sulphate in 100-oz. tins and for 1,000-oz. lots, while the speculative market is rather firmer at 1s. 2¼d. per oz. for B. and S. and/or Brunswick on spot, and 1s. 2½d. per oz. for October delivery. The landings during July were 96,992 oz., and the deliveries 70,176 oz., making the stock on July 31, 2,743,216 oz. against 1,697,056 in 1898. The exports of Java bark for July were 940,000 Amsterdam lb., against 1,172,000 Amsterdam lb. last year, making a total for the seven months of 6,030,800 Amsterdam lb., against 6,089,000 Amsterdam lb. in 1898.

SALICINE.—In consequence of bad yield of the new crop of Willow Bark, in combination with scarcity and dearness of same, makers advance price of this article 2s. per lb. to 12s. 6d. per lb. for smaller quantity, and even at this advanced price they do not appear to be very anxious to book any large orders.

SANTONINE.—It is reported that a further advance in price may possibly take place; meantime, price remains firm at 7s. 3d. to 7s. 6d. per lb. for small lots.

SHELLAC—Is somewhat quiet on the spot, with only small sales at fairly steady rates; the market for "Futures" remains, however, firm. For August delivery 200 cases TN have been sold at 65s. per cwt. in warehouse, while for arrival, near position, there are buyers of TN at 62s. 6d. per cwt. c.i.f., and October-December steamer at 64s. per cwt. c.i.f.

SODA COMPOUNDS—Are practically without change from last week. We therefore refrain from quoting, referring our readers to last week's issue.

SPICES (Various).—Black Pepper: 95 bags Tellicherry sold at 5⅛d. to 5¼d.; 340 bags Singapore bought in. White Pepper: Nothing offered. Chillies: 22 bags Natal sold, fair bright at 41s., good red at 37s. 6d., pickings at 23s.; 66 packages Japan bought in, good bright at 36s. to 38s. Cassia Vera: 120 cases bought in, fair Padang quill at 30s. Cinnamon dull: 143 packages Ceylon bought in, chips at 3¼d. and bark at 1½d. to 2½d. Mace quiet: of 26 cases Penang 4 sold, fair broken at 1s. 3d. to 1s. 4d.; 20 packages West Indian sold, fair to good red at 1s. 6d. to 1s. 9d. Nutmegs quiet: of 35 cases Penang only 2 cases sold, 150's partly shrivelled at 8d.; 69 packages West Indian sold, 64's at 2s. 1d., 73's at 1s. 8d., 85's at 1s. 4d., 97's at 1s. 1d. to 1s. 3d., 106's at 11½d. to 11d. Pimento neglected: of 807 bags only 72 sold at 3d. to 3¼d.

SULPHATE OF COPPER—Is rather weaker at £24 to £25 10s., according to make, etc., and for prompt delivery.

SULPHONAL—Remains *in statu quo*. The two principal makers maintain their price of 17s. per lb. for both crystals and powder. There are, however, sellers at below these figures, and the question as to whence the apparently almost unlimited supplies of second-hand (?) Sulphonal are drawn remains a puzzle to most people.

TURMERIC—Has remained very quiet, and no sales of importance have been made, but prices are unchanged; Bengal at 18s. 6d., Madras fair to good bright finger at 25s. to 27s. 6d., Cochin finger 17s. 6d. to 18s., ditto split bulbs at 9s., and China finger at 18s.

Newcastle-on-Tyne Chemical Report.

August 2, 1899.

Fair chemical business is still passing on this market. Shipping orders are plentiful for the Baltic and Mediterranean directions, but as stocks of some makers are running down owing to the warm weather interruptions, a slight scarcity is experienced in Soda Crystals, Bleaching Powder, and Caustic Soda. Prices generally are unaltered, but firmly quoted as follows:—Soda Crystals, 45s. to 47s. 6d.; Bleaching Powder, £5 10s. to £5 12s. 6d.; Caustic Soda, 70 per cent., £7 5s.; Soda Ash, 52 per cent., £4 5s. to £4 10s.; Alkali, 52 per cent., £5 to £5 5s.; Sulphur, £5 per ton.

Manchester Chemical Report.

August 2, 1899.

The excellent reports which have appeared for some time past of the chemical trade are now receiving extra confirmation from the centres of production at Widnes and St. Helens, while in the Manchester district manufacturers are fully booked with orders for some time to come. Last week's advance in Caustic Soda has been well maintained, and there is every possibility of another advance in this article in the near future. Ammonia Alkali 58 per cent. is scarce, and if anything higher for prompt delivery; but in Soda Ash and Soda Crystals there is no quotable change. Salt Cake for prompt is quoted 22s. to 23s. in bulk on rails, and forward 25s. to 27s. 6d. per ton is about the figure. Bleaching Powder remains firm at the advance. Chlorate of Potash and Soda are steady at 3¾d. to 4d. respectively. White Powdered Arsenic is the turn easier at £19 per ton, ex ship, Garston. Aniline Oil is dull at 4½d., and Salt at 4d. Brown Acetate of Lime is about half-a-crown per ton lower, but in Sulphate of Copper there is no change. Benzols are fairly firm, but Naphthas are somewhat lower both for solvent wood (white colourless) and miscible, but there is very little offering. Tin Crystals are dearer at 9¼d. per lb., but Foreign White Sugar of Lead is lower at £22 per ton, c.i.f. Acetate of Soda firmer at £12 15s. per ton on rails. Carbonate of Ammonia is easier, but Muriate is in more enquiry. Yellow Prussiate continues steady, and Lancashire make is unchanged at 8d. to 8½d., according to quantity.

Liverpool Market Report.

August 2, 1899.

Trade has been dull during the week due to the proximity of the holiday season, and several regular articles of commerce have not even sold to a sufficient extent to enable one to base anything more than a nominal quotation. This is particularly so with Linseed and Canary Seed. In Oils slight advances may be observed in Cotton Seed Oil and Spirits of Turpentine, whilst Olive Oils of all kinds close very firm and at higher rates. Attention is worth directing to the prices obtained for Beeswax, Chilian Quillaya Bark, and a consignment of Scammony Root. Chemicals are still quiet with only unimportant alterations in price.

AMMONIA SALTS.—Carbonate is firm at 3¼d. per lb.; Sal ammoniac firm at 33s. and 35s. per cwt.; Sulphate without alteration, £12 2s. 6d. per ton.

BEESWAX.—14 packages of Sierra Leone sold at £6 per cwt.; 15 sacks of Chilian made from £6 17s. 6d. to £7 12s. 6d. per cwt. 23 bales of Gambia were also disposed of privately.

BLEACHING POWDER—Is steady but quiet at £5 per ton.

CANARYSEED.—Turkish is easier, and is quoted at 38s. to 39s. per 464 lbs., but there have been no sales reported.

CARNAUBA WAX.—Inquiry has been better, and private transcations of a satisfactory nature have been concluded.

COPPERAS—Is very firm at 37s. to 40s. per ton.

COPPER SULPHATE—Is quiet at £24 15s. per ton.

OILS (FIXED) AND SPIRITS.—Castor Oils are in moderate demand at the following steady prices:—Calcutta, 2⅞d. per lb.; French, 1st pressure, 2¾d.; 2nd pressure, 2$\frac{9}{16}$d.; 2nd quality Sulphur, 2⅝d.; Madras, 2¾d. per lb. Olive Oil of all sorts is in reduced quantity here and prices rule very firm. Candia and Levant Oils are £31 10s. to £32 per tun. Spanish Oils for shipment are quoted at £32 to £32 10s. per tun. Linsced Oil of Liverpool make is quiet but steady at 21s. 9d. to 22s. 6d. per cwt. Cotton-seed Oil: Liverpool refined has advanced slightly, and is firmly held for 17s. 6d. to 17s. 9d. per cwt. Spirits of Turpentine: Early in the week lots were offered at 31s. 9d. per cwt. in a vessel near at hand, since that the price has risen to 32s. 9d., and the article is very strong at present.

POTASH SALTS.—Bichromate 3¼d. per lb.; Chlorate 3½d. to 3¾d. per lb.; Cream of Tartar, 75s. to 80s. per cwt.; Prussiate, 8d. to 8½d. per lb. Pearlashes declined to 30s. per cwt. Potashes down to 21s. 3d. and 21s. 6d. per cwt. Saltpetre 22s. per cwt. 100 tons of Calcutta under 5 per cent. sold privately at firm rates.

QUILLAYA BARK.—Chilian sold at £13 7s. 6d. per ton, about 5 tons in all. Holders ask £13 10s. to £13 15s.

SCAMMONY ROOT.—13 bales sold, ex quay, at 21s. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax, £16 to £16 10s. per ton. Caustic firm at recent advance, viz., 76 to 77 per cent., £8 5s. per ton; 70 per cent., £7 10s. per ton. Crystals, £3 per ton. Nitrate selling in small amount at 7s. 6d. to 7s. 9d. per cwt.

Publications Received.

Observations on the Eucalyptus of New South Wales. Part IV. By Henry Deane, M.A., F.L.S., and J. H. Maiden, F.L.S. Reprint from the 'Proceedings of the Linnean Society of New South Wales,' 1898. Part 4, November 30. Plates xxix.—xxxiii. 1899. From the Authors.

Pharmacognostische Karte für die Arzneibücher Europas und der Vereinigten Staaten von Amerika. Bearbeitet von Hermann Schelenz. 2 Auflage. Preis fl. 1.50 = Mk. 2.50. Wien und Liepzig: G. Freytag and Berndt. 1899. From the Publishers.

Die Medicinische Weltliteratur. Inhaltsangabe der periodisch erscheinenden medicinischen literatur aller Länder. Nr. 3. July 15, 1899. Wien: Von Josef Groak. From the Publisher.

Trade Press List. Vol. 2, No. 5, July, 1899. Boston, Mass., U.S.A.: R. M. Floyd, 50, Central Street. From the Publisher.

Finland. An English journal devoted to the cause of the Finnish people. Edited by C. Harold Perrott, B.A. No. 2, July 25, 1899. Price 3d. London: 106, Victoria Street, S.W. From the Editor.

Golden Rules of Psychiatry. By Jas. Shaw, M.D. Qu. Univ. Irel. "Golden Rules," series No. V., pp. 74. Price 1s. Also Nursing Chart, price 22s. per 1,000, and 3s. per 100. Bristol: John Wright and Co., 1899. From the Publishers.

A Dictionary of Terms used in Medicine and the Collateral Sciences, by the late Richard D. Hoblyn, M.A., Oxon. Thirteenth edition, revised throughout, with numerous additions by John A. P. Price, B.A., M.D., Oxon. Pp. xii. + 838. Price 10s. 6d. London: Whittaker and Co., 2, White Hart Street, Paternoster Square, E.C., 1899. From the Publishers.

Partnerships Dissolved.

(From the London Gazette.)

Clement E. Priestley and Percy R. Adkins, M.D., General Medical Practitioners, 1, Dorset Gardens, Brighton. Debts will be received and paid by Clement E. Priestley.

J. Isherwood and John Fowler, Botanical Brewers, Carleton, near Poulton-le-Fylde, Lancaster.

Receiving Order in Bankruptcy.

(From the London Gazette.)

Frank Knight, Artist and Photographer, 19, Castle Street, Luton, Beds.

Peter Dutrulle, Drug Merchant, 27, Orlando Road, Clapham, London, S.W.

TERMS OF SUBSCRIPTIONS.

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Cannot Repeat. Sponge Bags, best check (Maw's sizes), No. 2, 5s.; 3, 6s.; 4, 8s. 6d.; 5, 9s. 6d.; 6, 10s. 6d. doz. Bathing Caps, circular, best check, 5s. 6d. Eye Shades, celluloid lined green, rights, lefts, 2s. Enema Syringes, I.R. bottle, bone pipes, best English, red, green, black, 1 oz., 1s.; 2 oz., 1s. 3d.; 3 oz. 1s. 6d.; 4 oz., 1s. 9d. each. 10s. lots post free. Cash returned if sold.—Warnes, Chemist, 333, Gray's Inn Rd., W.C.

Glass Bottles.—2½ gross ½-oz. actinic green round-shouldered vials, stoppered, 9s. 6d.; 1 gross ½-oz. ball-shaped stoppered perfumes, 12s.; 8 gross 4-oz. blue wide-mouth direct squares, 6s.; 7 gross 2-dr. homœopathic vials, spouted, 2s. 6d.; 16-gross 2-oz. white fancy perfumes, 6s.; 23 gross 3-dr. heavy round-shouldered vials, 3s.; 6 gross 1-oz. Lubins, 5s.; 3 gross 6-oz. white flint Lubins, 16s. 6d.; 3 gross 8-oz. blue-tinted Corbyns, 8s. gross. Samples sent for stamps 6d. Apply, Hearns (Limited), Lea Bridge, Clapton, London, N.E.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

REQUIRED, position as MANAGER or SENIOR in a first-class Pharmacy. Outdoors. Major Qualification. 7 years with Messrs. Giles, Schacht & Co. Apply, SMITH, 42, Carisbrooke Rd., Walton, Liverpool.

Obituary.

Hinde.—On July 25, Albert Henry Hinde, Chemist and Druggist, Lowestoft, aged 37. Mr. Hinde had been for some years connected with the Pharmaceutical Society as an associate, and latterly as a member. His death occurred under extremely sad circumstances. It appears that shortly before 11 o'clock in the evening he complained of the intense heat, and left his house to go for a bathe. As he did not return a search was made, and his body was discovered on the North Beach, where it had evidently been left by the receding tide. Deceased could not swim, and whether he was seized with cramp or got beyond his depth is not known.

Malcolm.—On July 27, Alexander Malcolm, Chemist and Druggist, Dundee. Aged 63.

POLITICAL GOSSIP.

The Tail End of a dreary and somewhat unprofitable Session has been rendered quite sensational by the remarks which the Lord Chancellor is reported to have uttered on the passing of the Companies Bill through the House of Lords on Thursday, the 3rd instant. Those remarks are given *in extenso*, and fully commented upon elsewhere in this issue, and will doubtless afford material for reflection as well as possible misinterpretation during the autumn. The Bill was sent to the Commons as per ordinary routine, and that House duly sent a respectful message to the Peers asking for a copy of the proceedings of the Select Committee together with minutes of the evidence; so that all things might be accomplished as ordained by official procedure. But there the incident closes. All persons concerned are now invited to fix their hopes upon next Session, which is expected—like most Sessions—to be an exceptionally favourable one for dealing seriously with the company question. Has not Mr. Ritchie practically pledged himself to bring in a Bill, and are not several of his supporters as well as some opponents anxious to have the subject discussed? Sir A. Rollit (S. Islington) is so earnest in this connection that he has taken time by the forelock by giving notice that he will move next Session that reform of the law relating to joint-stock companies is urgently needed in the interests of commerce. He will suggest that legislation based upon the draft Bill which was printed with the Board of Trade Report in 1895 ought not to be longer delayed.

An Interesting Return was presented to the House on Tuesday, and ordered to be printed. It consists of particulars and statistics of all joint-stock companies formed since January 1, 1898, and December 31 of the same year, and will include the names, objects, and business address of the companies, together with amount of nominal capital, number of shareholders, distribution of shares, and the number as well as the total amount of calls thereon. A distinction is drawn between those concerns which still exist and those which have been, or are in process of being, wound up; and the companies still in operation are labelled with their paid-up capital. Mr. Ritchie was the prime instigator of this return, and it would appear that he is determined to have a few useful compilations of this kind as material for next Session's onslaught on commercial irregularities.

Briskness is a not unusual characteristic at the end of a session, hence it will surprise no one that Parliament has done more work during the past three weeks than in any previous period of its sitting. The Food and Drugs Bill having emerged from Committee of the House of Lords, speedily passed its third reading, and was sent on Thursday with amendments to the Commons for consideration. The following day it appeared on the Commons Notice Paper, and on Bank Holiday the Lords Amendments were agreed to without discussion and again returned to the Upper House, where the Bill now awaits Royal Assent.

The Chief Merit of the new Act lies in the powers given to the Local Government Board and the Board of Agriculture to put the Act of 1875 into operation in cases where local authorities may be lax or are animated by frugal ideas. It is the duty of every local body entrusted with the execution of the laws relating to the sale of foods or drugs to appoint a public analyst, and to direct their officers to take samples from time to time for analysis. If there should be default in this direction, the Government Department concerned may now send its own officer to take samples and secure obedience to the law. But what is more, the expenses incurred by the official and the Department in such a case will have to be paid by the defaulting local authority—a distinct incentive to walk in the path of duty; for most localities would be able to manage local offences of this kind cheaper than a Government officer could do it for them. Thus there is every reason to suppose that the most noticeable effect of the new Act will be manifested in an increased local activity. and it is highly probable that chemists and druggists will be favoured with more frequent visits by the local officer who is charged with the duty of watching the public interest so far as the purity of drugs is concerned. There is, happily, no reason for conscientious pharmacists to dread such visits. Another point of interest in the Act is the provision which gives the Local Government Board power to frame regulations respecting the standard of qualification for public analysts. Now Mr. Long has already hinted at the ideal qualification, and we alluded to it some little time back, but there is one consideration which might be urged before the head of the Department concerned, and that is that, in the interest of chemists and druggists, analysts who are called upon to deal with samples of medicinal substances or preparations should have had some sort of a pharmaceutical training. The Act defines "food," but does not attempt to answer the question, "What is a drug?"; it also specifically includes flavouring matters and condiments, though what standard of purity is to apply in such cases is left an open question. It is proposed to reprint the principal clauses of the new Act in the next issue of the Journal.

Telegraphic Addresses must not be unduly abbreviated, says Mr. Hanbury, unless one pays the prescribed fee and revels in the possession of an officially registered address. Replying to Mr. Trevelyan (Elland) on Friday, 4th inst., Mr. Hanbury stated that the Post Office authorities had to insist upon a full address for all telegrams in order that delivery might be effected by the Department without difficulty or delay, and without reference to local directories. There is always a risk of insufficiently addressed telegrams taking up a lot of time and thereby hindering the delivery of full-worded wires. Mr. Brown may be a well-known chemist in Blanktown, but Mr. Hanbury thinks it is unfair to address a wire "Brown, chemist, Blanktown," and burden the receiving office with searching for the local list of chemists to determine the exact address to which the messenger is to be despatched. The moral is, pay an extra halfpenny or so, and the Post Office will bless you and deliver your wires with promptitude. Incidentally it was stated in the course of the reply to Mr. Trevelyan that the Post Office does not encourage the registration of telegraphic addresses and is not prepared to reduce the registration fee.

THE PURITY OF FOOD AND DRUGS.

Copper in Peas.—At the Tottenham Police-court on Thursday, August 3, Messrs. Tyler and Brasher, grocers and provision dealers, Essex Road, Islington, were summoned for selling peas which to their knowledge were coloured with copper sulphate so as to render them injurious to health; also for selling peas which were not of the nature, substance, and quality demanded, being adulterated with copper sulphate to the extent of 2·5 grains to the pound.—Edward Bevan, Middlesex County Analyst, gave evidence to the effect that he found five times as much copper in the peas as was required to preserve them. He was of opinion that peas so coloured were injurious to health, as copper salts were well known to be poison.—For the defence it was urged that the second summons must fail, as anyone who purchased peas in tins must be aware that he was purchasing an article which had gone through a process of preservation. With regard to the first summons, it must be proved that the defendants not only knew that the peas contained a foreign substance, but that they contained it in such quantity as to make them injurious. The defendants pleaded that they were not aware of this. They were obliged to stock tinned peas and bought what they considered to be the best brand.—It was suggested from the Bench that the defendants might have opened a tin and had the peas analysed. The magistrates held that the peas were coloured in such a manner as to be injurious to health, and that the defendants did not use reasonable diligence to ascertain the fact.—A fine of £1 and costs was imposed with respect to the first summons, while the second was withdrawn. Two other cases were heard for similar offences, the defendant in one case being fined 5s. and costs, and the other 10s. and costs.

Copper in Peas.—William Elliff, grocer, Yarmouth, was summoned at the County Petty Sessions for selling preserved peas containing copper sulphate to the extent of half-a-grain of copper to the tin.—The magistrates said that as it had been decided that copper was injurious to health, they had no option but to convict. Though defendant had not himself put the copper in the peas, still he was the person responsible under the Act.—Fined 1s., and 9s. 6d. costs.

Copper in Peas.—At Staines on Monday, July 31, Messrs. Budgen and Co. (Ltd.), grocers, were summoned for selling bottled

green peas which had been mixed or coloured with copper equal to 2·4 grains of copper sulphate per pound. There were two informations relating to one purchase, proceedings being taken under Sections 3 and 6 of the Act.—The analyst having given evidence as to finding copper in the peas, and that in his opinion it was in sufficient amount to be injurious to health, Dr. C. D. Morris was called by the prosecution, and stated that he considered 2·4 grains of copper sulphate per pound would be injurious to health. He had personal knowledge of poisoning by pickles, having had a case of the kind last year.—The defendants pleaded that they bought and sold the peas believing them to be perfectly safe.—The Bench decided that there must be a conviction. The magistrates had no doubt that the defendants sold the peas precisely as they bought them from the wholesale house, and were under the impression that the bottle did not contain enough copper to be injurious to health. But the evidence showed that it was injurious to health, and that evidence had not been refuted.—The prosecutors having intimated that they would be satisfied with a penalty in respect of one information, a fine of £1 and costs, including the county analyst's fee and a guinea for Dr. Morris, was imposed. Notice of appeal was given.

The Food Preservative Danger.—Referring to the fact that for some time past the dangers of the use of antiseptics in the preservation of food have been increasingly apparent, and that boric acid, salicylic acid, and many other chemicals of a more or less potent nature have been discovered in food-stuffs of various kinds, and have in several instances formed the subject of prosecutions, the *Medical Press* remarks that it can hardly be said that the judicial attitude with regard to this form of adulteration has been yet clearly and authoritatively defined. The scientific knowledge of the agency of bacteria in putrefaction is of recent growth, and the subsequent practical applications of the newly-born science have, in many instances, introduced into the ethical life of the community problems that await a satisfactory solution. So far as the addition of chemical preservatives is concerned the greatest offenders have hitherto been the milk and the butter man. As a general rule the drug chosen for their purpose is comparatively harmless, but a report comes from New York of the use of a deadly poison, arsenic. The fact was brought to light by the poisoning, in Brooklyn, of nine persons, two of whom are not expected to live. The occurrence was traced to milk, an analysis of which revealed the presence of arsenic. As the outcome of further investigation the dairyman confessed that he used the poison systematically in order to keep the milk sweet. Medical men generally, observes our contemporary, will do well to bear in mind the fact that some cases of obscure illness may be due to food preservatives. If the milk man is going to embark in a wholesale round of chemical experimentation, the community will find a fresh terror added to their daily life.

Camphorated Oil.—At the Barnsley West Riding Police-court, on Wednesday, August 2, Christopher John Yardley, grocer, draper, and general dealer, Roystone, was charged with selling camphorated oil which did not comply with the requirements of the British Pharmacopœia.—Inspector Bundy said he went to defendant's shop and purchased a bottle of camphorated oil, a portion of which he caused to be analysed. A certificate had been received which stated that the sample only contained 11·3 per cent. of camphor, or only about one-half of the necessary amount.—Mr. J. Raley, for the defence, said the oil was purchased in 1897, before it was a standard drug. Defendant was a grocer, draper, and general dealer, and not a chemist or druggist, and therefore did not thoroughly understand the matter.—The Chairman said it was not a case which warranted a severe penalty, and defendant would only be fined 10s. and costs.

IRISH NEWS.

Re The Ulster Medical Hall (Davidson and Hardy, Belfast).—We desire to tender our sincere apology to Messrs. Davidson and Hardy for the insertion of a groundless paragraph regarding their business in our issue of May 6, under the head "Irish News." We find that same was wholly incorrect, and we deeply regret that any such statement should have appeared in our Journal.

ENGLISH NEWS.

The Royal Botanic Society is again to be asked, at the annual meeting of the Society to be held in the Gardens this week, to establish classes for the study of botany, to be open to all students, and to erect a large floral hall to serve as a winter garden wherein exhibitions, flower shows, receptions, and musical promenades can be held in all seasons and in any weather. Notice of the necessary resolutions has been given by Mr. J. S. Rubinstein.

Tiemann's Ionone Patent.—In the High Court of Justice, Chancery Division, before Mr. Justice Cozens-Hardy, on August 3, the case *re* Tiemann's Patent (8,736 of 1893) came on for hearing. This was a petition by Messrs. Franz Fritzsche and Company for revocation of a patent granted to Johann Carl W. F. Tiemann, of Berlin, for the manufacture of new chemical substances suitable for perfumery, confectionery and the like—in other words, "artificial violet." Mr. Moulton, Q.C., Mr. Astbury, Q.C., and Mr. Colefax were for the petitioners; and Mr. Cripps, Q.C., Mr. T. Terrell, Q.C., Mr. A. J. Walter and Mr. J. A. S. Bucknill for the respondents, Messrs. De Laira and Company. At the conclusion of the arguments and evidence, Mr. Justice Cozens-Hardy said the proceedings were regulated by Section 26 of the Patents Act, 1883, under which the petitioner must deliver with the petition particulars of the objections on which he meant to rely, and no evidence could, except by leave of the Court or Judge, be admitted in proof of any objection of which particulars were not so delivered. There was a remarkable provision that the respondent was entitled to begin and to give evidence in support of the patent. This provision, which was very unusual, seemed to his Lordship to be highly inconvenient, for the patentee could scarcely be expected to know the full case against him until the petitioner's evidence had been given, and in the present case the most important evidence in support of the patent was given in reply. His Lordship said he doubted whether the case would have occupied so much of the public time if the petitioners had in the first instance put forward their case attacking the patent and left the respondents to meet that evidence as they best could. The patent was for two chemical products, the existence of which was discovered by Dr. Tiemann, called respectively pseudo-ionone and ionone, the former being of no value except as a material from which the second, ionone, could be obtained. Ionone itself was a very valuable article, having a beautiful violet odour, and the invention was undoubtedly useful. The question was whether, having regard to the particulars of objection, the patent was wholly bad. No question of infringement was or could be raised on a petition of this nature. After going through the specification, which described the patented process in chemical and highly technical language, and stating the effect of the objection, his Lordship said that a chemical patent was addressed to skilled chemists. It was not good unless the directions given, if fairly followed by a competent chemist, produced the promised result. He must not be left in the dark and forced to make fresh experiments to discover what was the real invention. The patentee must honestly disclose everything necessary for the easy and certain procurement of the commodity for which the patent was granted. The patent must be interpreted according to the state of chemical knowledge at its date, and not according to the state of chemical knowledge when the validity of the patent was litigated. His Lordship then dealt with the evidence, and concluded by saying that under the circumstances, believing as he did that Dr. Tiemann had made a valuable discovery which he had honestly disclosed in his specification, his Lordship was not prepared to hold that the patent was void by reason of any insufficiency of description in the specification. It was unnecessary to go in detail through the various items of the particulars of objection, and sufficient to say that none of them had been established. The petition must, therefore, be dismissed with costs. Costs were given upon the higher scale.

SCOTTISH NEWS.

Glasgow School of Pharmacy.—The Kinninmont Gold Medal has this year been awarded to Henry Rodwell. This is now the third year in succession that this honour has been gained by a student of this school, of which Mr. John Lothian is the Principal.

FRENCH NEWS.

To Bleach the Negro—Another Use for Electricity.—It is known throughout the world of science, says *La Science Française*, that electricity can exert a characteristic action on the tissues and liquids of the organism. What is the exact nature of this action? What is its exact mechanism? Is it exclusively mechanical or exclusively chemical; or is it alternately mechanical and chemical? Does it act by electrolysis or by vibratory massage? Over all these delicate question hangs still a pall of mystery. But this does not prevent physiologists and therapeutists from making common use of electricity in all its forms, and in particular by the method of electropuncture, by which they sometimes obtain results both curious and encouraging. The method is used, not only for destroying undesirable growths of hair, eradicating birthmarks, warts, etc., but also with success for erasing tattoo-marks that had been supposed to be indelible. Electricity, therefore, modifies the tissue and liquids of the living body when it traverses them, either by provoking certain chemical reactions or certain changes of state, or by suspending or disturbing the nutrition of the blood vessels and nerves. These facts are, perhaps, not easily explained, but they are undeniable, and although the laws that govern them remain hidden in obscurity, they none the less manifest themselves by visible and tangible effects, one of the most common of which is decoloration. It is extremely rare that in the cases noted above of the surgical uses of electricity, it does not leave a scar so distinct that it alters the colour of the skin, on which appears a white spot of considerable size. It is probable that it exerts a peculiar selective action on the colouring matter or pigment of the epidermis. . . . The epidermis consists of three distinct layers of cells, one above the other. In the deepest layer, the so-called "mucous layer of Malpighi" is found the colouring matter to which the skin owes its hue, and which is known as "pigment." The pigment exists in all races in the form of brown granulations, mingled with the cells of the "mucous layer." The only difference in this regard between a negro and a white man is that in the negro these granulations are more numerous and larger. If we could, by any process whatever, destroy or disorganise these pigmentary infiltrations, which are, as it were, natural tattoo-marks, the skin would present in the spots so treated, even if it were the skin of a negro, the characteristics of an Albino's skin, whose peculiarity is that it lacks pigment altogether. Now it is neither impossible nor improbable even that electricity acts on the pigment. We have a right to suppose that it does, since it always leaves behind it light-coloured scars. Hence, if you wish to bleach a Kaffir or a Zulu, a Yolof or an Abyssinian, instead of ruining yourself by buying soap and rice powder, set to work to depigmentize him electrically.

A Disagreeable Fact.—In the Middle Ages the Germans had the reputation of being the hardest drinkers in Europe, and next to them came their Teutonic cousins the English and the Dutch. Nowadays the French, or, at least, the Parisians, have the ill-repute of being greater victims to alcoholism than either the English, Dutch, or Germans. Such is, indeed, the testimony of the recent report of a great Paris hospital. Out of 1,000 patients examined, 70 in the 100 amongst the men, and 31 in the 100 amongst the women were hopeless "alcoholists." The whole of the 1,000 lived in Paris. One of the number, the keeper of a Paris wineshop, gave the following autobiographical account of his normal life each day:—"At 6.30 a.m. I rise. At 7 a.m. I take my coffee and brandy. About 9 a.m. I take three or four glasses of white wine, and, perhaps, eat a little therewith. Between 9 and 'déjeuner' I usually take three or four 'apéritives'—(bitter, vermouth, or absinthe). For my second breakfast I have one litre of white wine, and then coffee and rum. During the afternoon I take various 'consommations.' Between 5 and 8 p.m. I take some more 'apéritives,' on an average about three or four. At 8 o'clock I have my dinner, or supper, with which I drink one litre of red wine. Between that and bed-time I consume a few glasses of brandy or liqueur." The customers of this unwearied "tippler," so far as they can afford it, follow his terrible example, says the report. When Parisians begin to realise the foregoing, we may, perhaps, hope to see at least the "whisky flask" left out of the hideous cartoons wherewith they invariably depict the average Englishman. But they are usually blind to their own shortcomings, poor creatures.

An Ignorant Drysalter.—Mademoiselle Marie Marino, a pretty little dressmaker, living in the Rue St. Denis, visited a "marchand de couleur" in the same street, in search of "something to kill bugs." This omniscient individual gave her a mixture of hydrochloric acid and sulphydrate of ammonia, ordering her to well shake the bottle and paint it around the haunts infested with these summer trippers. On reaching home she shook the bottle, with the result that the cork blew up to the ceiling and the liquid splattered all over her, fearfully burning her face and neck and destroying her eyesight. She was immediately taken off to the hospital, where she now lies in a precarious state. There is no lack of pharmaciens in that quarter, yet chandlers are permitted to indiscriminately deal out acids, etc., in wholesale quantities, whereas the pharmacien is not permitted to do so without a prescription. Queer anomaly that!

Aphthous Fever.—The outbreak of aphthous fever which had for so long visited the Côte-d'Or of France, and which a few weeks ago seemed to have been thoroughly stamped out, has re-appeared with even greater intensity than before, and now affects an area of more than thirty kilometres around Dijon. The authorities are bestirring themselves in the matter, and hope this time to effectually overcome it.

Inauguration of the International Hospital.—Wednesday morning witnessed the solemn inauguration of the International Hospital installed by Dr. Bilhaut, 180, Rue de Vangirard. An enormous and distinguished gathering of the interested spectators was present for the ceremonial, which was presided over by Doctor Chassaing, Deputé of the Seine. Monsieur le Docteur Le Fort was delegated to represent the Minister of Public Instruction, who was unable to be present at this important function.

Medical Congress.—The Congrès de Medicine terminated last week by a visit to the Pasteur Institute, where Dr. Calmette demonstrated in the presence of his confrères the anti-toxic action of the anti-venomous serum of which he is the inventor. Having before him three rabbits, Dr. Calmette injected in the vein of an ear of one, a cubic centimetre of venin. The rabbit which had received the injection of serum remained unaffected, whereas the second died twenty-two minutes after, and the third, into which the anti-venomous serum had been injected five minutes after inoculation by the venin, also remained in apparently its ordinary state of health. These experiments greatly interested the Congressionists, who also expressed their admiration of the installation of Dr. Calmette's laboratory.

A Thesis.—The last thesis sustained before the Faculty of Medicine of Paris evoked much favourable comment, equally on account of its originality as for its matter. Its title was "Laughter and Exhilarants," and was delivered by Dr. J. M. Raulin, of the University of Paris, former externe of the Paris hospitals, and student of the "Ecole Nationale du Louvre." This highly praiseworthy thesis has been retained for the "Concours des Medailles."

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Harry Oldham, of Hyde, late with Messrs. Woolley, Sons and Co., of Manchester, has taken over the business of Mr. A. Shaw, at 413, West Derby Road, Tue Brook, Liverpool.

Mr. Henry Doyle Brice, M.P.S., pharmaceutical chemist, has been successful in gaining the Bird medal and prize, value £14, in connection with Westminster Hospital, also a certificate for materia medica and pharmacology, and a certificate for midwifery.

Mr. J. Jones is retiring from the old-established pharmacy, Castle Square, Carnarvon, and is succeeded by Mr. W. H. Parry from Messrs. De Castro and Co., Belgravia, London.

TRADE NOTES.

The I. and I. Food.—The Infant and Invalid Food Company, Ltd., Cereal Buildings, 54, City Road, London, E.C., submit a sample of the I. and I. food. This food is put up in 6d. packets, and 1s., 2s., 2s. 6d., and 4s. tins, attractively labelled, and giving full directions as to its preparation, etc. The proprietors claim for the food that it is superior to the richest milk in nutritive elements, while being in all cases perfectly digestible. An analysis of the food is stated to have yielded the following result:—

Moisture	8·03
Oil and Fat	3·55
Albuminoids	13·19
Digestible Carbohydrates	72·03
Fibre	1·00
Mineral Matter (Ash)	2·20
	100·0

In addition to its value as an infant food, the food is recommended for nursing mothers for increasing and enriching the supply of milk.

Liquid Food.—Carnos, Limited, Wragby Street, Great Grimsby, send a specimen bottle of "Carnos," which is claimed to be the most nutritious of all food extracts. In appearance, colour, and flavour it resembles the richest beef gravy, and may be used as beef tea, soup, or as a nutritious summer drink; it is also used for making and improving gravies. It is put up in bottles ranging from 1 oz. to 16 ozs. in size, at prices from 4d. to 3s. 6d. each. Carnos Invalid Extract is a special preparation in 2 oz. bottles at 1s. each. Two-ounce pocket flasks of Carnos, fitted with screw stopper and metal cup, are also supplied at 1s. 6d. each, being intended for the use of cyclists and tourists.

Chinosol as a Disinfectant.—The Chinosol Hygienic Company, 36, St. Mary-at-Hill, London, E.C., has recently published a useful pamphlet on chinosol and its use in inodorous disinfection and general sanitation in technical industries, agriculture, horticulture, etc., and for domestic, hygienic, and toilet purposes. It is a popular treatise based on collected facts, and demonstrating the importance of chinosol as a disinfectant and deodorant, written by B. Kühn, the Company's manager, to whom application should be made for further particulars.

ITEMS OF INTEREST.

Accelerated Extinction of Mercury.—Boudouresques recommends the following process for the preparations of unofficial mercurial ointment. To a mixture of vaseline, 30, lanolin, 15, and barium sulphate, 100--mercury, 3,000, are added in portions, each being mixed in for three to four minutes. In this way the whole process of extinction may be accomplished in about half an hour.—*Pharm. Post*, **32**, 180.

Distinction between Winter and Summer Felled Wood.—The section of the tree-trunk to be examined is moistened with a weak solution of iodine. If bluish-violet streaks appear, due to the presence of starch in the wood, it indicates that the wood has been felled in winter.—*Pharm. Centralh.*, **40**, 129.

Sensitive Litmus Paper.—Wobbe has found that a test paper of extreme sensitiveness may be prepared as follows:—Best Swedish filter paper and letter paper, freed from acid by Dieterich's method and dried, is the paper used. Best litmus, 100 Gm., are powdered and extracted with boiling alcohol (90 per cent.) in a flask attached to a reflux condenser, in three successive lots of 500, 250, and 250 Gms. respectively for half an hour each time. The alcoholic extracts are removed, and the residue covered with distilled water, 1,000 Gms., and macerated for 24 hours with occasional stirring. The extract is filtered and the filtrate divided into two portions. One portion is mixed with dilute phosphoric acid, until distinctly red, the other portion is again halved, one portion being mixed with diluted phosphoric acid until just red, and then diluted with the other portion. The solutions thus prepared are filtered through cotton wool after having stood for a day. The prepared paper is saturated with these solutions and dried after Dieterich's method.—*Schweiz. Woch. f. Chem. und Pharm.*, **37**, 125.

POISONING CASES.

Ammonia.—On Saturday, August 5, an inquest was held at Ilkeston, touching the death of a two days old infant, the son of John Beardmore, engine driver, of Rutland Street, Ilkeston. The evidence showed that on the previous Friday the midwife asked for some castor oil to give to the child, and the mother, who was in bed, said the bottle was on the dressing table. The midwife picked up a bottle labelled "Spirits of Sal Volatile," and without observing the label, put the bottle to the child's mouth. The mother noticing that it was the wrong bottle, screamed out. The midwife dropped the bottle, but the child had already taken some of the contents, and after several hours of suffering, died of acute inflammation of the gullet and throat, caused by ammonia poisoning. Verdict, "Accidentally poisoned."

Carbolic Acid.—At Chatham, on Wednesday, August 2, Arthur Steady, aged 17 months, the child of parents residing at Chatham Hill, was discovered lying unconscious in a field near by its parents' home, suffering from carbolic acid poisoning. A bottle containing the poisonous fluid was found beside him, and it is presumed that the little fellow carried it from indoors and drank of the contents. The sufferer was conveyed to St. Bartholomew's Hospital, where he died two hours after admission.

Morphine.—At the Police Buildings, South Shields, on Friday, August 4, an inquest was held on the body of Gladys Jane Samuel, aged seven months, who died at No. 73, Marine Approach, from the effects of morphine. The evidence of the mother, Elizabeth Samuel, was to the effect that on the recommendation of a medical man she occasionally administered glycerin enules to the child. On the previous Tuesday the child needed one of the enules, but witness, being unable to find the box, her sister told her where there was a box containing morphine suppositories, and, thinking that they might answer the same purpose, she administered one to the child. She never read the label on the box, and as the child was a good sleeper she did not think that anything was wrong until her mother said that she thought something was wrong with the baby. A doctor was subsequently sent for, and everything was done to restore the child but without avail. Medical evidence having been given, a verdict to the effect that the child had been accidentally poisoned with morphine was returned.

Strychnine.—A singular case of poisoning has occurred at Altrincham. Two little girls, aged four and two years respectively, the daughters of a local tailor named Ray, found a parcel of what they thought were sweets in their father's coat pocket, and they devoured them with relish. They proved, however, to be tabloids containing quinine, iron, and one sixty-fourth of a grain of strychnine each. The younger of the two girls died at the hospital the same evening (Sunday). At the inquest, Dr. Gore stated that he supplied the tabloids for the "convenience" of Mr. Ray, and they were perfectly harmless if taken as he directed. He thought it was unnecessary to label the box containing them "Poison." A verdict of "death from misadventure" was returned.

Marriages.

Buckingham-Booth.—On July 31, at the Primitive Methodist Church, Sparkhill, Mr. Harry Buckingham, Witton Pharmacy, Aston, Birmingham, to Miss Helena Louise Booth, eldest daughter of the late W. J. Booth, of Dudley.

Medley-Reeder.—On July 31, at St. Andrew's Church, Ashton-on-Ribble, Preston, by the Rev. E. T. Millard, Vicar of Woodplumpton, Fred Medley, M.P.S., Sheffield, to Grace, third daughter of Mr. Samuel Reeder, Lea Road, Preston.

Obituary.

Gantlett.—On August 2, Henry Gantlett, Chemist and Druggist, Marlborough. Aged 40.

Hewlins.—On August 6, Edward Hewlins, Pharmaceutical Chemist, Leatherhead. Aged 77. Mr. Hewlins had been a member of the Pharmaceutical Society since 1853.

Honman.—On August 6, Alfred Taylor Honman, Chemist and Druggist, Harrow. Aged 40.

EXTRACTS FROM CONSULAR REPORTS.

The Olives in the Saffi district (Morocco) for the last three or four years have been damaged by locusts, but this season, according to Vice-Consul Hunot, they show a fairly good crop, and it is expected that there will be some oil for exportation. Vice-Consul Johnston (Mogador) also reports an improvement in the production of almonds, gums, etc. He states that judging from the large arrivals of these articles from the interior it is to be gathered that production is increasing, or rather returning, to its normal standard of ten years ago.

The Imports of Drugs from Great Britain into Belgium during 1898 were valued at £120,360; chemical products, £313,680; resin, bitumen, £1,381,600; soap, £23,800; dyes and colours, including indigo, £180,200; tobacco, £9,520; plants and flowers, £22,800; vegetable oils, £178,000; yeast, £120; alcoholic liquids, £3,840; hops, £46,640. With regard to hops, there was the considerable increase of £44,160 over the previous year, dyes and colours, not including indigo, the import value of which was £24,080, also increased by £60,920, and resin, bitumen by £296,480. On the other hand, the value of chemical products imported decreased by £217,160; drugs, by £48,520; vegetable oils, by £57,080; while yeast fell off to the extent of £109,080.

The Liquorice Trade of Vilayet of Aleppo (Turkey) is reported to be in the hands of two companies, that of MacAndrews and Forbes, of Smyrna (British), and the Stamford Manufacturing Company (American), whose headquarters are at Alexandretta. Almost the entire amount exported is absorbed by the United States of America, the quantity exported last year being 4,662 tons, with a value of £32,535 in excess of that shipped in 1897.

The Import of Chemical Products into Genoa (Italy) during 1898 was nearly the same as the previous year, Great Britain, Germany, and American being the largest suppliers. Of 434 tons of acids, France sent 176 tons; Great Britain, 66 tons; Germany, 47 tons; Austria, 75 tons; and 70 tons from other countries. Out of a total of 4,359 tons of potash and caustic soda Belgium supplied 4,004 tons, and Great Britain 355 tons. Of oxides Great Britain sent 437 tons and Germany 79 tons. Out of 5,160 tons of carbonates, 2,769 tons were from Great Britain, 228 tons from Germany, 616 tons from France, 1,328 tons from Belgium, and 219 tons from other countries. The import of chlorides amounted to 5,788 tons, Great Britain sending 1,771 tons; Germany, 1,608 tons; France, 2,194 tons; and other countries 215 tons. Of the 13,598 tons of sulphates, Great Britain was to the fore with 11,219 tons; Germany, 417 tons; Belgium, 43 tons; France, 7 tons; and other countries, 1912 tons. There were 2,160 tons of paraffin (parafina solida) imported, 609 tons from Great Britain, 9 tons from Germany, and 1,552 tons from America and Canada. In gums and resins, 669 tons went from Great Britain, 449 tons from France, 353 tons from Russia, and 7,358 tons from North America. Of 21,593 tons of dye-stuffs imported, France sent 577 tons; Spain, 575 tons; Turkey, 5,144 tons; Asiatic-British possessions, 890 tons; Great Britain, 427 tons; South America, 2,817 tons, and North America, 11,163 tons.

Sodium Sulphate and Chemicals imported at Spezia (Italy) in 1898, amounted to 306 tons, value £798, and included nearly 285 tons of sodium sulphate from France, the total showing an increase of 100 tons on the previous year. These figures, however, do not represent the actual quantity of chemical products received at Spezia, as chemists draw the greater part of their supplies from Italian wholesale firms and from the agents of British and foreign houses having depôts at Genoa, Milan, etc.

The Necessity for Irroration of the growing vines in the province of Lecce (Italy), Consul Cocoto reports, has not been so urgent during 1898 as in previous years, peronospera not being as troublesome as formerly, and where it did appear it was in a very mild form, consequently a considerable remainder of sulphate of copper existed in the province on the termination of the vintage. This was a doubly fortunate occurrence for the landowners, who had a certain stock on hand at the beginning of the year when the rise in the price of copper took place, as they were only compelled to purchase the balance necessary at the enhanced prices which now rule in this article.

Upon the Success or Failure of the olive harvest the commercial prosperity of Taranto (Italy) depends, and any falling-off in this industry makes itself strongly felt in statistics dealing with the general commercial conditions for the year. This is especially the case as regards the export trade, the quantities of olive oil exported in an average year to Russia forming a considerable proportion of the outgoing commerce. In 1897 out of a total of 1,300 tons of olive oil shipped at Taranto, over 1,100 tons went to Russia, whereas in 1898, owing to the complete failure of the olive crop, only 311 tons of oil were exported altogether, Malta taking 74 tons as compared with 80 tons for the previous year. According to Vice-Consul Thesiger, new markets were found for the inferior oil (which is extracted from the olive grounds by means of sulphuric acid) in Turkey, Egypt, and Tripoli. This quality of oil is much used in the manufacture of soap, and it is worthy of note that the demand, as well as the supply, seems to be gradually falling off. The demand, because chemistry has brought into use other and cheaper equivalents, and the supply because, with the now almost general introduction of hydraulic presses in the place of the old hand-worked machine, so little oil is left in the grounds that the process of extracting it is fast becoming unprofitable.

The Introduction of Machinery also affects very considerably the general characteristics of the olive oil produced. Under the old system three or more distinct qualities of oil were produced, the olives being passed and repassed several times through the presses, each time producing an oil of lesser quality. When no more oil could be extracted in this way, the "sansa," or grounds, were treated with sulphuric acid to produce the inferior oil used in soap making. The introduction of the hydraulic press, however, does away with these distinctive grades, a larger quantity of oil is produced, but the quality, taken as a whole, deteriorates, and the higher class of oil can only be obtained by repeated filtration. But the oil produced in this way, although excellent in colour and appearance, after continual straining, loses much of its flavour, and lacks the fruity taste which distinguished the best oil produced by the old method of extraction.

A New Industry in the Taranto district of Italy, Vice-Consul Thesiger reports, has been established by the opening of a liquorice manufactory capable of turning out 600 to 700 kilos. of stick liquorice per diem. The roots from which the juice is extracted are brought from Calabria and the Basilicata, where the plants are said to grow abundantly.

The Use of Yellow Phosphorus in the manufacture of lucifer matches is to be prohibited in Switzerland from April 1, 1900, while the importation of yellow phosphorus matches ceased on June 1 of the present year, as well as its importation in any form, except for scientific or special purposes, with the permission of the proper authorities. The exportation or sale of yellow phosphorus matches in the country will be illegal after January 1, 1901.

The Method of Cultivating Oysters employed at Spezia is described in an interesting report by Vice-Consul Towsey. The first attempts to cultivate oysters there were made in 1887, and after a few years the industry developed so rapidly that the production rose from about 150,000 oysters in 1891 to more than 6,000,000 in 1898. The method practised is the same as at Taranto, with several modifications rendered necessary by the difference of situation, temperature, etc. This method consists of suspending twigs of lentiscus in the months of May, June and July, in 12 or 13 metres of water, on the inner side of the "diga" or breakwater, across the gulf, which is about 4 kiloms. from the town. These twigs serve as "collectors" for the embryos, and are kept suspended there one or two months. When the twigs are sufficiently laden with young oysters they are removed to the "sciaje" or enclosures, where the twigs are cut into short pieces inserted crosswise into the strands of ropes of esparto grass and again suspended in water varying from 2·80 to 7·20 metres deep. The oysters are kept there for twelve or fifteen months, and when developed and fattened enough they are taken to the depôts closer in shore. Here they are separated from the mussels and sea dates clinging to them and the twigs, scraped, sorted, and packed in baskets (with their mouths upwards to retain water), and despatched by rail to Genoa, Turin, Milan, and other Italian markets. Those kept for local consumption and for re-sorting are placed in baskets of iron wire and kept hanging in shallower water.

THE VALUE OF OPIUM imported into Chefoo (China) during 1898 was £47,587, as against £30,141 in 1897. As Consul Hopkins remarks, a steady decline in the import of Indian Opium has become so customary in recent years that a sudden jump in the value of the drug of over £17,000 is a noteworthy feature. The only explanation to be obtained is an alleged bad crop in Szechuan. The quantities of Indian opium imported during the years 1896, 1897, and 1898 were 424, 380, and 591 cwts. respectively. At Kiukiang the imports of foreign opium last year continued their downward course, the decline for the past six years averaging about 203 piculs per year, the total decline being 1,220 piculs. The actual fall which has taken place during that period is shown by a comparison of the figures for 1893, and those for 1898, the former being 3,268, and the latter 2,240 piculs. That the drug is being replaced on the Chinese market by the native article is beyond all doubt, but unfortunately no statistics are forthcoming to substantiate this.

THE IMPORTS OF MEDICINES to Barcelona during last year amounted to 145 tons, value £30,104, as against 143 tons, value £23,936 the previous year. Of drugs 2,840 tons, value £90,880 were imported, compared with 1,975 tons, value £72,426 in 1897. In chemical products there was a decrease in the amount imported, viz., from 20,918 tons, value £244,043 in 1897, to 17,102 tons, value £243,532 last year. Perfumery also dropped from 52 tons, value £13,879, to 39 tons, value £10,335, while dye extracts fell off from 1,824 tons, value £63,833 to 1,226 tons value £42,910. A new item in the list of imports for 1898 is 94 tons of vegetable oil, valued at £2,448.

THE PRODUCTION AND SALE OF TOBACCO in Italy is a Government monopoly, with the result that the plant is grown only under certain restrictions and with the constant surveillance of the Government department to which the monopoly is attached. The enormous increase of late years in the use of the cigarette has rendered it necessary for the monoply to provide a tobacco of delicate quality, and with this end in view experiments have been made in the province of Lecce to cultivate the form of the tobacco plant grown mostly in Turkey. One of the principal conditions of success in the growing of this delicate quality of tobacco is that the land be exclusively manured with ovine matter, and on landowners it was specially enjoined that none but sheep dung should be used by them in the cultivation of the "Oriental" tobacco plants confided to them by the department. The result of last year's crop, according to Consul Cocoto, was disappointing; cigarettes made from the leaves proved defective, the tobacco was not aromatic, and would not keep in some cases. This was attributed to insufficient manuring or the total absence of manuring, whilst in the case of other parcels the smell was altogether offensive, which was attributed to the use of ordinary farm manure and not the special manure indicated by the department. Matters are reported to have been brought to a head by the department announcing that unless landowners fulfil the conditions imposed on them when accepting the cultivation of the plant for account of the Government, it will become necessary to discontinue the cultivation of Oriental tobaccos in the province.

Newcastle-on-Tyne Chemical Report.

AUGUST 9, 1899.

This market continues very steady. Caustic Soda keeps advancing in price, a further rise of 10s. per ton having to be noted for home and oversea districts. Bleaching Powder keeps scarce and is firmly quoted. Current prices are: Bleaching Powder, £5 10s. to £5 15s. Soda Crystals, 45s. to 47s. 6d. Caustic Soda, 70 per cent., £8. Soda Ash, 52 per cent., £4 5s. Alkali, 52 per cent., £5 5s. to £5 10s. Sulphur, £5 per ton.

SPECIAL ANNOUNCEMENT.

The Students' Number of the *Pharmaceutical Journal* will be published on September 9, and the Editor will be glad to receive any information regarding special courses of instruction for pharmaceutical students from the Principals or Secretaries of Schools and Colleges in the United Kingdom.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

AUGUST 10, 1899.

As might have been expected, business has been quiet during past week, matter of chief interest having been two successive advances in makers' prices for cocaine hydrochlorate, while it is rumoured that a further advance is not improbable. Otherwise markets have been inactive. Quicksilver is very firm, and an advance in importer's price is confidently looked for, which will no doubt mean also an advance in makers' prices for mercurials. Bismuth unchanged, sulphate of ammonia firm with an advancing tendency. Turpentine dearer, opium quiet, morphia steady, codeia firm. Acid carbolic is also firmer. In cod-liver oil the turn appears to have come at last. Glycerin very quiet. Camphor unchanged. Iodides and bromides very steady. Acid citric rather weaker, partly due, no doubt, to the fact that purchasers have now covered their requirements for the present summer. Acid boracic and borax quiet but steady. Acid tartaric and cream of tartar firm. The following are the ruling quotations for some articles of interest:—

ACETANILIDE—Continues dull and weak at nominally 11d. per lb. for 5 cwt. lots.

ACID BORACIC.—Quotations are unchanged at 25s. per cwt. for crystals, and 27s. per cwt. for powder.

ACID CARBOLIC.—Refined acid is firm at unchanged price, value being, if anything, slightly higher. Crude steady at 2s. and 2s. 6d. per gallon for 60°F. and 75°F. respectively. Liquid 95-98 per cent. of pale straw colour decidedly dearer at 1s. 4d. to 1s. 5d. per gallon in 40-gallon casks.

ACID CITRIC.—Makers still quote 1s. 7d. per lb. for crystals in 5 cwt. casks, but it is possible to buy from second-hand at somewhat below above figure.

ACID TARTARIC—Steady. English spot, 1s. 1d. per lb.; foreign 1s. 0¼d. per lb. c.i.f.

AMMONIA COMPOUNDS.—Quiet and unchanged, with the exception of Sulphate, which is strong and advancing, quotations being:—Gray, prompt, 24 per cent., London, £12 5s. to £12 7s. 6d. per ton; Hull, £12 5s. to £12 7s. 6d.; Beckton, terms prompt, £12 5s. per ton; Leith, prompt, £12 5s. to £12 7s. 6d.; Beckton, September, £12 10s., October-March, £12.

ANTIMONY—Unchanged, at £39 to £40 per ton for Regulus and £24 to £24 10s. for the crude Japan (Black Sulphide).

BISMUTH—Is without change in price, either for the metal or the salts.

BORAX—Quiet at 16s. per cwt. for crystals, and 16s. 6d. per cwt. for powder.

BROMIDES and **BROMINE**—Are unchanged in price, but demand for Bromides is so brisk that manufacturers find it difficult to keep pace with buyers' requirements as to early delivery.

CAMPHOR—Is without change, either for the refined article or for the crude. For the former English makers still quote 1s. 7d. per lb. for Bell's and Flower's in one ton lots.

CASTOR OIL—Is quiet, with not much business passing in the article, quotations being nominally unchanged.

CLOVES.—Privately Zanzibar are firm, with sales of January-March delivery at 3 3/32d. to 3⅛d.; there are buyers at 3 1/16d. for October-December delivery, and on spot sales have been made at 3 1/16d. No public sales of spices have been held this week.

COAL TAR DISTILLATION PRODUCTS—Are practically without change at prices quoted last week, there being little or no business passing in the articles usually quoted under this heading.

COCAINE.—The long-expected rise in price has taken place at last, makers of the brands most in favour now asking 13s. per oz. for the Hydrochlorate for 100 oz. lots in 25 oz. tins. Second-hand holders are also stiff in their price, and it is believed that a further advance is not improbable.

COD LIVER OIL—Is somewhat firmer at about 60s. to 62s. 6d. per barrel for best new non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

CODEINE—Is very firm at 12s. 6d. to 12s. 9d. for the pure, and 1s. per oz. less for the Muriate, Phosphate, and Sulphate salts.

COPPER SULPHATE—Weak and lower at £24 to £25 10s. per ton on the spot.

COLOCYNTH—Very scarce, and high prices are named, there being practically nothing offering on the market.

CREAM OF TARTAR—Is firm at 76s. per cwt. for first white crystals, and 78s. per cwt. for powder.

ERGOT OF RYE—Is somewhat firmer, 1s. 6d. per lb. being asked for sound.

GLYCERIN—Very quiet at nominally unchanged price for refined, crude remaining firm.

IODIDES and **IODINE.**—Prices are firm but unchanged.

IPECACUANHA—Is nominally unchanged in price, no business having been reported in the article during the week.

JALAP—A shade firmer at 6¾d. to 7d. per lb. for fair heavy tubers.

LITHIA—Is very firm at 10s. 8d. per lb. for the Carbonate, 6s. 5½d. per lb. for the Citrate Crystals, and 6s. 11½d. per lb. for the Citrate Powder in 2 cwt. lots, smaller quantities being quoted higher in proportion. An advance in price is considered not improbable.

MERCURIALS—Are so far unchanged at 2s. 10d. per lb. for calomel and 2s. 6d. per lb. for corrosive sublimate. An advance in price of quicksilver is, however, considered imminent, and this will almost certainly mean an advance in price of mercurial preparations.

NITRATE OF SODA.—Commercial is quoted £7 15s., and refined £8 per ton on the spot.

MORPHINE—Is very firm, especially for early delivery, prices being nominally unaltered at 4s. 10d. to 5s. for the Hydrochlorate powder and 2d. per oz. more for crystals. The future of the market remains somewhat of a puzzle, even to those best capable of judging.

OILS (FIXED) AND SPIRITS.—Linseed closes firm, with an upward tendency. London, spot, pipes, £20 5s. to £20 7s. 6d. per ton; barrels, £20 12s. 6d.: September-December, £19 15s.; January-April, £19 5s. Hull, spot, naked, £19 15s.; September-December, £18 2s. 6d.; January-April, £17 17s. 6d. per ton. Rape quiet but steady; ordinary brown spot and September-December, £22; Refined, spot, £23 5s. Ravison, naked, spot, and September-December, £18 10s. Cotton firm; London crude, spot, £17 5s. to £17 7s. 6d.; August, £17 10s.; Refined, spot, £18 to £20 per ton, according to make. Hull, naked, refined, spot and August, £16 2s. 6d.; September-October, £16 5s.; November-April, £14 5s.; crude, spot, £15 5s.; November-April, £13 2s. 6d. Cocoanut firm at nominally unchanged prices. Palm: Lagos, spot, £24 10s. Olive: Mogador, £30 to £31; Spanish, £30 to £32 per ton. Lubricating Oil quiet and unchanged. Turpentine steady at the advances for spot, and rather quieter for forward delivery. Present quotations are: American, spot and September-December, 36s. per cwt.; January-April, 36s. 7½d. to 36s. 9d. Petroleum dull at about ⅛d. per gallon decline at 5⅛d. for Russian spot and September-December, and 6¼d. for American spot and September-December; water white, spot and September-December, 7½d. per gallon; deodorised, 9d. to 9½d. per gallon.

OPIUM—Market is very quiet, with practically no business passing. Prices are nominally unchanged. There have been some moderate arrivals of new crop opium in London, but buyers hold off. Crops' estimate varies from between 6,000 and 7,000 cases.

OXALIC ACID—Unchanged at 3d. to 3⅛d. per lb. for prompt delivery free London.

PHENACETINE.—Market remains weak, and pressure to sell on part of the makers or their agents continues. Price is nominally unchanged at 3s. 6d. to 3s. 9d. per lb. for both crystals and powder.

POTASH COMPOUNDS—Are quiet at unchanged prices, with exception that Potasii Bromid is in active demand for prompt delivery, while Permanganate is also somewhat firmer, it being stated that the low prices which formerly ruled for this latter article are not remunerative to the manufacturers.

QUICKSILVER.—There is no second-hand price, while the importer requires all orders to be first submitted to him, which two facts combined appear to point to the extreme probability of an advance in price in the near future. Price remains meantime nominally unchanged at £8 7s. 6d. per bottle.

QUININE.—There is no business of any importance to report in this article. Makers' price remains unchanged at 1s. 4d. per oz. for the favourite German brands (B. & S. or Brunswick) in 100oz. tins and for 1,000oz. lots, while from second-hand there same brands are obtainable at 1s. 2½d. per oz. on the spot and 1s. 3d. per oz. for December delivery.

SALICINE.—The late advance in makers' price to 12s. 6d. per lb. is fully maintained.

SANTONINE.—No further advance has so far taken place in the price, which remains at 7s. 3d. to 7s. 6d. per lb. for smaller quantity.

SHELLAC.—The market remains quiet, and business in all positions is unimportant, but prices are steady; Second Orange on the spot quoted 64s. basis fair TN, October-December steamer nominally 64s. c.f. and i., and August delivery 65s.

SODA COMPOUNDS.—There are no changes to report in value of articles usually quoted under this heading.

SULPHONAL.—While the price of the two chief and only two officially known makers remains firm and unchanged at 17s. per lb. for both crystals and powder, there are still sellers of apparently unlimited quantity at 15s. per lb. and even below, the puzzle remains as to whence the supply comes.

Manchester Chemical Report.

August 9, 1899.

It is not too much to say that at the present time there is quite a "boom" in heavy chemicals. A week or so ago we had to record an advance of 10s. per ton in Caustic Soda, and this has been followed by a further similar advance, as also 10s. per ton in Bleaching Powder. White Caustic Soda 77-78 per cent. is now quoted £8 12s. 6d. per ton, on rails, and Bleach £4 12s. 6d. to £4 15s. per ton, softwood casks at works. These prices will not affect the rates quoted for certain foreign markets, although it is some consolation to know that British makers are getting a little advantage over Continental competitors. Salt Cake continues irregular. In miscellaneous chemicals we can scarcely say the same state of things exists. Sulphate of Copper is rather lower, ranging from £24 10s. to £25 per ton, best brands, delivered Manchester. Brown Acetate is unchanged. Arsenic is lower at £18 15s. to £19 per ton, ex-ship, Garston. Acetate of Soda firm at £13 10s. to £13 15s. per ton. The continued controversy over Transvaal affairs is adversely affecting Yellow Prussiate, which is easier at 8d. to 8¼d. for best Lancashire make. Sulphate of Ammonia is rather lower locally. The Board of Trade returns are scarcely so favourable as they have been for some months past, although the export trade remains very steady. The imports of chemicals, dyestuffs and tanning substances total up to £418,269, a decrease of 4·7 per cent. The exports of chemical and medicinal preparations amount to £637,031, a slight decrease of 0·2 per cent. In quantities Alkali amounts to 269,989 cwts. (decrease, 4·4 per cent.), and value £75,293 (increase, 0·2 per cent.). Bleaching materials, 81,380 cwts. (decrease, 10·8 per cent.), and value £19,968 (decrease, 21·2 per cent.). These decreases are entirely connected with exports to the United States of America, other countries continuing to take their full quantities.

Liverpool Market Report.

August 9, 1899.

AMMONIA SALTS.—Carbonate firm, 3¼d. per lb. Sal ammoniac firm, 33s. to 35s. per cwt. Sulphate quiet, £12 2s. 6d.

CANARY SEED—Is in better inquiry, at firmer prices for Turkish, at 38s. to 39s. per 464 lbs.

COPPERAS—37s. to 40s. per ton.

COPPER SULPHATE—£24 12s. 6d. per ton.

GUM.—12 serons of Arabic sorts sold at 65s. per cwt.

LINSEED.—Business forward has been better. 50 tons Calcutta, July, sold at 38s. 6d. per 416 lbs. 100 tons of River Plate sold at 35s. 6d. per 416 lbs. spot.

OILS (FIXED) AND SPIRITS.—Castor is generally steady, with fair inquiry. Holders ask for Calcutta 2⅞d. per lb.; French, 2¾d.; 2nd pressure, 2$\frac{9}{16}$d.; Madras, 2¾d. per lb. Olive has developed a much firmer tone and both spot and shipment lots have advanced. Malaga for shipment is £33 per tun. Levant and Candia, £31 10s. to £32 10s. per ton. Linseed is quiet at 21s. 6d. to 22s. per cwt. Cottonseed is firm at 18s. to 18s. 6d. per cwt. Spirits of Turpentine has taken a very firm turn and is now quoted at 35s. per cwt.

POTASH SALTS.—Ashes Pot.; 21s. to 21s. 3d. per cwt. Pearl: 30s. per cwt. Bichromate: 3¼d. per lb. Chlorate: 3½d. to 3¾d. per lb. Cream of Tartar steady, but quiet, at 75s. to 80s. per cwt. Prussiate, 8d. to 8½d. per lb.

SODA SALTS.—Caustic, 76 to 77 per cent., £8 5s. per ton; 70 per cent., £7 10s. per ton. Crystals, £3 per ton. Nitrate quietly steady at 7s. 6d. to 7s. 9d. per cwt.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns, some new. Particulars free. WARNES, Chemist, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. EDWARD FECK, East Dereham.

Cannot Repeat. Sponge Bags, best check (Maw's sizes), No. 2, 5s.; 3, 6s.; 4, 8s. 6d.; 5, 9s. 6d.; 6, 10s. 6d. doz. Bathing Caps, circular, best check, 5s. 6d. Eye Shades, celluloid lined green, rights, lefts, 2s. Enema Syringes, I.R. bottle, bone pipes, best English, red, green, black, 1 oz., 1s.; 2 oz., 1s. 3d.; 3 oz. 1s. 6d.; 4 oz., 1s. 9d. each. 10s. lots post free. Cash returned if sold.—WARNES, Chemist, 333, Gray's Inn Rd., W.C.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—HUGHES, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Partnerships Dissolved.

(From the London Gazette.)

Richard Atkins and George Atkins, Druggists, etc., 118, Falcon Road, Clapham Junction, London, S.W. The business will be carried on by Richard Atkins under the same style.

W. Symmonds, junr., and Victor C. Yeulett (trading as Yewlett and Co.), Photographers, 188, Norwood Road, Lower Norwood, S.E. Debts will be received and paid by Victor C. Yeulett.

James Glen, John Glen, John Steele, A. N. Steele, and J. C. Glen, (practising as Glen and Steele), General Medical Practitioners, South Bank and Grange Town, Yorks. Debts will be received and paid by Joseph Bevan, Stockton-on-Tees, Debt Collector.

Francis Fielding and John J. Jepson, Photographers, Mincing Lane, Blackburn. Debts will be received and paid by John Jepson, who will continue the business.

C. N. Layman, Chas. Umney, Herbert C. Wright, Ernest B. Layman, John C. Umney, Fredk. N. Layman, Ernest A. Umney (trading as Wright, Layman, and Umney, Southwark Street, London, S.E.), Manufacturing Chemists and Soap Manufacturers. Dissolved by mutual consent as on and after January, 1899, the business was converted into a company.

Receiving Order in Bankruptcy.

(From the London Gazette.)

William Henry Pearson, 114, North Road, St. Helens, Dispenser and Bookkeeper.

Advertisements.

(Received too late for Classification.)

QUALIFIED, 22; tall. Abstainer. State particulars, MONTANA, 1, Melville Rd., Maidstone.

MANAGEMENT, Branch. Locum or permanency. Qualified. Disengaged 13th inst. DAVIS, 5, Myddleton Rd., Bowes Park, N.

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Norway	Kr. 18.20	Greece	Dr. 29.00
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Publications Received.

ESSENTIALS OF PHARMACY FOR MINOR STUDENTS, by W. A. KNIGHT, Ph. C. Edited by HENRY WOOTTON, B.Sc. (Lond.). Pp. viii. + 189. Price 4s. net. London: London College of Chemistry and Pharmacy, 323, Clapham Road, S.W., 1899. From the Principal.

FOREIGN NEWS.

Professor Bunsen died at Heidelberg, on Wednesday, in his eighty-eighth year. He was born at Göttingen in 1811, his father being professor of literature in the University of Göttingen. After taking his degree in 1831, and spending a few years in study at Paris, Berlin, and Vienna, Bunsen succeeded Wöhler as teacher of chemistry at the Polytechnic Institute of Cassel in 1836, whence in 1838 he was appointed to Marburg as assistant professor of the same science, attaining to the chair thereof in 1841. Ten years later he was called to Breslau, and in 1852 to Heidelberg. In conjunction with Professor Kirchhoff, of Berlin, Bunsen may be said to have founded the science of stellar chemistry, and his numerous discoveries soon procured for him a world-wide reputation. The Bunsen battery and gas burner are two of the best known of his practical applications of science. Foreign honours poured in upon him; in 1858 he was elected a foreign member of the Royal Society, and in 1883 he was appointed one of the eight foreign associates of the Paris Academy of Sciences.

Pharmacy in England.—Such is the title of an article written by Monsieur Pegurier, a pharmacien, of Nice, in a trade organ, called *La Pharmacie*. Of late, Monsieur Pegurier has given much of his time to criticising pharmacy in almost all the European States, but if his criticisms of the art in other countries be no more correct than those relative to England, he had better either renew operations with the balance and mortar, or make quite sure of the subject he handles, before writing so boldly about it. In a former article under the same heading he divides pharmacists in England into three classes:—1. The pharmaceutical chemist corresponding to the French pharmacien de 1ere classe. 2. The chemist and druggist corresponding to the pharmacien de 2me classe. 3. The store chemist, whom he fervently thanks his lucky stars has no counterpart as yet in "La belle France," but who exists in England to counteract the rapacity of qualified chemists and to supply the British public with cheap and nasty stuff got up to replace well-known articles of higher prices, etc., etc. So far so good. His idea of an English pharmacy is a "bazaar" where almost anything in daily use can be obtained. He certainly gives his British *confrère* credit for being a conscientious and hard-working individual, but rather prone to neglect the scientific side of his profession for the commercial side; however he presumes that this is accounted for by the presence of Mr. No. 3, the store chemist, whose absurdly keen competition precludes all idea of wasting time in scientific research, this legitimate branch of the profession being thus entirely relegated to the "analytical chemist." In consequence he concludes that scientifically and intellectually the pharmacien Français is much superior to his British *confrère*. His articles deal chiefly with pharmacy as practised in and around London. Remarking that the English chemist lacks nothing as a keen business man, ever catering to the wants of his clients, he adds, "It sometimes happens that, attached to, but separated by a partition from the pharmacy, the chemist controls a post-office, and is thus distributor of stamps and money-orders as well as of pills and potions." But (and here comes the rub), whilst this may be the exception in and around London, it is very common in the provinces, the provincial chemist going even one better, and having in addition an annexe "where hosiery and sundry other non-pharmaceutical products are sold" (presumably by Mrs. Chemist or her daughters). One feels tempted to cry out:—

> "Oh! would some power the giftie gie us,
> To see ourselves as ithers see us."

In his Second Article he comments upon the new toxicological regulations which the Pharmaceutical Society of Great Britain has recently adopted, and agrees with the recommendation of the Society to adopt a special bottle for medicaments destined for external use. (In France one gets lotions and liniments more often than not, in white glass b ttles, at French pharmacies.) He then criticises the action of the Privy Council (not without just reason), and declares his inability to reconcile the feigned regard of that body for the public welfare with its stubbornness to accede to the chemist's proposals to schedule certain toxic substances. He next goes on to say that suicides and deaths by misadventure, due to the facility with which poisons are obtainable, are by no means rare in England, and appends the following comparative lists of the Registrar-General for the years 1895 and 1896:

By Accident:—

	1895.	1896.	Total.
Opium, laudanum, morphine, etc...	103	89	192
Chloroform, chloral	78	71	149
Mineral acids.....	17	21	38
Carbolic acid.....	34	34	68
Prussic acids and cyanides	3	6	9
Oxalic acid and oxalates	3	2	5
Mercury and mercurials	4	4	8
Arsenic.....	3	4	7
Strychnine	3	6	9
Divers	350	382	732
Total	598	619	1217

By Suicide:—

	1895.	1896.	Total.
Opium, laudanum, morphine, etc...	68	56	124
Chloroform, chloral	5	14	19
Mineral acids	38	40	78
Carbolic acid	224	163	387
Prussic acid and cyanides.....	60	47	107
Oxalic acid and oxalates	46	24	70
Mercury and mercurials	1	3	4
Arsenic	4	5	9
Strychnine	31	24	55
Divers	103	96	199
Total	580	472	1,052

Truly an eye-opener, which assuredly calls for serious attention from one quarter or another. But whilst deploring the laxity of the regulations and its attendant alarming results he is happy in the knowledge (?) that a better state of affairs reigns in his own country. But, he had better first cast out the beam from his own eye before plucking out the mote of his *confrères* across the channel. He can get as much poison as he likes at the drysalters or "marchands de couleur," and yet the "Ecole Supérieure de Pharmacie" does not demand that a qualified chemist shall adorn their "boutiques" to retail ten centimes' worth of muriatic acid, etc. True, affairs in that respect are in a deplorable state in England, but they are precious little better in France. It is no more the fault of the qualified chemist in England than it is of his French *confrère* in France, and the one would be equally as glad as the other to ensure a better state of things if either or both were but allowed a free hand in the matter of proper legislation. Now that the moment is fast approaching for the revision of the Codex and the discussion upon the laws relative to the exercise of pharmacy, one ticklish point which French pharmaciens desire a little light thrown upon is the clause concerning the storage of poisons within the pharmacy, which must be in a cupboard, apart and locked. But, who must have the key? Clearly, he who has most to do with this cupboard is the dispenser. This stringency somewhat touches the *amour propre* of the French pharmacien, who imagines that since the public have no access to this cupboard, the law is intended to check his own actions as though he were not fully cognisant of the depth of his responsibility. It is nevertheless a wise precaution, for the most careful person is liable to error, and the routine of unlocking a cupboard is more calculated to ensure immunity from accidents than is the indiscriminate intermingling of toxic with non-toxic substances such as one sees in some disorderly pharmacies.

Petroleum Hair Wash Accident.—A death, as the result of using a petroleum hair wash is reported from Marseilles. Madame Auquier, thirty-seven years old, residing on the Boulevard de la Corderie, had been using such a wash on her head when she incautiously approached a flame, and the spirit evaporating from the wash caught fire. The unfortunate lady had her clothes also set on fire, and, although assistance was speedily on the spot, she was so badly burned before help could be rendered that death ensued.

Medical Congress, 1900.—The French Government has sent an invitation to the United States Government to take part in the proposed International Medical Congress in 1900. The invitation will be accepted.

Paris Water.—The Paris water authorities issue a note of warning to consumers. They point out that in spite of the excessive heat which has been experienced, they have had no difficulty in maintaining the supply of drinking water at its usual quantity. But during the last few days the consumption has been increasing

in a larger degree than can be accounted for by the increased thirst of the Parisian population, and consumers are therefore asked not to use the drinking water for ordinary watering, but to restrict its use to domestic purposes. The request seems reasonable. A London water company would cut down the supply and make sure of it. It is to be hoped that the Parisian authorities will not be driven to the extreme measure of turning on the Seine water.

ENGLISH NEWS.

Royal Botanic Society.—The annual meeting of the Fellows of the Royal Botanic Society was held in the Museum at the Society's Gardens, Regent's Park, on Thursday, August 10, Mr. C. Brinsley Marley presiding. The Duke of Teck was re-elected President, Mr. G. J. Marjoribanks Treasurer, and Dr. St. George Mivart, F.R.S., Mr. W. Sowerby, Dr. R. C. A. Prior, Mr. H. Graham, M.P., Sir J. Blundell Maple, M.P., Mr. G. R. Ryder, Lord John Joicey-Cecil, and Mr. W. Wallace were elected upon the Council. The sixtieth annual report, which was adopted, showed a decided improvement in the condition of the Society. The number of new Fellows and members joining during 1898 was 108, and since the beginning of this year 165 had already been elected. This number was much above the average. The total number of Fellows and members was 2,102. The balance-sheet to the end of 1898 showed a liability of £20,670 16s. 10d., which was more than covered by the amount of plant and buildings belonging to the Society as a going concern. The report went on to say that, while increasing the refreshment-room accommodation the Council had sanctioned the establishment of a club within the Society, which had proved a source of increased strength to the Society, and had added greatly to the attractions of the Gardens. The number of members of the club was now 560, including 220 ladies. The attendance at the Gardens during the past twelve months reached 86,090, compared with 67,212 during the previous year.—The Chairman said the Gardens were much more popular than they had been, but he would be very sorry to see their scientific character lost in that of amusement. The Society was struggling on with too small an annual income; in fact, he did not think that the Gardens could be kept up as they should be with the present low rate of subscriptions.—Mr. Rubinstein complained that the financial statement had not been submitted to the Fellows according to the by-law, the figures in the reports did not tally, that there was a disinclination on the part of the Society to thank those who had served them, and that the Council had not taken the Fellows into their confidence in the matter of the club. He also brought forward two resolutions, which he had persistently moved at the annual meetings for several years past. The first was in favour of establishing classes for the study of botany, but the Chairman pointed out that the Society had no funds for such a purpose, and, moreover, it was impossible to teach botany in London, as many of the commoner plants would not grow in London. The resolution failed to find a seconder, and was therefore lost. The second motion recommended the establishment of a floral hall, wherein receptions and musical promenades could be held in the winter, but this was also defeated.—A vote of thanks to the Chairman terminated the proceedings.

To Prepare Quick-Printing Paper, float the paper for five minutes on a solution of mercuric chloride, prepared by diluting 6 drachms of a saturated solution with 1 pint of water. When dry, float in a darkened room in a silver solution, 40 grains to ounce. The exposure required is about five seconds in sunlight, or a minute in dull weather, until a faint image is produced, then develop with: Sulphate of iron, ½ ounce; water, 1 pint; glacial acetic acid, 1 drachm. Wash and fix with hypo. In place of the iron developer, very dilute metol, or para-amidophenol, may be used with good effect. These prints need no toning and are quite pleasing in colour. Another process, long forgotten, gives most beautiful results: Take syrup of iodide of iron and distilled water, each 2 drachms; tincture of iodine, 10 drops. Mix and brush over one side of well-glazed paper, and, after a few minutes, dry with blotting-pad and then wash with nitrate of silver, 1 drachm; distilled water, 1 ounce; and dry in dark. Expose in a printing frame, when a latent image is formed, after which all that is required to develop is a wash in pure water and preservation for a short time in the dark, varying with the degree of exposure. The exposure induces an action which is carried on in the dark. After the image is completely evolved, the free silver is eliminated by fixing in hypo.—*Amer. Journ. Photog.*

POISONING CASES.

Potassium Permanganate.—A fatal case of poisoning by crystals of potassium permanganate is reported in the *Lancet* by Dr. Charles R. Box. A married woman, aged forty-seven years, of very intemperate habits, after drinking heavily, took a "handful" of crystals of potassium permanganate and, putting them into a teacupful of beer, drank the mixture. She was immediately taken to the casualty department of St. Thomas's Hospital. On the way she was said to have vomited. When first seen at the hospital she was pale, conscious, but unable to speak. Her lips, chin, fingers, and the front of the right forearm were stained dark-brown. The tongue was much swollen and almost black in colour. The skin was dry; the pulse moderately rapid, and of fair tension. After a few minutes she struggled into a sitting posture, and her breathing became accompanied by slight stridor. Preparations were immediately made for tracheotomy, but before anything could be done she fell back pulseless, and the respiration stopped. By the stethoscope the heart could still be heard beating faintly and very slowly, although no pulse was perceptible at the wrist. Artificial respiration induced one or two respiratory movements, but beyond that was of no avail. The heart sounds ceased altogether a few moments later. Death occurred thirty-five minutes after taking the poison.

Belladonna.—On Thursday, August 10, an inquest was held at Birkenhead with respect to the death of Mary Ann Sarah Dagnall, 37, the wife of a ferry employee. From the evidence it appeared that deceased had been ill for some time, and was taking medicine and using a lotion for outward application, and on the previous Sunday took a dose of the lotion in mistake for the medicine. Dr. H. L. Pearson stated that death was due to belladonna poisoning. A verdict of "death by misadventure" was returned.

THE PURITY OF FOOD AND DRUGS.

Vinegar.—On Thursday, August 10, at Marlborough Street Police-court, W., William Morrell, 37, Carnaby Street, Regent Street, was charged with selling vinegar adulterated to the extent of one part of sulphuric acid in each 910 parts of vinegar; Matilda Kelly, 31, Broad Street, Golden Square, was also summoned for selling vinegar containing one part of sulphuric acid in each 500 parts of vinegar, and Fanny Finstein, 6, Portland Street, Soho, with respect to vinegar adulterated to the extent of one part of sulphuric acid in 580 parts of vinegar. The summonses were before the Court several weeks ago, but were adjourned in order that samples might be sent to Somerset House for analysis. The result of the Somerset House analyses was now stated to confirm those made for the prosecution. Morrell and Kelly were each fined £2, with £3 2s. costs, and Finstein, who is a widow in a small way of business, 10s., with one guinea costs.

Spirit of Nitre.—At Barnsley Police-court on August 2 Jeremiah Woffinden, shopkeeper, Penistone, was summoned for selling sweet nitre, not of the nature, quality, and substance demanded by the purchaser, it not being in accordance with the requirements of the Pharmacopœia. Fined 10s. and costs.

Camphorated Oil.—Charles W. Austen, of Weybridge, was summoned at Chertsey Police-court on Wednesday, August 9, for selling camphorated oil deficient in camphor to the extent of 30 per cent. The defence was that the full quantity of camphor was in the oil but had not dissolved properly. Fined 5s.

Invoice as Guarantee.—On August 4, the adjourned hearing took place at Birmingham of a summons against Samuel Allen, grocer, 17, Tower Street, Birmingham, for selling butter containing 112 grains per pound of boric acid. The case had been adjourned in order to allow the defendant an opportunity of converting an invoice which he had received into a warranty. The butter was supplied by a local merchant who had stamped upon the invoice "Guaranteed pure butter." There was no signature to it, and the magistrates held that as it stood it was useless. For the defendant it was now stated that the firm which supplied the butter did not repudiate the invoice, but admitted that

the stamp put upon it was that of the firm. It was also proved that the stamp was upon the invoice when it was received. One of the magistrates remarked that the guarantee appeared to have been put on by way of a stamp, but they could not accept such evidence in general cases. There must be satisfactory proof of the guarantee. They believed the defendant had done his best to get a pure article and had acted in good faith, therefore they accepted the invoice as a guarantee, and dismissed the case.

Seidlitz Powders.—On Thursday, August 10, several cases against wholesale dealers were heard at the Brentford Police-court, arising out of a case reported in the 'Journal' for July 29, p. 112D, in which Harriet Upton, a shopkeeper, of Devonshire Road, Chiswick, was fined £5 for selling seidlitz powders deficient in tartaric acid and sodium bicarbonate.—Messrs. Edward Cocks, of Clapham Junction, were summoned for having supplied Mrs. Upton with packets of powders bearing false labels and not prepared according to the British Pharmacopœia. Mr. C. Robinson represented Mrs. Upton, and Mr. G. W. Lay defended. Mr. Walter Tyler, the inspector of Foods and Drugs, conducted the prosecution.—Mrs. Upton said she purchased some seidlitz powders from a traveller named Watson. She sold them to the public in exactly the same condition as she had received them.—James Watson, of Shepherd's Bush, said Mrs. Upton said she was out of Seidlitz powders, and asked if he had any. He left her some, but did not receive any money.—Mr. Tyler pointed out that on the label the words "British Pharmacopœia" were wilfully mis-spelt.—Mr. Lay: You must summon the printer for mis-spelling. Proceeding, Mr. Lay said the summons was for selling the powders on July 4 last, whereas the sale took place nine months ago. He submitted that on that ground alone the proceedings must fail, as Mr. Tyler had been too late in taking out the summonses.—Mr. Tyler said he could not take the summonses out before the proceedings against Mrs. Upton had been concluded. The matter was an important one for little traders.—The magistrates dismissed the case.——Mr. Bienes, of the "Drug and Sundries Company," was similarly summoned, but one of the witnesses for the prosecution stated that he sold the powders to Mrs. Upton on his own account, and had nothing whatever to do with the present defendant. The magistrates dismissed the case, and allowed one guinea as costs.

TRADE NOTES.

Tannoform.—E. Merck, Darmstadt, and 16, Jewry Street, London, E.C., submits specimens of tannoform and of tannoform dusting powder. Tannoform has lately been introduced as a specific in the treatment of hyperidrosis and bromidrosis. Being a condensation product of tannin and formaldehyde, it possesses not only the healing and astringent properties of tannin, but the highly antiseptic and disinfecting properties of formaldehyde. Compared with tannin and salicylic acid it is said to be more efficacious, and has the further advantage of not causing the skin to shrivel. Tannoform is highly recommended for the treatment of foot-sores and other similar diseases. Its use, however, is not limited to external application, it is also of very great importance as an intestinal astringent. It is said to be insoluble in the gastric juice; not to impair the digestion. On reaching the intestines tannoform is split into its component parts, and begins to act only when it has actually reached the diseased organs. Clinical experiments are stated to have shown that tannoform is a most valuable therapeutic agent, and possesses all the qualities required in an intestinal astringent. Tannoform is supplied as an ointment as well as in form of soft and dry soap. Full particulars as to its properties and uses are published in *Merck's Digest*, No. 4.

Tabloid Cascara Sagrada.—Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., submit specimens of new "Tabloid" preparations of cascara sagrada. In the past it has been the custom of the firm to supply tabloids of cascara sagrada containing 2 grains of dry extract, but as the susceptibility of patients to the action of the drug varies somewhat, they are now prepared containing 1 and 3 grains of dry extract. By the issue of these different strengths it is hoped that the administration of cascara sagrada extract on a definitely regulated plan will be simplified. It is suggested that one of the 3 gr. strength may be taken once, twice, or even thrice daily for habitual constipation until the habit of regular action of the bowels is established, when the dose should be gradually reduced to one of 1 gr. strength taken once daily. It is then usually possible to do without a laxative after a short period. These "Tabloid" products are supplied both plain and sugar-coated in bottles containing 25 or 100 in each.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. J. Scriven Turner, M.P.S., F.C.S., has recently been appointed one of the Gas Examiners to the London County Council.

Mr. P. E. F. Perrédès, M.P.S., pharmaceutical chemist, has been successful in passing, in the first division, the University of London, 1899, Intermediate Examination in Science.

Mr. Evelyn William Pollard, M.P.S., chemist and druggist, of Ryde, was one of the successful candidates, in the second division, at the recent Intermediate Examination in Science of the London University.

Mr. George Senter, M.P.S., pharmaceutical chemist, has been successful in gaining honours certificates in the University of London, 1899, Intermediate Science and Preliminary Scientific Examination, in Chemistry and in Experimental Physics.

Mr. Thomas E. Wallis, M.P.S., pharmaceutical chemist, junior demonstrator in the Pharmaceutical Society's Chemical Laboratory, has passed, in the first division, the University of London, 1899, Intermediate Examination in Science.

Mr. Harold Wilson, M.P.S., pharmaceutical chemist, formerly demonstrator of pharmacy in the Pharmaceutical Society's School of Pharmacy, and now of University College Hospital, has passed, in the first division, the University of London, 1899, Intermediate Examination in Science.

Mr. William A. Knight, M.P.S., pharmaceutical chemist teacher of materia medica, pharmacy, and dispensing at the London College of Chemistry, etc., recently opened by Mr. H. Wootton, was one of the successful candidates in the first division at the July Intermediate Examination in Science of the University of London.

Mr. Edward C. Spurge, M.PS., pharmaceutical chemist, passed, in the first division, the recent University of London Intermediate Examination in Science.

Mr. H. Troughton, M.P.S., of Lancaster, has refitted his shop, which is now extremely handsome and striking. All the alterations have been carried out by Messrs. Ayrton and Saunders, Liverpool.

A Home-Made Stereo Shutter.—Take a piece of soft wood ½-in. thick, and make two holes in it to fit the lens tubes. Now take a strip of ¼-in. wood (part of a cigar box lid will do) about twice the length of the first, and cut two square holes in the centre to correspond with the former. Take two strips of thin zinc, brass, or even tin, and fasten along top and bottom of the back, bending over the edges to form a clip to hold the front which slides to and fro across the lenses. Insert a small screw in either end of the front to stop it from slipping right through, and your shutter is complete. By pushing it straight across with the finger, I calculate it will give one-tenth of a second, and, by carrying some lantern slide binding and sticking equal pieces across the openings, the slits may be made any width, and very quick exposures made; also time exposures are very easily made. The shutter may be finished off according to taste or skill.—A. H. Harrington in *Photo News*.

PHARMACY IN SOUTH AFRICA.

BUSINESS IN SOUTH AFRICA generally is at a low ebb owing to the pending crisis in the Transvaal, several of the wholesale firms finding orders coming in very slowly. A regular exodus is constantly taking place from Johannesburg, business men sending their wives and families over the Border for safety. Up to now these measures are merely precautionary, as it is felt that the Boers will assuredly "climb down," and the much-needed Franchise be conceded before the "Maxims" take the place of the "ultimata." Opinions as to the likelihood of war or not are equally divided among colonials, but the proverbial stubbornness of the Boer has to be reckoned with, and it is a case of "we shall see what we *shall* see."

MR. H. T. DOBLE, pharmaceutical chemist, of King William's Town, Cape Colony, has opened a new pharmacy in Oxford Street, East London, next to the new Town Hall. The business will be under the management of Mr. E. A. Hodge, formerly with Messrs. Breeze and Co., of Devonport and Plymouth, and a member of the Plymouth and District Chemists' Association.

CAPE CHEMISTS AND THE PHARMACY ACT.—The chemists of Cape Colony are greatly concerned anent the Bill now before the Cape Parliament for "The Repealing of certain Sections of 'The Medical and Pharmacy Act, 1891,' and to make other provisions in lieu thereof, and to make further provisions with regard to the Colonial Medical Council and Colonial Pharmacy Board. The Sections which are of immediate interest to chemists would, if made law, seriously hamper the business of a pharmacist. They are Nos. 8, 9, and 16, in the Bill, and set forth that:—

> 8. "Every shop shall be conducted under the *constant* and *personal* supervision of some registered chemist and druggist."
>
> 9. "No person shall be entitled to medically treat any person by reason that he is a person licensed as an apothecary, or chemist and druggist under the provisions of the said Act."
>
> 16. "From and after a date to be proclaimed by the Governor, which shall not be less than six months after publication in the 'Gazette' of his intention to proclaim such date, every patent or proprietary medicine intended for human use, and containing any poison mentioned in the Third Schedule of the Act, shall bear upon the bottle, case, or other package immediately containing such medicine, a true and exact statement setting forth the nature and quantity of each such poison contained in such medicine, and any person selling, or keeping for sale, any such medicine not so labelled, shall be liable, on conviction, to a penalty not exceeding Fifty Pounds, and in default of payment, to six months' imprisonment with or without hard labour; provided that it shall be lawful for the Governor, after giving six months' notice in the 'Gazette' of his intention so to do, to declare any article mentioned in such notice to be a poison within the meaning of the said Schedule."

AN ABLE LEADING ARTICLE appeared in the *South African News*, of July 10, in which the writer pointed out that, in the interests of the public, the literal enforcement of the above Clauses would be absurd and cause a great amount of annoyance and inconvenience, inasmuch that the chemist could not even give an antidote to a poison or render first aid in case of accident, as he would be "medically treating" within the Act. A simple draught for headache, and the thousand and one small ailments to which humanity are prone could not be supplied except the individual presented a prescription from a doctor, and doctor's fees in the Colony are not at all low. It was out of the question to expect the public to pay a doctor's fee every time it catches a cold or eats too much for its dinner. Recent cases were quoted where the prompt action of a chemist in Cape Town had saved human life in prussic acid and iodine poisoning, also in burning by carbolic acid. Were this Bill passed, the chemist would be liable to imprisonment for so doing; and the public would also be the sufferers. The Clause dealing with the declaration of the contents and amount of poison in all patent medicines was also mentioned at some length. It was not likely that every manufacturer would disclose the recipe of his preparation. The effect of the Clause would be to put the public to the trouble of sending for its patent medicines direct to the makers, and thus depriving colonial chemists of a certain amount of business and revenue. Other newspapers of Cape Colony had leading articles on the subject, considering that the Bill conferred privileges on the medical profession at the expense of the chemist.

AT A MEETING OF THE CAPE PHARMACEUTICAL SOCIETY, held in Cape Town, under the presidency of Mr. James Jones, it was decided to submit a resolution to the Government before the second reading of the Bill on the 26th, that the Sections 8, 9, and 16 be either eliminated or amended, the last-named section to be worded as in the English Act, without the same restriction of sale. This resolution was supported by the chemists of East London, King William's Town, Queenstown, and Border Towns in the Eastern Province.

DENTAL NOTES.

"DODGES" is the title of an excellent paper read at the annual meeting of the Midland Counties Branch of the British Dental Association by Mr. Frederick Rose, and printed in the official journal of that body. Mr. Rose describes some devices which he has found useful in overcoming some of the many difficulties that are met with in practice, and they are briefly summarised here.

To overcome suction when taking impressions with composition, and so obviate the chances of the impression being in any way distorted, it is a good plan to pass a thread of waxed silk across the centre of composition just before insertion. This can be withdrawn when the composition has hardened, and the inlet of air will cause the impression to drop.

BEFORE taking an impression with composition a much sharper one can be obtained by chilling the tray under the tap and warming the compo. over the spirit lamp just before insertion.

WHEN the capacity of a patient's mouth is out of proportion to the opening of the lips, and difficulty is experienced in inserting a sufficiently large tray, the trouble can mostly be overcome by first inserting the tray on one side, so dragging the cheek back, insert a visiting card at opposite side and the tray will glide into place. The card acts as a shield to the lips and greatly facilitates the ingress of the tray.

IN taking the model of dovetail spaces, fill up the space with soft compo. modelling to shape, then take the impression with these in position. They are left behind when the tray is withdrawn, and so can be removed and placed in position in impression. This is a good plan when modelling a mouth where there are loose teeth; the blocks steady them.

IN those cases where a patient wanting a denture does not wish to be seen without teeth, the difficulty can be got over by taking a specimen model of the natural teeth as they stand, select a set of "minerals" of exact size, shade, and shape, then extract the back teeth and stumps that are to be removed, and leave the gums to settle for a few weeks. Then take an impression, and make trial plates to get bite, etc. Saw off the front teeth on model, having previously carefully trimmed away any drags in front so as to get the exact position of the labial surface of the natural teeth, then cut out the plaster model like it would have been if you had taken the impression after extracting the teeth; cut it freely away from the labial wall of the sockets, so insuring a good fit of the artificial teeth to the gum. The front teeth are then extracted, and the plate inserted at the same visit.

IT is a good plan as a means of obtaining suction in new cases to well dry the palate with a fine cloth, and freely cover the palate of denture with glycerin, put into place, using pressure.

WHEN a young patient has one or two teeth much elongated with Rigg's disease extract them, and use to fix on a metal plate instead of mineral teeth. The teeth must be sound. Use a pin for a tube-tooth cemented into a hole drilled through the base, but not to penetrate the enamel. Use osteo for setting.

A HINT for those who use slab-bites: Get an old slab, cut off the portions that have retained the models in place, and rough the surface with knife cuts. Put in water for a minute or two and wipe dry, then put a dab of plaster on each side, not to run into one another, and lay the models already greased into them, moulding the plaster up in the usual way. It will be found that this completely prevents the opening that always takes place with the new slab-bite.

When casting a model in sand that has small interspaces where one or two teeth have come out, and the standing teeth are long, it is a good plan to bend a bit of thin wire like a hairpin, only shorter, and place it across the interspaces sufficiently loose to remain in the sand when removing the plaster cast. It prevents the blocks of sand between the teeth from breaking out.

When an upper wisdom which is fully erupted is biting on to the gum over an uprising lower (or vice versâ) and extraction is required, extract the fully erupted tooth, not the one which is causing the pain. It is simpler and effects the same end.

In the case of a fractured central incisor where the nerve is exposed and the patient's condition will not admit of the use of an anæsthetic nor can stand the shock of an operation without it, pass a small piece of rubber down over the stump and tie with silk in usual way, then apply arsenical paste to pulp, and over it lay a small pledget of wool steeped in mastic varnish. Gently drawing the free portion of rubber down over the stump, tie it in a bunch and so make a bag of it, cutting the surplus rubber close off. Allow the dressing to remain long enough to devitalise the pulp.

Inlays of vulcanised white rubber have been invented by Dr. Scheuer, Dentist, Teplitz. He claims that inlays of vulcanised white rubber are easier to work and cheaper. To fill a side cavity, clean it and work it out to a cone shape, brush it over with vaseline, fill up the cavity with modelling wax kneaded between the fingers, being careful to fill up all defects; syringe the wax filling with cold water, spray a little ethyl chloride to harden, and remove the filling from the tooth by means of a pin roughened at the end; imbed the wax model in plaster underneath the lid of the flask, and leave bottom end of the model standing out of the plaster in order to get the wax out by means of boiling water; now pack the white rubber into the mould (a piece of wire may be inserted to aid the connection with the cement fastening) and vulcanise; undercut the edges of tooth cavity a little, and insert the rubber inlay by means of soft cement. After the cement has thoroughly set, finish off and polish with the usual instruments.

A verdict of £3 10s. for a set of teeth was obtained by Henry Hodgkinson, dentist, Darwen. The defendant said the teeth did not fit. She admitted that she only had them in two minutes, and would never have them in again. His Honour said it was still the plaintiff's obligation to make the teeth fit if they did not do so, and defendant must give him every chance of doing it. Two minutes is hardly sufficient length of time in which to try in a new set of teeth. A good deal of patience is often required on both sides before the desired end is attained.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

August 17.

Contrary to expectation business in Drugs and Chemicals, and more particularly in Chemicals, has been more active than could have been hoped at actual season of the year. This has been perhaps chiefly in consequence of the anticipated rises in makers' prices of various articles having at last become an accomplished fact. The changes include a further tangible advance in prices of Cocaine and Santonin, while the price of Physostiquinine (Eresine) and of Pilocarpine has also been advanced. Codeine remains firm, the same may also be said of Morphine, especially for prompt delivery. Quinine remains a puzzle. Acid, Citric. Tartaric, and Cream of Tartar are quiet and unchanged. Acid Carbolic firm. Bromides and Iodides unchanged. Quicksilver and Mercurials very firm. Linseed Oil and Rape Oil dearer, and very firm. Bismuth and Salts without change. The following are prices actually ruling for articles of chief interest:—

ACETANILIDE—Is dull and weak at 11d. to 1s. 2d. per lb., according to quantity.

ACID CARBOLIC.—Firm at 7¼d. per lb. for the 35-36°C. ice crystal in large drums and overcasks, other qualities and packing being quoted in proportion. Crude, 60°F., 2s. 1d. per gallon; 75°F., 2s. 7d. per gallon. Liquid, 95 to 97 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. per gallon in 40-gallon casks.

ACID CITRIC—Quiet, at 1s. 6d. to 1s. 7d. per lb., according to quantity and make, for crystals in 5-cwt. casks.

ACID BORACIC—Steady at late quotations.

ACID TARTARIC—Quiet and without change.

AMMONIA COMPOUNDS—Are practically without change, business being, as might be expected for the time of the year, restricted to actual immediate requirements. Sulphate is perhaps a shade dearer, Gray 24 per cent., London prompt, being quoted £12 7s. 6d. to £12 10s. per ton; Hull, £12 5s.; Leith, prompt, £12 7s. 6d. to £12 10s.; Beckton, September, £12; Oct.-March, £12 10s.; Beckton terms, prompt, £12 5s. per ton.

ARSENIC—Steady, but without change, at £31 10s. per ton for white and yellow lump, and £19 10s. per ton for powder.

BORAX—Quiet and unchanged.

BROMIDES—Firm at late quotations.

CAMPHOR—Is firm, but somewhat quiet, for refined, while the prices asked for crude from the other side would appear to point to the probability of an advance in refiners' quotations.

CLOVES.—Privately Zanzibar dull, with weaker tendency in prices. Spot and near quoted at 3 1-16d. October-December delivery at 3⅛d. and January-March 3 3-16d. No Zanzibar offered at auction; 31 cases picked Penang bought in, fair to good bright at 6¾d. to 7½d.

COAL TAR DISTILLATION PRODUCTS. — Toluol commercial 1s. 3d. per gallon, pure 1s. per lb. Benzole quiet, 50 per cent. prompt, 10d.; August - December, 10½d. per gallon; 90 per cent. prompt, 8d.; October - December, 9d. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120°C., 3d. per gallon. Solvent Naphtha, 95 per cent. at 160°C. 1s. 6d. per gallon; 90 per cent. at 160°C., 1s. 2d. per gallon; 90 per cent. at 190°C., 1s. 3d. per gallon. Anthracene A, 3½d. per unit; B, 2½d. per unit. Pitch, 35s. per ton f.o.b. Tar, crude and refined, 13s. per barrel, 2¼d. per gallon.

COCAINE—Has been further advanced to 14s. 4d. per oz. for the Hydrochlorate in 25 oz. tins, and for 100 oz. lots, price being very firm at this figure. Our readers will recollect that this advance has been repeatedly predicted in these columns as more than probable.

COD LIVER OIL.—Market remains very quiet. Quotations show, however, a slight improvement, same being now about 60s. to 62s. 6d. per barrel for best new non-freezing Norwegian oil in tin-lined barrels of 25 gallons.

CODEINE—Firm at 12s. 6d. to 12s. 9d. per oz.

COPPER SULPHATE.—£24 to £25 5s. per ton, according to make, for spot delivery.

CREAM OF TARTAR—Is quiet, and practically without change in price.

ESERINE (PHYSOSTIGMINE).—Makers advanced prices to 2s. 3d. per gramme for the Sulphate and Salicylate, the other salts, as also the pure alkaloid, being also dearer in proportion.

CINGER.—Cochin again in large supply met extremely slow demand: 1,313 packages offered, of which only 30 cases and 7 robbins sold, good medium and bold limed cut and scraped at 59s., small ditto at 27s. 6d., fair but dusty cuttings at 16s. Calicut rough bought in at 24s., and fair washed rough at 23s. to 24s. Jamaica, in smaller supply, met a fair demand, but owing to firmness of holders only a small quantity sold at full to rather dearer rates: Of 338 packages 90 sold, fine bright at 79s., fair to good bright at 66s. to 72s., low middling to middling 57s. to 65s., common to good common 50s. to 54s., low Rhatoon 46s. to 48s.

GLYCERIN.—The makers of the refined article appear to have at last ceased to press sales à tout prix, and in view of the continued firmness of price of crude it looks very much as if we shall shortly see better prices for pure glycerine, which is, however, still quoted at about 50s. per cwt. for English, and 52s. 6d. to 60s. per cwt., according to brand, for German, best white, double distilled, chemically pure, 1260° quality in tins and cases.

IODIDES—Steady and unchanged.

MERCURIALS—Are firm and unchanged.

MORPHINE—Still firm, especially for prompt delivery, at 4s. 9d. to 5s. per oz., according to quantity, for the hydrochlorate powder.

OILS (FIXED) AND SPIRITS.—Linseed dearer and very firm London, spot, pipes, £21 5s. per ton; barrels, £21 10s.; September-December, £20 10s. to £20 15s.; January-April, £20 2s. 6d.; Hull, spot, naked, £20; September-December, £19; January-April, £18 7s. 6d. Rape strong, ordinary brown spot, £22 10s., buyers; September-December, £22 15s. to £23; refined spot, £23 15s. to £24. Ravison, naked, spot, £19 10s.; September-December, £20. Cotton easier. London crude, spot, £17 2s. 6d.; August, £17 5s. Refined, spot, £18 to £19 10s., according to make. Hull, naked, refined, spot, £16; August £16 2s. 6d.; September-October, 16; November-April, £14; crude, spot, £15; November-April, £13. Olive quiet and unchanged. Palm Lagos, spot, £24 10s. Cocoa-nut firm, at the shade dearer prices. Lubricating oil steady and unchanged. Turpentine, in consequence of pressure to sell, is rather easier at 36s. 3d. per cwt. for American; spot, 36s. 3d. to 36s. 4½d., for September-December, and 37s. per cwt. for January-April. Petroleum firm at 5¼d. per gallon spot, and September-December for Russian, and 6¼d. for American; Water white, 7½d. per gallon. Petroleum Spirit, American, 9d.; deodorised, 9½d. per gallon.

OPIUM—Quiet and practically without change.

PHENACETINE.—It would almost seem as if the makers had grown tired of competing one against the other, and thereby reducing price to a starvation level. It is, however, still possible to buy at 3s. 6d. to 3s. 9d. per lb. for both crystals and powder. Bayer's make in original 1lb. bottles is still quoted 6s. 1d. per lb., and Riedel's 5s 5d. per lb.

PILOCARPINE.—Price has been advanced to 1s. 6d. per gramme for the hydrochlorate and nitrate, 1 oz. lots being quoted 30s. 6d. per oz.

PERMANGANATE OF POTASH.—Quotations remain irregular, and vary from 50s. to 60s. per cwt. for small crystals (large crystals 5s. per cwt. more) in 1 cwt. kegs according to make and quantity.

POTASH COMPOUNDS—Are practically without change at about the quotations quoted end of July.

QUICKSILVER—Firm, at £8 7s. 6d. per bottle from the importer, while second-hand still refrains from offering.

QUININE—Nominally unchanged, makers' price for favourite German brands of Sulphate being still 1s. 4d. per oz. for 1,000oz. lots in 100oz. tins.

ROSIN—Dull and easier at 4s. 1½d. per cwt. for strained on spot, and same price ex-ship for September-December and January-March shipment per sailing vessel.

SANTONIN.—The consequences of the drought and the therefrom resulting short crop of semen cinæ in Turkestan have been further emphasised by advance in makers' prices of Santonine to 9s. 6d. per lb., it being stated that a further advance in price may still yet become necessary.

SHELLAC.—Market remains very quiet at nominally unchanged prices; holders are, however, rather firmer in their views, which tends to check business.

SODA COMPOUNDS—Are without change at the quotations last given, with the exception that caustic is quoted higher at £8 10s. per ton for white 70 per cent., and £7 10s. per ton for 60 per cent.

SPICES (VARIOUS).—Black Pepper firm; 64 bags Tellicherry sold at 5¼d.; no Singapore offered. White Pepper steady; only 54 bags Singapore offered and bought in, good to fine, at 9½d. to 10d. Capsicums steady; of 52 bales Bombay 18 sold, fair cherry pods at 30s. 6d. to 33s. Cassia Buds: 50 bags wild bought in at 26s. Cinnamon Chips: 269 packages Ceylon offered, and only 24 sold, fair quillings at 4½d.; chips and quillings at 3⅞d. Nutmegs quiet; 72 cases mostly bought in, 79's at 1s. 9d., 90's at 1s. 7d., 105's at 1s. 2d.; 109's at 1s. 1d., and 164's at 8d. Mace dull; 26 cases Penang bought in; fine pale at 2s. 4d., fair at 1s. 7d. to 1s. 8d.. and broken at 1s. 5d.; 54 cases West Indian offered and mostly sold at rather easier prices, good pale at 1s. 7d. to 1s. 8d., fair to good red 1s. 5d. to 1s.6d., pickings and broken 1s. 3d. to 1s. 4d. Pimento quiet but steady; 822 bags offered and 360 sold, ordinary to fair, at 3d. to 3⅛d., with a few bags at 3 5/16d.

SULPHONAL.—The price of the two recognised makers remains at 17s. per lb. for both crystals and powder. An outside maker, whose mode of doing business has hardly tended to increase his popularity with respectable buyers, is stated to be offering, to a certain extent *sub rosâ*, to supply the article in 28lb. lots at 14s. per lb. Buyers will, however, do well not to allow themselves to be tempted to lay in a stock of the article, while they will also perhaps be acting in their own interest if they confine their purchases to one of the two generally recognised brands—viz., Bayer's or Riedel's.

To-day's drug auctions appear to have passed off quietly and as might have been expected, without any very striking incident, in spite of the long interval which has elapsed since last sale. A not inconsiderable portion of the lots offered were bought in. The following are the particulars as far as it has been possible to give same up to time of going to press:—

ALOES.—Five cases East Indian bought in at 40s. per cwt. Nine boxes Curaçoa sold at 17s. per cwt. subject to owner's approval, another lot of Capey ditto selling at 17s. 6d. Twenty-two cases Cape sold at 24s per cwt. for fair down to 21s. for inferior, hard, and rather drossy. Ten kegs Socotrine sold at 5s. per cwt.

ANISEEDS.—Forty bags fair Russian were taken out at 20s. per cwt.

ANTIMONY.—50 cases Japan crude all sold at £23 15s. to £24 per ton.

ARGOL.—Eight bags Cape, part held for 46s., per cwt., a bid of 42s. being declined, balance of not so good quality being taken out at this latter figure.

ASAFETIDA.—Of 134 cases a few sold at 38s. to 61s. according to quality, the greater portion being, however, bought in. Of other 172 cases which were offered some of the better lots sold at 75s. per cwt. down to 37s.

BALSAM COPAIBAE.—10 cases fair filtered bought in at 1s. 5d. per lb.; 3 casks good Maranham part sold previously, remainder held for 1s. 8d. per lb.

BALSAM PERU.—5 cases of good quality bought in at 8s. per lb.

BALSAM TOLU.—Of 8 cases, an offer of 1s. 2d. per lb. was to be submitted for 4 cases, remaining 4 cases being taken out at 1s. 6d. per lb.

BIRD LIME.—2 cases genuine Japanese were taken out at 2s. 4d. per lb.

BUCHU LEAVES.—1 bale fair quality rounds realised 4½d. per lb.

CALUMBA ROOT.—32 bags fair washed bought in at 30s. per cwt.

CAMPHOR.—Two casks German refined in Bells sold, subject to owner's approval, at 1s. 5¾d. per lb.

CARDAMOMS.—Medium to fair Ceylon Mysores sold at 2s. 1d. to 2s. 6d. per lb., up to 3s. 10d. per lb. for really fine; lower quality realised 1s. 5d. to 1s. 8d. per lb.; good seed sold at 2s. 4d. to 2s. 5d. per lb.

CASCARA SAGRADA.—40 bales good new bark were held for 30s. per cwt.

CASTOR OIL.—Thirty-three cases seconds Calcutta bought in at 3⅛d. per lb.

CINCHONA BARK.—Four bales Carthagena bought in at 5d. per lb.

CIVET.—10 horns sold readily at 10s. per oz, which appeared cheap in view of the quality of same.

COCA LEAVES.—12 cases Ceylon realised 8d. to 9d. per lb., a comparatively high figure having regard to the quality. 57 bales medium Huanoco were taken out at 1s. 2d. per lb.

COCOA BUTTER.—1 case guaranteed genuine was held for 1s. 7d. per lb.

CUBEBS.—33 bags of fair to good quality were bought in at 25s. per cwt.

CUMMIN SEEDS.—Sixteen bags bought in at 21s. per cwt.

CUTTLE FISH BONE.—3 cases good, bold white were taken out at 8d. per lb.

DILL SEED.—33 bags of good quality were taken out at 15s. per cwt.

DRAGON'S BLOOD.—38 cases fair drop, part woody and part dust, were taken out at £5 per cwt., while 2 cases fine quality realised the high price of £21 per cwt., fair medium quality being held for £10 to £11 10s per cwt., dark seedy block taken out at £16 per cwt.

ERGOT OF RYE.—Eight bags sound Russian realised 1s. 7d. per lb.

ESSENTIAL OILS.—Two cases Orange were held for 7s. 6d. per lb., 5 coppers commercial Bergamot for 4s. 9d. per lb., 5 cases Battaglini's Lemon for 4s. per lb., 5 cases Nutmeg for 2¼d. per oz.,

1 case Clove for 2s. 3d. per lb., 2 cases Star Aniseed for 6s. 6d. per lb., 2 cases West Indian Oil of Limes sold at 3s. 6d. per lb., 2 cases good, genuine Oil Cajaputa at 2s. 11d. per bottle, other 25 cases being taken out at 3s. 6d. per bottle; 9 cases Rhisdonia Oil Eucalyptus bought in at 1s. 9d. per lb., 6 cases Pasquales Cedar Oil Lemon at 4s. per lb., 2 cases Pasquales Oil Orange Rose at 8s. 6d. per lb.

GAMBOGE.—Eight cases part sold at £6 15s. per cwt. for good pickings, balance being bought in at £7 10s. to £9 per cwt.

GUAZA (Herba Cannabis Indica).—35 Robbins were bought in at 3½d. to 4d. per lb. for medium to fair tops, and 3d. per lb. for dark and somewhat stalky.

GUM AMMONIACUM.—7 cases common gum, part blocky, were taken out at 21s. per cwt.

GUM ARABIC.—5 cases grain were bought in at £6 12s. 6d. per cwt. and 10 serons Turkey sorts at 85s. per cwt.

GUM BENJAMIN.—A few lots, offered without reserve, sold at 75s. to 100s. per cwt. for inferior to low seconds Sumatra; medium Siam was held for £14 to £16 per cwt., and downwards for lower quality.

GUM KINO.—3 cases good Cochin bought in at 3s. per lb.

GUM MYRRH.—Nineteen cases common and siftings were taken out at 25s. to 45s. per cwt., thirty packages of better quality being bought in at partly nominal prices, say 65s. to 90s. per cwt.

HONEY.—17 barrels good Jamaica part set, part liquid, sold at 20s. 6d. to 21s. per cwt. 15 cases dark set West Indian sold at 18s. 6d. per cwt., subject to holder's confirmation. 30 cases white Californian were all bought in at 40s. per cwt.

INSECT FLOWERS.—Five bales of open flowers were taken out at 65s. per cwt.

IPECACUANHA.—2 bales picked Carthagena were taken out at 12s. per lb. Of 31 bales Rio only 1 bale 1CCD sold at 14s. 6d. per lb., balance being taken out at 15s. to 15s. 3d. per lb.

JALAP.—20 bales fair heavy taken out at 7d. per lb.

KAMALA.—11 cases of good to fine quality were all bought in.

KOLA NUTS.—10 bags good washed were bought in at 3½d. per lb.

LAVENDER FLOWERS.—40 bags offered without reserve only realised 3s. 6d. per cwt., sale being, however, subject to owner's confirmation.

MUSK.—3 caddies good Tonquin bought in at 65s. per oz.; 1 caddy low ditto at 21s. per oz.

NUX VOMICA.—178 bags were bought in at 7s. 6d. per cwt.

ORRIS ROOT.—15 bags only fair Florentine bought in at 40s. per cwt.; low Verona at 17s. per cwt.

ORANGE PEEL.—Fifteen packages were practically all bought in, nominally at 7d. per lb.

OTTO OF ROSES.—4 vases sold, subject to holder's confirmation, at 14s. per oz. English.

RHUBARB.—Without reserve 4 cases round Canton sold cheaply at 9¾d. per lb., 21 cases small rough round high dried only realising 4¾d. to 5d. per lb.; for 3 cases flat 10d. per lb. was accepted, and for 7 cases sound half showing fair fracture 1s. per lb., subject to owner's approval, good round Shensi being held for 2s. 6d. per lb., an offer of 2s. 1d. for 4 cases trimming root being submitted to holders.

ROSE OIL.—2 pots were bought in at 6d. per oz.

SANDALWOOD LOGS.—57 bundles of fine quality were taken out at £55 per ton.

SARSAPARILLA.—Twelve bales Jamaica sold at 1s. 6d. per lb. for sound, 1s. 5d. per lb. for 1 C C D, and 1s. 3d. per lb for 2 C S D. One case yellow native sold at 10d. per lb. for 1 C C D. Six serons fair Honduras bought in, an offer of 1s. 4d. per lb. not being entertained. Nine bales Lima sold at 10d. to 10½d. per lb.

SENNA.—1 bale fair Tinnevelly was taken out at 6d. per lb., while 58 bales ditto practically all sold at 2¼d. up to 7d. per lb., according to quality, colour, condition, etc.

STAVESACRE SEED.—Sixteen bags were taken out at 35s. per cwt.

TONQUIN BEANS.—5 cases fair frosted Paras, part sold at 2s. 5d. per lb., 3 casks medium Angosturas being held for 3s. per lb.

TURMERIC.—Sixty bags fair finger Madras were taken out at 25s. per cwt.

VANILLOES.—3 tins and 5 parcels New Zealand part sold at 4s. 9d. per lb. for part 4 × 5½, part 4 × 6, part 3½ × 4½, slightly mouldy.

WAX.—30 cases Japan taken out at 34s. per cwt.; 128 packages Zanzibar, part sold at £6 2s. 6d. per cwt., subject to approval; 29 cases Calcutta bought in nominally at £7 per cwt.

Newcastle-on-Tyne Chemical Report.

August 16, 1899.

This market keeps well on the steady side, with prices fully maintained. If anything, some articles have a hardening tendency owing to the want of stocks at the local works. Caustic Soda in fact has been further advanced by 10s. per ton, making the price 20s. dearer than a month ago. Quotations are:—Bleaching Powder, £5 10s. to £5 15s.; Soda Crystals, 45s. to 47s. 6d.; Caustic Soda, 70 per cent., £8 to £8 10s.; Alkali, 52 per cent., £5 to £5 5s.; Soda Ash, 52 per cent., £4 5s. to £4 10s.; Sulphur, £4 15s. to £5 per ton.

Manchester Chemical Report.

August 16, 1899.

There is sustained activity in the demand for heavy chemicals In the Manchester district calico printers and dyers are very busy and this alone absorbs a large production. Caustic Soda and Bleaching Powder are unchanged on the week, but stocks of 58 per cent. Ammonia Alkali are reported considerably reduced, and higher figures are talked of. Soda Crystals are rather higher. Brown Acetate of Lime is steady at £4 12s. 6d. to £4 17s. 6d. per ton, Welsh and American, Manchester. Glycerin is recovering the old position, and local makers are again asking £46 per ton for chemically pure, tins and cases, f.o.b. or rails. Caustic and Carbonate Potash scarce and dearer. Sulphate of Copper is dull at £24 to £24 10s. per ton, according to brand, delivered Manchester. White Powdered Arsenic is easier at £18 15s. per ton, ex-ship Garston. Salt Cake is variable. Lime Salts are firmer, but Lead Salts are quiet.

Liverpool Market Report.

August 16, 1899.

Most articles of regular consumption continue practically at the same figures as before the holiday. In Oils: Linseed, Cottonseed and Olive have advanced a shade, whilst Spirits of Turpentine have jumped up considerably. Miscellaneous sales include Chilian Honey for which there is a good demand, dried Kola Nuts at relatively low rates and Gum Arabic sorts at improved figures. Drysalteries are unchanged, but several heavy chemicals are firmer, notably Sulphate of Ammonia and Borax, whilst a weakening is showing itself in Sulphate of Copper.

AMMONIA SALTS.—Carbonate is firm at 3¼d. per lb. Sal Ammoniac firm, 33s. and 35s. per cwt. Sulphate, £12 7s. 6d. per ton.

CANARYSEED.—The demand for Turkish is improving and the price obtainable rules at or about 38s. per 464 lbs.

COPPERAS—Is very steady at 37s. to 40s. per ton.

COPPER SULPHATE.—This, in consequence of slowness of demand, has dropped to £24 per ton.

GUM.—Arabic "sorts" have been selling at 71s. to 74s. per cwt., and the market closes firm.

HONEY.—50 barrels of Chilian sold at 20s. 6d. per cwt. for Pile 2, and 19s. 6d. for Pile 3. Latterly 150 barrels of Pile 2 changed hands at 20s. 6d.

KOLA NUTS.—29 bags of dried went for 1d. per lb., and 12 bags ditto at 1½d.

LINSEED—Is firmer for all kinds in all positions. 500 tons of River Plate sold at 36s. 3d. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor Oils have been selling well from the quay, and the prices now obtainable at Calcutta "good seconds" store, 2⅞d. per lb. French 1st pressure, 2 11/16d. to 2¾d.; 2nd pressure, 2 9/16d.; and second sulphur, 2 15/16d. Madras held for 2¾d. per lb. Olive is very steady with small amounts in stock and little offering. Candia is £32 per tun, and Levant £31 10s. to £32. Linseed: Liverpool pressed oil is very firm at the advanced price of 22s. to 22s. 6d. per cwt. Cottonseed is held steadily for 18s. to 18s. 6d. per cwt. for Liverpool refined oil in export barrels. Spirits of turpentine have rapidly risen to 37s. 9d. per cwt., at which price they remain steady with good inquiry.

POTASH SALTS.—Bichromate, 3¼d. per lb. Cream of tartar is steady but slow of sale at 75s. to 80s. per cwt. Chlorate is quiet, 3½d. to 3¾d. per lb. Pearlashes are nominal at 30s. per cwt. Potashes, 21s. to 21s. 3d. per cwt. Prussiate, 8¼d. to 8½d. per lb. Saltpetre, 22s. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax, £16 to £16 10s. per ton. Caustic, 76 to 77 per cent., £8 5s., per ton; 70 per cent., £7 10s. Crystals, £3 per ton. Hyposulphite, £5 15s. to £6 per ton. Nitrate, 7s. 6d. to 7s. 9d. per cwt.

Advertisements.

(Received too late for Classification.)

QUALIFIED; 27; good-class experience; desires situation in London for early in September. Outdoors preferred.—RADIX, 5, Serle St., W.C.

TERMS OF SUBSCRIPTIONS.

The PHARMACEUTICAL JOURNAL circulates amongst Pharmacists in Great Britain and Ireland, France, Germany, Austria, Italy, Russia, Canada, the United States, South America, India, Australasia, South Africa, etc., etc., and the average number of copies circulated weekly exceeds seven thousand.

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SPECIAL ANNOUNCEMENT.

The Students' Number of the *Pharmaceutical Journal* will be published on September 9, and the Editor will be glad to receive any information regarding special courses of instruction for pharmaceutical students from the Principals or Secretaries of Schools and Colleges in the United Kingdom.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns, some new. Particulars free. WARNES, Chemist, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. EDWARD PECK, East Dereham.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—HUGHES, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Camwal Shares. State lowest price.—BRAYSHAY, 32, North Frederick Street, Dublin.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Obituary.

Wood.—On May 23, Edward Wood, Pharmaceutical Chemist Wallington; formerly of Brighton. Aged 68. Mr. Wood had been a member of the Pharmaceutical Society since 1852.

Bates.—On August 3, Edward Bates, Chemist and Druggist, Kennington. Aged 42.

Ewing.—On August 6, James Ewing, Chemist and Druggist, Edinburgh. Aged 52.

Harry.—On August 7, Samuel Rhys Harry, Chemist and Druggist, late Sloane Square, London, S.W. Aged 36.

Summers.—On August 9, James Richard Summers, Pharmaceutical Chemist and Dentist, of Norton Folgate, Bishopsgate, E.C. Aged 79. Mr. Summers had been a member of the Pharmaceutical Society since 1853.

Owen.—On August 14, John Owen, Chemist and Druggist, Christchurch. Aged 81.

Publications Received.

UEBER DIE WIRKSAMKEIT DES PROTARGOLS IN EINEM FALLE VON BLENNORRHOE BEIM ERWACHSENEN. Von Assistenzarzt Dr. HERMANN WEBER in Darmstadt. Reprint from *Wochenschrift für Therapie und Hygiene des Auges.* Elberfield: Friedr. Bayer and Co., 1899. From the Publishers.

UEBER ANWENDUNG UND WIRKUNG VON ARISTOL BEI BRANDWUNDEN UND VERBRENNUNGEN. Von Dr. ED. ROELIG-NURNBERG. Reprint from *Deutsche Medizinal-Zeitung.* Elberfeld: Friedr. Bayer and Co., 1899. From the Publishers.

KLINISCHE BEOBACHTUNGEN UEBER DEN THERAPEUTISCHEN WERT DES HEROINS. Von Dr. SIGISMUND WIERZBICKI. Reprint from *Klin. therap. Wochenschrift.* Elberfeld: Friedr. Bayer and Co., 1899. From the Publishers.

ENGLISH NEWS.

Alleged Frauds Upon Wholesale Druggists.—Geo. Hammond, 54, described as a traveller, having no fixed abode, and a licence-holder under the Prevention of Crimes Act, was charged, on remand, at Clerkenwell, with attempting to obtain, by means of false pretences, on the 9th inst., 4oz. quinine, 1lb. of menthol, and other drugs, to the value of £1 6s., from Messrs. Hodgkinson, Clark, and Ward, manufacturing chemists, of Whitecross Street, St. Luke's; he was further charged with obtaining, by means of false pretences, a quantity of quinine and peppermint, value £2 8s. 1d., from Walter Goss, the property of Geo. Francis and others, manufacturing chemists, of Southwark. There were stated to be other similar charges against the prisoner. When arrested on the premises of the first prosecutors, where he was recognised as a "wanted" man, and was detained, he had upon him a set of rubber type and sheets of notepaper. With this material, it was said, he produced bogus orders from retail chemists or from medical men, and presented them to wholesale firms, thus securing quantities of valuable drugs, which he in turn disposed of to other chemists as a traveller. It was stated that the prisoner had undergone a term of imprisonment for similar practices in the past. Mr. Horace Smith committed him for trial at the Central Criminal Court.

A Prescribing Chemist.—At Islington, Mr. Walter Schroder held an inquest respecting the death of James Richard Dwyer, aged 17 months, the son of a wood carver, of 14, Herrick Road, Finsbury Park. According to the evidence of the child's mother, the boy, who had previously had intermittent attacks of diarrhœa, was taken by her on Thursday last to Mr. E. G. Robinson, chemist, 165, Blackstock Road, who gave her a powder for the child. He told her to give him also a little lime-water mixed with his milk. Subsequently, the child getting worse, she again went to Mr. Robinson, when he said possibly the boy "had a touch of bronchitis." He supplied her with medicine. The deceased suddenly expired on Monday. Dr. Mitchell, of Blackstock Road, who was called in after death and had made an autopsy, ascribed death to rupture of the stomach whilst the child was suffering from inflammation of the stomach and bowels, from which it had, he said, been ailing at least a week before he was called in. Mr. Robinson said he had no particular recollection of this case. He prescribed for so many. The mixture produced bore his label. It was right for bronchitis. Dr. Mitchell, being informed of its ingredients, said he did not think it would do the child any harm. The Coroner (to Mr. Robinson): Do you prescribe to all who come?—Witness: Yes. In what position? As a chemist, do you think you have any right to do so?—According to law, I suppose I have no right, but people have confidence in me. The Coroner: I do not wish to say anything unkind, but I think this is a misplaced confidence. Persons are in the habit of assuming that you have a medical knowledge which you have not. Mr. Robinson: What are poor people to do if they cannot afford to pay medical men?—The Coroner: I am not here to argue the question. I simply tell you the law. If people are too poor to pay for medical attendance the law provides that they shall receive it gratuitously. The jury returned a verdict in accordance with the medical evidence.

Chemists' Licences.—At the Newton Abbot (Devon) Annual Licensing Sessions on Tuesday last Mr. William Bennett, chemist, applied to have a licence to sell medicated wines off the premises in Queen Street, Newton Abbot, he giving up the licence he formerly held in Wolborough Street. The application was granted. Mr. Albert Christie, chemist, of Courtenay Street, Newton Abbot, also applied for a medicated wine licence, which was granted.

Poisoning Cases in the Manchester District.—The Manchester Deputy Coroner has held an inquest on the body of Samuel Ward, 52 years of age, of 14, Barlow Road, Levenshulme. Deceased had suffered from sleeplessness for some years past, and used to take a 30-grain dose of chloral, mixed with water, every night or every other night, according to how he slept. On Thursday he was found lying dead in bed. His medical man said he had repeatedly warned deceased not to take more thas 10-grain doses at a time, and allow several hours to elapse after each dose. Death, in his opinion, had caused paralysis of the heart, brought about by the habitual and excessive use of chloral hydrate. A verdict of "Death from misadventure" was returned.—The Cheshire Coroner held an inquest at Altrincham on Monday touching the death of a young man of 20, named Frederick Charles Wild, son of a Manchester cotton merchant. In a fit of passion consequent on a quarrel with his father, he went to the dark room where his brother kept his photographic chemicals and drank from 4 to 6 drachms of nitric acid, from the effects of which he never recovered. A verdict of "Suicide during temporary insanity" was returned.

Partnerships Dissolved.

(From the London Gazette.)

Andrew Spearing and Martin James Richardson, General Medical Practitioners, Shaw and New Hey, Lancashire, as regards Andrew Spearing.

Karl Hebbeler and Heinrich Leins, carrying on businesss as Chemists and Druggists, at 149, Houndsditch, London, under the style of M. Buchner and at 55, Fore Street, London, under the style of Schacht, Warner and Co., as regards Karl Hebbeler.

William Sykes and Martin James Richardson, General and Medical Practitioners, Gosport and Alverstoke, Hants.

Receiving Order in Bankruptcy.

(From the London Gazette.)

Wright, Kershaw, Mineral Water Manufacturer, Union Brewery, Pimlico Street, West Hartlepool.

Birth.

Lander.—On Sunday, August 20, at the Medical Hall Canterbury, the wife of Arthur Lander, Ph.C., F.S.M.C., of a son.

Marriages.

Hurst—Lewis.—On August 16, at Heneage Street Baptist Church, Birmingham, by the Rev. Geo. West, James Vernon Hurst, export manager, Southall Brothers and Barclay, Limited, to Emily Alice Lewis, of Havelock Road, Saltley, Birmingham.

Pearson—Peyton.—On August 9 at St. James's, Piccadilly, by the Rev. F. W. Parkes, M.A., George Edward Pearson (of Messrs. Burroughs, Wellcome and Co.) to Clorinda Teresa Peyton, only child of James Peyton, London.

Death.

Field.—On August 16, at East End Farm, Flitwick, Mary Elizabeth, wife of William Field, Chemist, Church Street, Wolverton, Bucks, formerly of Rotherfield, Tunbridge Wells.

Manchester Chemical Report.

August 23, 1899.

The chemical trade generally is enjoying a period of prosperity at the present time such as it has not been favoured with for some three or four years past. The works in the centres of the north continue very busy. Ammonia Alkali, 58 per cent., as indicated last week, is higher, and may be quoted £4 2s. 6d. to £4 7s. 6d. per ton, bags, on rails. Quotations for Caustic Soda are as follow:—77-78 per cent., £9 5s. to £9 12s. 6d.; 74 per cent., £8 15s. to £9; 70 per cent., £8; and 60 per cent., £7. Bleaching Powder unchanged. Salt Cake is rising, and is quoted 24s. to 25s., in bulk, on rails. A few miscellaneous chemicals show weakness. Sulphate of Copper is £24 to £24 10s. per ton, according to brand, delivered Manchester. Acetate of Lead is quiet, and Acetate of Soda ranges from £12 15s. to £13 5s. per ton, c.i.f. White Powdered Arsenic tends lower, at £18 10s. to £18 15s. per ton, ex ship Garston. Yellow Prussiate lower, at 7⅝d. to 7¾d. On the other hand, prices of Carbolic Acid are well maintained. Brown Acetate of Lime is steady at £4 15s. to £4 17s. 6d. per ton, Welsh and American, Manchester. Glauber Salts have advanced to 35s., and Epsoms, £3 per ton, bags, on rails, Manchester.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

AUGUST 24, 1899.

As might have been expected, business has been exceedingly quiet during the past few days, while there are no changes of any importance to record in the values of any of the articles of special interest in the drug and chemical trades. Quicksilver is tending upwards, but so far the advance has been small, and can hardly be considered as being official, in that the importer declines to sell. Everything, however, points to the probability of a distinct advance in the official price in the near future. This will undoubtedly mean also then an advance in makers' prices for Mercurials, Santonine, Pilocarpine, and Eserine (Physostigmine) are firm at the late advance. Quinine remains dull and neglected, and the German Sulphate is obtainable from second-hand at fully 2d. per oz. below the price which the makers themselves quote. Acid Citric, Acid Tartaric, and Cream of Tartar are quiet, but fairly steady. The following are particulars of prices quoted for some articles of chief interest:—

ACETANILIDE—Continues weak at 11d. to 1s. 2d. per lb., according to quantity, brand, and putting up.

ACID BORACIC.—Crystals are still quoted 25s. per cwt., and powder 27s. per cwt.

ACID CARBOLIC.—Market is firm at 7d. per lb. for the 35-36° C. ice crystal in large drums and overcasks, 7½d. per lb. for the 39-40° C. ice crystal, and 8½d. per lb. for the 39-40° C. detached crystals, which is now the quality prescribed by the B.P. Crude 60° F., 2s. per gallon; 70° F., 2s. 6d. per gallon. Liquid 95-98 per cent., of pale straw colour, 1s. 4d. per gallon in 40-gallon casks.

ACID CITRIC—Continues very quiet at 1s. 6½d. to 1s. 7d. per lb. for crystals in 5-cwt. barrels.

ACID OXALIC.—Very quiet at 3⅛d. to 3¼d. per lb. nett, delivered free London.

ACID SALICYLIC.—There is a rumour that makers intend to advance the price of this preparation.

ACID TARTARIC.—Quiet at 1s. 1d. per lb. for English on the spot, and 1s. 0¼d. per lb. c.i.f. for foreign.

ANTIMONY.—Regulus is steady at £39 to £40 per ton. Crude Japan (black sulphide) firm at £24 10s. per ton.

ATROPINE—Is firm at 15s. 6d. per ounce for the Sulphate B.P., and 17s. 10d. per oz. for the pure Alkaloid.

BISMUTH SALTS are steady at 5s. 1d. per lb. for the Subnitrate, the other Salts being also unchanged in price. The commercial quality of the Metal is also still quoted at 5s. per lb., and the Refined at 6s. 6d. per lb.

AMMONIA COMPOUNDS.—Bromide 2s. 2d. per lb., Carbonate 3d. to 4d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 30s. to 32s. 6d. per cwt.; commercial, free from metals, 25s. to 27s. 6d. Sal Ammoniac: Firsts, 35s.; seconds, 33s. per cwt.; ditto, crushed for batteries, firsts, 37s.; seconds, 35s. per cwt. Sulphate dull; gray, prompt, 24 per cent., London, £12 7s. 6d. to £12 10s. per ton; Hull, £12 5s.; Leith, prompt, £12 7s. 6d. to £12 8s. 9d.; Beckton, September, £12 10s.; October-March, £12; Beckton terms, prompt, £12 5s. per ton. Sulphocyanide, 1s. to 1s. 1d. per lb.

ANTIPYRINE AND PHENAZONE.—Prices are steady, and without change, both for Dr. Knorr's article and for its cheaper commercial equivalent.

ASHES.—Pots, 22s. 9d.; Pearls, 32s.

BLEACHING POWDER (CHLORIDE OF LIME).—Quotation remains unchanged at £6 10s. per ton for English.

BORAX—Quiet, at 16s. per cwt. for crystals, and 16s. 6d. to 16s. 9d. per cwt. for powder.

BROMIDES—Are very firm at 1s. 10½d. per lb. for Potassii Bromid. 2s. 2d. per lb. for Ammonii Bromid., and 2s. 1½d. for Sodii Bromide. Price of Bromine is also unchanged at 2s. 2d. per lb. in cases of 60lb.

CAMPHOR.—The market for crude remains extremely quiet at nominally unchanged prices. Near shipment Japan is, however, offering at a rather lower figure—viz., 127s. 6d. per cwt. c.i.f. Refined is unchanged at 1s. 7d. per lb. for English Bells and Flowers in one ton lots.

CLOVES.—Privately continued dulness prevails for Zanzibar, but prices are steady, with buyers October-December delivery at 3 1/16d. and January-March at 3 3-32d. At auction 20 bales Zanzibar offered were bought in, good at 3⅝d. No Penang offered.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 2d. per gallon; pure, 2s. 4d.; Benzole 50 per cent. 10d. per gal., 90 per cent. 8d. Creosote 3½d. per gallon. Crude Naphtha 30 per cent. at 120° C 3¾d. per gallon. Solvent Naphtha 95 per cent. at 160° C 1s. 4½d. per gallon, 90 per cent. at 160° C 1s. 3d., 90 per cent. at 190° C 1s. 3d. per gallon. Anthracene: A, 4d. per unit; B, 3d. per unit. Pitch, 36s. per ton f.o.b. Tar, refined, 14s. 6d. per barrel, 2½d. per gallon; crude, 13s. 6d. per barrel, 2¼d. per gallon.

COCAINE.—Makers of the best brands are firm at 14s. 4d. per oz. for the Hydrochlorate in 25-oz. tins and for 100-oz. lots, while second-hand offers slightly below makers' prices. Inferior makes of this article are being hawked round, and are offering almost

COD LIVER OIL.—Best new Norwegian Oil is still quoted 58s. to 60s. per barrel, in tin-lined barrels of 25 gallons.

CODEINE—Remains very firm at 12s. 6d. to 12s. 9d. per oz. according to quantity for the pure, the Muriate, Sulphate, and Phosphate Salts being quoted 1s. per oz. less money.

COPPER SULPHATE—Quiet but fairly steady at £23 17s. 6d. to £25 10s. per ton on the spot, according to make, quantity, etc.

CREAM OF TARTAR.—First White Crystals are quoted 76s. per cwt. on the spot; Powder, 78s. per cwt.

ESERINE (PHYSOSTIGMINE)—Remains firm at the lately advanced price of 2s. 3d. per gramme for the Sulphate and Salicylate.

ESSENTIAL OILS—Are quite inactive. HGH Oil of Peppermint is quoted nominally 5s. 6d. per lb., but there are sellers at somewhat below this figure.

GALLS.—Business in all descriptions is very small, but holders are generally firm. China quoted 59s. for usual shape. In Persian retail sales have occurred in Blues at previous rates, and Whites have been dealt in to a moderate extent at full prices; Blues quoted 62s. 6d. to 65s.; Greens, 56s. to 57s. 6d.; and Whites, 50s. to 52s. 6d. Smyrna sell slowly, including Blues at 57s. 6d.

GINGER.—Cochin, in moderate supply, realised about previous rates. Of 228 bags and 186 cases offered, about 140 packages sold, fair bold, some medium cut and scraped, 70s. to 71s.; fair small ditto at 28s.; brown rough, 19s. 6d.; tips and cuttings, 16s.; ordinary washed rough, 21s. to 21s. 6d. Jamaica being firmly held, fetched rather better prices for the small lots sold. Of 162 barrels, 24 found buyers, low middling to middling at 56s. to 61s. 6d.; common to good common, 48s. 6d. to 54s.

GLYCERIN.—Refined is fairly steady at nominally unchanged price. Crude keeps firm.

IODIDES—Steady at 10s. 6d. per lb. for Potasii Iodid.; 13s. 10d. per lb. for Ammon. Iodid.; 11s. 10d. per lb. for Sodii Iodid.; and 13s. 10d. per lb. for Iodoform Cryst. Powder; and Precipitated Iodine resublimed is quoted 12s. per lb., and the commercial quality 7½d. per oz.

MENTHOL—Is quiet, but steady, at nominally 7s. 3d. to 7s. 6d. per lb., according to quantity and brand, for good white Crystals in 5 lb. tins and cases of 12 tins each.

MERCURIALS—Are very firm, but so far without change, at 2s. 10d. per lb. for calomel and 2s. 6d. per lb. for corrosive sublimate.

MORPHINE.—Market is quiet, but steady, the Hydrochlorate Powder being still quoted 4s. 9d. to 5s. per oz. according to quantity, price of the Crystals being 2d. per oz. more.

NITRATE OF SODA—Is quoted £8 per ton for refined on the spot, and £7 15s. per ton for the commercial article.

OILS (FIXED) AND SPIRITS.—Linseed steady. London spot pipes are quoted £21 to £21 5s. per ton, barrels £21 7s. 6d. to £21 10s., September-December £20 12s. 6d., January-April

£20 2s. 6d. Hull spot naked, £20 10s.; September-December, £19 2s. 6d.; January-April, £18 12s. 6d. Rape firm. Ordinary brown spot and September-December, £23 5s.; refined spot, £24 15s. Ravison naked spot and September-December, £20. Cotton quiet. London crude spot, £16 15s.; August, £17. Refined spot, £18 to £19 10s., according to make, etc. Hull naked refined spot, £16; September-October, £15 17s. 6d.; November-April, £14 2s. 6d.; crude spot, £15; November-April, £13 per ton. Olive firm. Mogador, £33; Spanish, £32 10s.; Palm Lagos spot, £25 15s. Coconut Ceylon spot, £25 per ton, landed terms; July-September and September-November, £23 5s. c.i.f. Cochin spot, £29 landed; August-October, £26 c.i.f.; and October-December, £25 17 6d. c.i.f. Castor Oil firmer. Belgian first pressing spot, £25 10s.; second pressing, £23 per ton, ex wharf. Hull-manufactured, guaranteed pure cold drawn Pharmaceutical quality, £28 per ton in barrels; $3\frac{5}{16}$d. per lb. in cases. Pure firsts, £25 10s.; seconds, £24 per ton in barrels; firsts, 3d. per lb.; seconds, $2\frac{7}{8}$d. per lb. in cases for prompt delivery, ex wharf, London. Lubricating Oil: Pale American spot, 5s. 9d. to 7s. per gallon; black, 5s. 6d. to 6s.; pale Russian, 6s. to 8s.; black, 5s. 6d. to 6s. Turpentine opened flat in consequence of pressure to sell, and prices fell away 9d. to 1s. 3d. per cwt., according to position; later on, however, a steadier tone prevailed, and there was a recovery all round of about 3d. per cwt. from the lowest figures touched. Quotations close as follow:—American spot, 34s. $1\frac{1}{2}$d. to 34s. 3d. per cwt.; September-December, 34s. 3d.; January-April, 34s. $10\frac{1}{2}$d. per cwt. Petroleum steady at $5\frac{1}{8}$d. per gallon for Russian spot and September-December, and $6\frac{1}{8}$d. to $6\frac{1}{4}$d. for American in same positions. Water white spot and September-December, $7\frac{1}{4}$d. to $7\frac{1}{2}$d. per gallon. Petroleum Spirit: American, 9d. per gallon; deodorized, $9\frac{1}{4}$d. to $9\frac{1}{2}$d. per gallon.

OPIUM.—Prices are nominally unchanged, but business in the article is practically at a standstill for the moment.

PARAFFIN WAX.—Quiet, at $2\frac{1}{8}$d. to $2\frac{3}{8}$d. per lb. for Crude, and $2\frac{3}{4}$d. to $3\frac{3}{4}$d. per lb. for Refined.

PHENACETINE—Continues weak at 3s. $4\frac{1}{2}$d. to 3s. 6d. per lb. for quantity, both for the crystals and powder. Inferior makes of this article are being offered, even below above figures, but it is somewhat a case of caveat amptor.

PERMANGANATE OF POTASH—Is in fair demand, prices remaining, however, somewhat irregular, and varying from 50s. to 60s. per cwt., according to quantity and make for small Crystals in 1 cwt. kegs, the large Crystals being quoted 5s. per cwt. higher.

PILOCARPINE.—The makers are firm at the advanced price of 30s. 6d. per oz. for the Hydrochlorate and Nitrate Salts (with a reduction for larger quantity), and it would appear as if the cheaper offers of outside makes had also ceased.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate 32s. 6d. to 35s. per cwt., Bichromate $3\frac{1}{2}$d. per lb., Bromide 1s. $10\frac{1}{2}$d. per lb., Chlorate Crystals $3\frac{3}{4}$d., powder 4d. per lb., spot, London; Iodide 10s. 6d. per lb., Permanganate 52s. 6d. to 60s. per cwt. in 1-cwt. kegs for small crystals, and 5s. per cwt. more for large crystals; Prussiate, yellow, Beckton, $7\frac{3}{4}$d. per lb.; other English makes 8d. to $8\frac{1}{4}$d. per lb., red 1s. to 1s. 2d. per lb.

QUICKSILVER.—It is stated that the importer declines to sell. The article is, however, obtainable, nevertheless, at £8 9s. 6d. to £8 10s. per bottle.

QUININE—Remains quite inactive. In the speculative market price for best brands of German Sulphate (B & S and/or Brunswick) are quoted 1s. 2d. to 1s. $2\frac{1}{2}$d. per lb. according to delivery for 1,000 oz. lots in 100 oz. tins, while makers' price for these brands remains unchanged at 1s. 4d. per oz.

ROSIN.—Dull. Strained spot, 4s. to 4s. $1\frac{1}{2}$d. per cwt., and to arrive 4s. $1\frac{1}{2}$d., ex-ship for September-November and January-March shipment per sailing vessel.

SHELLAC—Remains very quiet, and the demand slow in all positions, with only small sales on the spot, including TN Orange on a basis of 64s. cash terms. For arrival TN October-December steamer quoted nominally 64s. to 65s. c.f. and i.

SODA COMPOUNDS.—Crystals, barrels, 55s.; bags, 52s. 6d. per ton, ex-ship Thames. Ash, £5 to £5 10s. per ton, according to percentage, etc. Bicarbonate, commercial, £7 10s. to £8 10s. per ton; ditto fully bicarbonated, 19s. 6d. to 22s. 6d per cwt. Bichromate, $2\frac{3}{4}$d. per lb. Bromide, 2s. $1\frac{1}{2}$d. per lb. Caustic white, 70 per cent., £8 10s.; 60 per cent., £7 10s. per ton. Hyposulphite (Antichlor), 6s. to 8s. per cwt., according to make, quantity, and packing. Iodide, 11s. 10d. per lb. Nitrate, commercial, £7 15s.; refined, £8 per ton.

SODA CRYSTALS—Unchanged at 55s. per ton for barrels, and 52s. 6d. per ton for bags, ex-ship Thames.

SODA SALICYLATE.—The rumour of a possible advance in makers' price of Acid Salicylic also applies to the Soda.

SPICES (Various).—Black Pepper firm: Penang bought in at $5\frac{1}{4}$d. and Tellicherry at $5\frac{5}{8}$d.; no Singapore offered. White Pepper quiet but firm: Singapore bought in at $8\frac{3}{4}$d. and Penang at $8\frac{1}{2}$d. Capsicums: 20 bales Bombay sold, fair cherry pods at 29s. 6d., long stalky at 26s. to 27s. 6d.: 2 bales Natal bought in at 90s. Cassia Lignea: 100 cases China bought in, old import at 51s.: 13 bales Saigon also bought in, coarse quills at 55s. Cinnamon: 306 bags Ceylon offered, of which 56 sold, broken quill 9d., quillings 6d., featherings 6d.: chips and bark bought in at $5\frac{1}{2}$d. Mace: 4 cases Penang sold, good bright part wormy at 1s. 7d.: 12 packages West Indian sold, fair to good pale at 1s. 7d. to 1s. 9d., fair red 1s. 5d. to 1s. 6d. Nutmegs quiet: 5 cases Penang bought in, 64's at 2s. 4d.: 37 packages West Indian sold, 98's at 1s. 1d., 100's at 1s., 116's at $11\frac{1}{2}$d., 138's at $6\frac{1}{2}$d. Pimento quiet but steady: of 289 bags only 46 sold, fair to good at $3\frac{1}{8}$d. to 3 3-16d.

SULPHONAL—Unchanged, at 17s. per lb. from the maker, a little (some of it of doubtful quality) being obtainable from second-hand for rather less money.

TURMERIC—Remains quiet, and business is of an unimportant character, but prices are steady. Bengal quoted 18s. 6d., Madras fair to fine bright finger at 25s. to 30s., and Cochin split bulb sellers at 8s. 6d.

Newcastle-on-Tyne Chemical Report.

August 23, 1899.

Shipments of heavy goods to the Baltic and Mediterranean ports still keep this market fairly busy, particularly for Caustic Soda and Bleaching Powder. Both articles are somewhat scarce through smallness of stocks; prices firmly quoted. Rather more doing in Soda Crystals. Bleaching Powder, £5 10s. to £5 15s. Caustic Soda, 70 per cent., £8 to £8 10s. Soda Crystals, 45s. to 47s. 6d. Alkali, 52 per cent., £5 to £5 5s. Soda Ash, 52 per cent., £4 5s. to £4 10s. Sulphur, £4 17s. 6d. to £5 per ton.

Liverpool Market Report.

August 23, 1899.

Quotations still continue steady and the business done during the week has been of a substantial character. Considerably higher rates may be looked for in Olive Oils, which close very firm, particularly for Candia and Levant. Good sales of Chilian Honey have been effected at full prices, and Canaryseed has attracted more attention, having risen somewhat in price. In Chemicals, Caustic Soda, Borax and Ammonia Sulphate are still dear, whilst Sulphate of Copper for spring shipment is in more demand.

AMMONIA SULPHATE—Is scarce and dearer, £12 7s. 6d. to £12 10s. per ton.

BEESWAX.—42 blocks of Sierra Leone made £6 per cwt., and 9 bales of Gambia were disposed of privately.

BORAX—Is firm, £16 to £16 10s. per ton.

CANARYSEED—Is in better demand, fine quality Turkish has sold in small amounts at 39s. 6d. per 464 lbs. The price now is 38s. 6d. to 39s. 6d., according to quality.

COPPER SULPHATE.—Spot price, £23 10s. per ton; forward spring, £22 10s.

HONEY.—60 barrels, Pile 1, Chilian, sold for 24s. per cwt. Californian is very firmly held.

OILS (FIXED) AND SPIRITS.—Castor is in good demand; Calcutta is a shade higher, $2\frac{15}{16}$d. per lb.; French 1st pressure $2\frac{3}{4}$d.; 2nd pressure $2\frac{9}{16}$d; 2nd sulphur $2\frac{5}{16}$d. Madras $2\frac{3}{4}$d. per lb. Olive is very firm, with fair inquiry. In consequence of the poor reports as to crops in Candia the price has risen to £32 10s. and £33 per tun for Candia and Levant oil, and small sales have been made at the higher figure. Linseed Oil is very firmly held at 22s. 3d. to 22s. 6d. per cwt. Cottonseed Oil is steady at 18s. to 18s. 6d. per cwt. Spirits of Turpentine are now easier at 37s. per cwt.

POTASH SALTS.—Cream of Tartar is selling moderately at 75s. to 80s. per cwt. Saltpetre 22s. per cwt. Potashes 21s. to 21s. 3d. per cwt. Pearlashes 30s. per cwt.

SODA SALTS.—Bicarbonate £6 5s. to £6 15s. per ton. Caustic Soda, 76 to 77 per cent., £8 15s. per ton. Nitrate 7s. 6d. to 7s. 9d. per cwt.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns, some new. Particulars free. WARNES, Chemist, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. EDWARD FECK, East Dereham.

Half-plate Set, consisting of field camera (all movements), Swift roller-blind shutter, Ross's portable symmetrical lens, 8 by 5, three double slides, tripod case, and straps; new last summer. Cost £8 16s., price £6 10s.—GATWARD, Yeovil.

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Mahogany Pill Machine, gr. 3, Maw, Fig. 92. Suppository Mould, 1 doz., gr. 15, Maw, Fig. 48. Year-book of Pharmacy, 7 vols., bound, 1874-1880. Phillipps' Pharmacopœia, 1851. "Analyst," unbound, Vol. 22, 1897, Jan. to July, 1898. Gray's Supplement to Pharmacopœia, 1847, no index from "F." "Underwood's Celsus," 2 vols., interlineal translation. "Pharmaceutical Journal," unbound: Vol. 14, 1883-84; Vol. 15, 1884-85; June, 1882, with index, Vol. 12; January to June, 1883; July 4, 1885, to January 2, 1886; January to June, 1889.—MALLETT, 19, Caernarvon Road, Norwich.

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Good Vanilla Pods; also Daisy Powders. Lowest price.—EASTMAN, Forest Lane, Stratford, E.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

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SPECIAL ANNOUNCEMENT.

The Students' Number of the *Pharmaceutical Journal* will be published on September 9, and the Editor will be glad to receive any information regarding special courses of instruction for pharmaceutical students from the Principals or Secretaries of Schools and Colleges in the United Kingdom.

ENGLISH NEWS.

Camwal Outing.—On Saturday, August 26, the employees of the Bristol Branch of Camwal had their annual outing at Clevendon, for which place the party left Bristol in two four-horse brakes, a capital journey being made in fine weather. An excellent repast was provided at Wickenden's Restaurant by the manager, Mr. R. R. Groome, and after the repast the usual loyal toasts were drunk. Responding to the toast of "The Firm," Mr. Howe, of the Camwal office staff, said that according to a journal he had before him he noticed the Camwal train was passing under the bridge of success, and he hoped soon to see it had passed under the bridge of prosperity. Songs were rendered by Mr. Coomber Brookman and Miss Perrin (lady baritone singer) and others. After a very pleasant day Bristol was reached at 11 o'clock.

The Newcastle Infirmary Fund.—According to the *Newcastle Daily Chronicle*, amongst a number of circulars sent out by Mr. Riley Lord, the Chairman of the Queen's Commemoration New Infirmary Fund Committee, for financial assistance to obtain the full £100,000 as required under the terms of the late Mr. John Hall's will, before his £100,000 can be paid over, was one to Mr. J. C. Eno, of Wood Hall, Dulwich, S.E., formerly chemist and druggist in the Groat Market, Newcastle. Mr. Eno replied to the circular by asking what sum would be required to make up the £100,000, and he was informed that the amount needed would be £8,500. On Saturday morning, August 19, a cheque for that sum was received by Mr. Riley Lord and Mr. Sutton from Mr. Eno. Mr. Eno was a student at Newcastle Infirmary, and whilst at that institution wrote his name on the glass of one of the windows, and on receipt of the good news on Saturday, a mark was placed round the pane, so that it may be preserved as a memento of the generous donor.

The Size of Post-cards.—Mr. Henniker Heaton, M.P., has received an unofficial communication stating that his request that the postal authorities should permit the enlargement of the present restricted size of the inland post-cards has been granted and that the change will take effect on November 1. On the same date the issue of the small official inland post-card will be discontinued, and two kinds of official post-cards, of the same size as the foreign post-cards, will be issued by the Post Office. One of these will be white and the other buff in colour. It is understood that Messrs. De La Rue and Co., the contractors, have in a liberal spirit made very considerable concessions, which will result in a large saving to the Post Office. Mr. Hanbury, M.P., the Secretary to the Treasury, conducted the negotiations. The sale of the inland post-cards at their face value has not yet been conceded.

The Lists of Jurymen.—On and after September 1, for twenty-one days, the lists of persons liable to serve as jurymen in England and Wales will be exhibited on the doors of the churches and chapels and other public places of worship over the country. These lists are open to public inspection. Persons of 60 years of age and upwards are exempt from serving, as also are judges, magistrates, officers of the army and navy, members of the legal and medical professions, and pharmaceutical chemists. Unless objection is made to the overseers of the various parishes during September by persons who are exempt and whose names appear on the lists, their names will be returned to the Clerks of the Peace, and they will be liable to serve on special and common juries for the ensuing year. During the last week of September, the Justices will hold a petty sessions to correct the lists and to allow the notices of objection to the overseers.

Counterfeit Stamps on Scales.—At Worship Street Police Court, on August 28, Charles Toombes, 62, scale-maker, of Camden Street, Bethnal Green, who had been arrested on a warrant charging him with counterfeiting and using a die or stamp for stamping weighing instruments contrary to the Weights and Measures Act, 1878 and 1889, and Morris Shapnitzki, a butcher, of Wentworth Street, Spitalfields, appeared to a summons charging them with knowingly selling a certain weighing instrument bearing a counterfeit of the stamp used for stamping weighing instruments. —Mr. Andrews prosecuted for the London County Council, and Mr. Cox, an inspector under the Act, stated in evidence, that about March, 1898, it came to his knowledge, when making inspections of weights and measures in the district of Spitalfields, that certain scales and weights bore a counterfeited stamp. Acting on information, he called on Shapnitzki, who offered scales at 4s. and 4s. 6d. each stamped, or 6d. less unstamped. An arrangement which was come to led subsequently to the witness seeing Toombes in company of Shapnitzki, and to both of the accused arranging for the sale and stamping of scales. He also called at Toombes' place, and Toombes allowed him to see him stamp one of the machines with a die which had been used on the other machines. This die was produced and was found to be one of old use—bearing a crown, V.R., and the figures "388."—Mr. Andrews said this was a die allotted by the Board of Trade to the Dorking division of the county of Surrey. He called an inspector of that division, who said the number "388" was still in use, but the other form of the stamp had been altered since 1890. He had no doubt the die was one that had been in use prior to 1890. A question by Mr. Denyer, second clerk, elicited the reply that old dies were supposed to be broken up, but obviously the one in question had escaped official cognizance, how or in what manner was not known.—Mr. Corser thought that the evidence did not show guilty knowledge on the part of Shapnitzki, and he dismissed the summons against him. Toombes, who only pleaded that he had not counterfeited the die, but knew he had no right to apply it, was ordered to pay a fine of £10 and £5 5s. costs, or a month in default. Toombes was removed to prison, and the scales and die were forfeited.

A Surgeon Accidentally Poisoned.—An inquest has been held at the London and North-Western Railway Company's Hotel, Crewe, touching the death of Arthur Lucas Morgan, surgeon, of Swansea. He arrived at the hotel on August 18, and on the next day was found in his room breathing heavily. Mr. Lawrence was summoned, and found him suffering from opium poisoning, from which he died two hours later. It was stated that the deceased had been overworked and looked ill when seen by his friends last week. A verdict of "Poisoned by misadventure" was returned.

POISONING CASES.

Prussic Acid.—At Newport (I. of W.), on Thursday, August 24 an inquest was held with respect to the death of Robert Gibson Smith, 43, described as "proprietor of the well-known corner chemist's shop facing St. James's Square" (the name of Robert Gibson Smith does not appear on the Register of Chemists and Druggists for 1899.—Ed. *P.J.*), who was found earlier in the day suffering from prussic acid poisoning. Evidence was given by Dr. Dabbs, J.P., to the effect that deceased had complained that "his business worried him, through the position in which he was, not having passed his examination and obtained the proper certificate." A verdict of "Suicide whilst temporarily insane" was returned.

Opium.—The *Times* reports that on Wednesday, August 30, Mr. Wynne E. Baxter, the East London coroner, held an inquiry at the Bromley Sick Asylum into the circumstances attending the death of Elizabeth Bailey, aged forty-nine years, the wife of a dock labourer, who had died in that institution from the effects of opium poisoning.—John Bailey, the husband, stated that eighteen years ago his wife met with an injury, and ever since had been in the habit of taking opium pills.—The Coroner: How much opium did she take?—Witness: Well, I reckon it has cost me between £200 and £300.—The Coroner: What did she buy?—Witness: About threepennyworth every day.—A nurse, who attended to the woman on her admission to the infirmary, said she was in a drowsy, dreamy condition. In her pocket the witness found the box containing the piece of opium produced. The woman told her that she had been in the habit of taking the drug for thirteen years.—Dr. Donald Bruce said that the cause of death was exhaustion and weakness consequent on continual opium taking.—The Coroner observed that the box produced was not labelled, although opium was a scheduled poison. There was no actual proof as to where it was purchased, but whoever supplied the woman with the drug had broken the law. Taking opium to excess was ten times worse than taking too much alcohol. In this case it would be wrong to describe it as a natural death; it was the act of a person of unsound mind, and it would be ridiculous to say otherwise.—The jury expressed their concurrence with the Coroner's remarks, and returned a verdict of "Suicide whilst temporary insane." They requested the Coroner to draw the attention of the proper authorities to the apparent sale of opium without the necessary precautions under the Pharmacy Act having been carried out.

FRENCH NEWS.

The Antiseptic Influence of Light.—The purifying action of the solar rays, according to Marechale, is such that the spores of charbon (anthrax), one of the most redoubtable of known bacilli, are influenced to such a degree as to be rapidly rendered incapable of germinating. The bacteriæ, if not wholly destroyed by the light, are nevertheless sufficiently injured that the *ferments* or *toxines* which they secrete are greatly modified in their specific virulence. Frankland and Koch have each shown that the virulence of the tuberculosis and cholera bacilli is speedily nullified by the antiseptic action of solar rays. "This assertion," adds Monsieur Lacassague," should allay any fears respecting the homicidal *rôle* which phthisic individuals play in glazing the pavements of the streets with their expectorations; the sun happily steps in and becomes the vigilant guardian of the public health, destroying the virus where it would be difficult for the best organised body of hygienic police to effectually neutralise." There is much truth in the old Italian adage which says "*Dove non va il sole, va il medico*" (where the sun goes not, the doctor visits). Microbes, like all evil-doers, are the sons of shade and darkness.

Pure Water for Paris.—A preliminary analysis has just been made of the water filtered by the new basins of Ivry, which were inaugurated a few days ago. A cubic centimetre of the water under examination revealed an average of 269 bacteriæ, whereas the average of the best drinking water with which Paris has hitherto been regaled has been between 1,200 and 1,500 bacteriæ per cubic centimetre. The latter figures are insignificant when one compares them with the average number of bacteriæ contained in a cubic centimetre of unfiltered Seine water, which amounts to 50,000. This fact makes one shudder to think of the millions of microbes which were contained in a single glassful of this water, which from time to time in dry seasons the City of Paris beneficently "turned on" to wet citizens' parched whistles with before the construction of the filtering basins of Saint Maur and Ivry. Now they can take their fill without fear of being swamped with typhoid and diphtheria bacteriæ at every mouthful.

The Röntgen Rays have been tried to see whether they have any influence on the growth of plants. Sachs has found that the blue, violet, and ultra-violet rays of the solar spectrum incite the tendency of plants to curve towards the sun, in other words, "heliotropic curvature," whereas the red, yellow, and green rays appear to be inactive. Herr Schober took young oak plants, and submitted them to the Röntgen rays for an hour, but found no alteration in their curvature. After exposure to ordinary daylight for the same length of time, however, a notable increase of curvature was seen. An account of his experiments was given to the German Botanical Society; but obviously his experiment was not so satisfactory as it would have been with a longer exposure of the plants to the X-rays.

Herren Wiedemann and Schmidt have found that the vapours of alkaline metals are fluorescent in the sunlight. As the atmosphere of the sun coutains the vapours of these metals, the discovery is important in solar physics and the interpretation of the solar-spectrum.

Kidnapped from a Paris Hospital.—A day or two ago a girl waited outside one of the Paris hospitals the hour when the public were admitted to visit their friends. She had a baby eleven months old in her arms, her little brother, whose mother was a patient in the institution. A woman, up to the present unknown, who had seated herself beside the girl, entered into conversation with her, and offered to take charge of the baby whilst the girl went to visit her mother. This was agreed to. But when the sister came back the woman had disappeared with the baby. After waiting for some time in vain, the girl informed the police, and an investigation was at once set on foot. That same night the police on duty in the Rue de Charenton found a baby fast asleep lying in a doorway, and took it to the police depôt, whence it was conveyed to the *Enfants Assistés*. The friends of the missing baby were advised of the discovery and came to inspect the child, which, to their joy, they found to be the lost one.

Fire at a Stearin Works.—On Sunday afternoon a big fire broke out at half-past two at the works of the "Stearinerie Française le Phenix," 106, Rue du Laudry, plaine St. Denis, in the environs of Paris. The fire originated in the saponifying department of the works, and is supposed to have been caused by the escape of gas from the fittings in course of repairs. The fire spread with alarming rapidity, and threatened at one time to envelop the adjoining structure, which contained a quantity of explosive material. Happily the fire brigades from St. Denis, Paris, and Aubervilliers were quickly on the spot, and succeeded in preventing the fire from extending to the annexe. After three hours' hard work the flames were finally overcome, but not before considerable damage had been wrought. The loss is enormous, but the premises are said to be fully insured. Two of the firemeu, Sergeant Debonue and Fireman Harbilleau, of the St. Ouen brigade, were seriously injured, and after receiving first aid from a distant pharmacien were conveyed to their respective abodes. Of late St. Denis, which is a sort of French Widnes or St. Helens, has been the scene of no small number of like mishaps.

Supply of Anti-Plague Serum in Paris.—It appears that the demands for Anti-Plague Serum at the Laboratory of the Pasteur Institute have been coming in during the past week to such au extent that some little fear was entertained as to the possibility of meeting them all. Dr. Metchnikoff, however, gives the assurauce that the supply is ample at present for Portugal, Spain, Italy, and Turkey, and all demands hitherto received can be met without drawing on the reserve, which is kept in view of the necessity for its use arising at any moment in Paris and the proviuces. As a matter of fact, the Pastcur Iustitute has for four years past been preparing the serum, although the regular authorisation to prepare it only appeared a few days ago in the *Journal Officiel*. The first expeditions of anti-plague serum were to Réunion, and during the past few days a supply has been sent to Portugal. The Anti-Rabique Serum was the first to be prepared, and may be said to be universally known. Then came the Anti-Tetanique Serum, of which the consumption is somewhat large, especially so since cycling has become such a craze, for many are the "spills" resulting in superficial grazing of hands, legs, noses, etc., too trivial apparently to pay much attention to, but which often enough, by virtue of their exposed condition, offer au excellent ground for the germs of tetanus carried by the dust, etc., to develop upon. The third is the Anti-Diphtherique Serum, which has already been instrumental in saving thousands of young lives from the clutches of that dreadful infantile malady, croup. The fourth and last is the Anti-Pesteux, or Anti-Plague Serum, the consumption of which bids fair to be the highest of all. But one serum which is greatly needed in France at the present moment for a disease which is peculiar to the French, and whose effects may yet be appalling unless a remedy be quickly discovered, is au "Anti-Anti-Semitique Serum." If the besieged patriots of the illustrious "Fort Chabrol," the headquarters of the "Anti-Jewish" journal, had but had a few injections of such a panacea, typhoid fever, the result of their being besieged in such an insanitary abode, would not be laying them low as it is now doing. No! this Anti-Jewish fever greatly needs a counteracting serum.

IRISH NEWS.

"**Laudanum Poisoning**, acting upon a weak heart," was the cause of death found by the jury in the case of a woman named Margaret Sinclair, Belfast. Her husband, a seaman, witnessed that she had taken laudanum once before, necessitating medical treatment.—William Hall, a lodger, held a policy of insurance on her life. The latter called in a woman, who stated that on her entering Hall took two bottles, labelled "laudanum," from a drawer and flung them through the open window, whereupon she told him they should have been kept for the doctor. There was no evidence of suicide, nor did the jury state by whom the poison was administered.—Dr. Calwell considered that further restrictions should be placed upon the sale of laudanum by its inclusion in Part 1 of the Schedule, and the "absolute necessity" of doing so was endorsed by the jury.

Sir Charles Cameron has writteu to the Kilkeel Board of Guardians, who revoked his appointment, that his services would still be available gratis as an analyst of water, liquor, etc. The Board have, however, advertised for an analyst at £10 a year.

Mr. J. A. Stewart, M.P.S.I., Ava Buildings Pharmacy, Ormeau Road, Belfast, is extending his business to new premises on the Dublin Road.

AUSTRALASIAN NEWS.

(From Our Melbourne Correspondent.)

The Lapsed Poisons Amendment Act of last Session has again made its appearance in the Victorian Parliament, this time in the Upper House, where it was introduced on July 5, and read a second time on July 11. With the exception that cyanide of potassium is expressly withdrawn from the exemption previously provided for photographic materials, and for mining purposes unless sold in quantities of not less than 56 lbs., the measure is almost identical with that of last year. Fortunately Victorian pharmacists have in the Hon. F. S. Grimwade (of Felton, Grimwade and Co.), a representative in the House both able and willing to champion the amendments which are considered necessary to lick the Bill into workable shape; and while reserving his full strength for the committee stage, Mr. Grimwade in a very exhaustive speech on the second reading, showed conclusively that in its present form the Bill fell very far short of what it was intended to secure—the safety of the public.

As they Stand in the Bill at present, the exemptions (Clause 4) read as follow:—"(*a*) Patent or proprietary medicines; (*b*) photographic materials (others than cyanide of potassium) for the purpose of photography; or (*c*) cyanide of potassium to be used for mining purposes, if sold in quantities of not less than 56 lbs.; or (*d*) medicines dispensed by registered veterinary surgeons for animals under their treatment; or (*e*) poisoned seed for the destruction of vermin (within the meaning of the Vermin Destruction Act, 1890); or (*f*) packets of poisonous mixture for the destruction of vermin other than vermin mentioned in paragraph (*e*); or (*g*) fly-poison papers; or (*h*) poisons by wholesale dealers in the ordinary course of wholesale dealing where an order in writing signed by the purchaser has been given for the supply of the same."

Subject to the Provision contained in Sub-section 2 of the clause, which requires that certain precautions shall be adopted, and that a record of the sales shall be kept, these poisons may be sold by any person. The sub-section referred to reads:—"Every sale of any materials or articles mentioned in this section, and which consist of or contain any poison, shall at the time of sale and before delivery be entered by the person who sells the same, or by any employé, assistant, or apprentice of such person, in a book, together with the date of sale, the quantity and nature of materials, or articles sold, and the name and place of abode of the purchaser; and no such materials or articles consisting of or containing any poison shall be sold or delivered unless the bottle or other vessel, wrapper, or cover, box, or case immediately containing such materials or articles bears the word "Poison" printed conspicuously thereon, together with the name and address of the seller thereof."

Referring specially to the paragraph (*f*), exempting packets of poisonous mixtures for the destruction of vermin, Mr. Grimwade drew attention to the large number of deaths resulting from the unlicensed sale of poisons, such as Vermin Killer and Rough on Rats, and maintaining that these articles should only be sold by chemists—although he felt inclined to go the length of making it absolutely illegal to sell them because of their dangerous nature. He intimated his intention of proposing an amendment which would remove these poisons from the list of exemptions, and among others one that would enable regulations to be framed for the safe custody as well as the sale of cyanide of potassium, which is at present allowed to lie about the mines using it very much as if it were as harmless as a bag of sugar.

Mr. Grimwade, illustrating his arguments by reference to the admirable provisions of the *Code Napoleon*, forcibly pointed out that one of the greatest dangers that confront all English communities is the licence with which various articles called patent or proprietary medicines are sold. "Of all the civilised countries of the world," said Mr. Grimwade, "England and her colonial dependencies and the United States of America are the only countries where people are allowed to flood the market with these alleged remedies, some of which may be good, but many of which are worthless, and for which, by stupendous advertising, a demand is created. If the Government had gone further, and appointed a Commission to investigate and deal with the sale of patent medicines, they would have done a good thing, and I should have supported them, because I think that one of the greatest evils of the present day is the extent to which the sale of patent medicines is advertised." Coming from the source they did, Mr. Grimwade's criticisms evidently impressed upon the House the deep importance of the questions at issue, and strong hopes are entertained that many of the amendments desired by the Pharmacy Board will be effected before the measure makes its appearance in the Legislative Assembly.

In the Matter of the proposed Victorian Pharmaceutical Conference, referred to in my last, the Committee report having secured the services on the General Committee of such prominent gentlemen as Messrs. F. S. Grimwade, Tompsitt, H. Francis, F. Cheshire, A. J. Owen, R. P. Francis, Church, Witt, Rankin, Woolnough, and Drs. Plowman, Cole, and P. Ward Farmer, Messrs. Shillinglaw and Turner have undertaken to act as joint honorary secretaries, and Mr. Witt has been appointed chairman. A subcommittee, consisting of Messrs. Cheshire, Woolnough, and Rankin, has been appointed to prepare a list of preparations to be submitted to the General Committee; and a letter embodying the objects of the Conference is being forwarded to all registered chemists in the colony.

The Australasian Association for the Advancement of Science, which held its last meeting in Sydney at the beginning of 1898, will hold its next session in Melbourne in January next. The meetings will be held at the University under the presidency of R. L. J. Ellery, Esq., C.M.G., F.R.S., F.R.A.S., commencing on Tuesday, January 9, and will be continued throughout the following week. The work of the session is divided between ten sections, as follows:—Section A, astronomy, mathematics and physics; section B, chemistry; section C, geology and mineralogy; section D, biology; section E, geography; section F, ethnology and anthropology; section G, economic science and agriculture; section H, engineering and architecture; section I, sanitary science and hygiene; section J, mental science and education. In addition to the meetings of the sections, arrangements are in progress for evening lectures and entertainments, and for excursions to places of interest. Mr. A. W. Craig, M.A., and Mr. D. McAlpine, members of the teaching staff of the College of Pharmacy, have been appointed secretaries to sections B and G respectively, and will be glad to receive the offer of contributions of papers on any subject of pharmaceutical or general scientific interest from any part of the world.

The Contest for the two vacancies on the Pharmacy Board of New South Wales has resulted in the re-election of Mr. J. C. Hallam (226 votes), and the election of Mr. C. A. Marshall (205 votes); their opponents, Messrs. H. A. Rose and G. S. C. Wells scoring respectively 153 and 133 votes. The voting at this election reveals a very regretable amount of apathy, as out of 680 voting papers issued only 386—a little more than half—were returned, and owing to careless filling up 28 of these were declared informal. The vacancy on the Council of the Pharmaceutical Society of New South Wales, caused by the retirement of Mr. Willows, has been filled by the election of Mr. W. G. Bladon.

The Pharmaceutical Society of South Australia held its annual meeting on July 11, when a very gratifying report was presented. Instead of four students, as in 1895, there are now thirty-one attending the classes. The balance-sheet showed the following figures:—Receipts: Subscriptions, 1898-9, £124 14s. 6d.; University fees, etc., £231 12s. 6d. Disbursements: University fees, £102 2s. 1d.; Board fees, £62 9s. 6d.; journals, printing, and sundries, £59 14s. 4d. After providing for all liabilities, a credit balance is shown o £170 18s. 4d.

The Poll recently taken in New Zealand to determine where the headquarters of the Pharmacy Board should be located resulted in favour of Wellington, for which 127 votes were cast as against 120 for Christchurch. Mr. George Mee, the Wellington member of the Board, is on his way to England for a few months' trip.

At Auckland, last month, several members of a company carrying on business under the name of the African, Pacific, and

Indian Hagey Company, for cure of drunkenness and smoking, were sued by one Harrison for £2,000 damages for alleged breach of contract. The plaintiff, it was represented, had been induced to put £2,000 into the company and exploit Tasmania with the "cure." An agreement had been entered into; but the plaintiff had reserved to himself the right to call his money back again if the business in Tasmania was not satisfactory. Before he left for Tasmania he asked for a supply of the remedies and instructions for their use. He was told they would follow him. He got them in Sydney, and after reading the instructions his ardour cooled somewhat as regards the success of the drink cure. Doubts having arisen in his mind, he returned to Auckland, and demanded his £2,000 worth of stock, as he was not satisfied. The partners told him he was premature, and he was persuaded to try business in Tasmania. The Tasmanians, however, were not at all eager after the Hagey cure, and after a month's stay he returned to Auckland, not having had a single patient. After evidence had been taken, the jury returned a verdict for the amount claimed, with costs on the highest scale.

TRADE NOTES.

Microscopic Stains.—Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., have recently introduced a series of microscopic stains in the form of soloids, comprising gentian violet, methylene blue, eosine, Bismarck brown, and fuchsine. The tendency of solutions of the aniline dyes to decompose has always been a source of trouble in microscopic work, but the introduction of these stains enables such solutions to be prepared in small quantities when required. The method of preparation is as follows:—A saturated watery solution of fuchsine, methylene blue, gentian violet, or Bismarck brown, is obtained by powdering one soloid, adding 7 C.c. (two drachms) of distilled water, and then shaking well. Five to ten per cent. dilutions with distilled water of these saturated solutions may then be used for ordinary staining purposes. Thus one drachm of saturated solution made up to two drachms with distilled water gives 1 in 17, or a 6 per cent. solution. A saturated alcoholic solution of methylene blue, gentian violet, or Bismarck brown may be obtained by treating in the same way one of the soloids with a similar quantity of absolute alcohol instead of distilled water. A saturated alcoholic solution of fuchsine is obtained by treating two soloid preparations with 3·5 C.c. (one drachm) of absolute alcohol. To obtain a solution of eosine suitable for general staining one of the soloids should be dissolved in 12·25 C.c. (three drachms) of 50 per cent. absolute alcohol in distilled water. This gives approximately a 0·5 per cent. solution. The soloids are put up in tubes of six, containing one grain each.

Messrs. Burroughs, Wellcome and Co. also submit a specimen tube of holocaine hydrochloride tabloids, gr. 1/50, which have been introduced for use in ophthalmic surgery. The tabloid preparation has been introduced to do away with the objection that solutions of holocaine quickly undergo decomposition and rapidly deteriorate in therapeutic value. They are issued in tubes containing twenty-five.

Thermometers, etc.—Messrs. F. Darton and Co., 142, St. John Street, London, E.C., send a specimen copy of their trade price list of thermometers, and intimate that they will be pleased to forward a copy of the list, post free, to any of our readers. Messrs. Darton also send particulars of "The Luminous Lamp," an ingenious contrivance for use in the bedroom, smoke room, or anywhere where a light may be required instantaneously for a short time. The lamp, when charged, will light, by a simple pressure of the finger, about 3,000 times, and can be recharged in one minute. It is said never to get out of order, and to last a lifetime. The price of the lamp complete, with bottle of charging salts, is 10s. 6d.

Cocaine for the Stings of Bees and Wasps.—A correspondent to *Nature* states that the local application of cocaine solution is an effectual remedy for the stings of bees and wasps; not only does it relieve the pain, but it appears to act as a direct antidote to the poison.

THE PURITY OF FOOD AND DRUGS.

Almond and Camphorated Oils.—In his quarterly report the Birmingham analyst (Dr. Alfred Hill) states that three samples of almond oil out of twenty examined were certified to be adulterated. One contained 75 per cent.. another 50 per cent., and the third 100 per cent. of peach kernel oil. In the first two cases a fine of £1 and 8s. costs was inflicted, and in the other the prosecution was withdrawn owing to a technical error in the wording of the certificate. Thirteen of nineteen samples of camphorated oil received were prepared with olive oil, and contained about the right proportion of camphor; another contained 10 per cent. too little camphor. Two samples were prepared with a cheaper vegetable oil, but were not deficient in camphor. Three samples were made from mineral oil, one of them containing a very small quantity of camphor. The sale of common lubricating oil, scented with camphor oil is, Dr. Hill states, a cruel fraud, as the medicinal properties of such a preparation are very slight. One fine of £5 and four of £3 were inflicted.

Camphorated Oil.—On Saturday, August 19, at Bedford Division Petty Sessions, Edward Gaunt, of Turvey, was summoned for selling camphorated oil which was not of the substance and quality demanded, being deficient in camphor to the extent of 15 per cent. The county analyst having certified that the sample consisted of 82·2 per cent. of olive oil and 17·8 per cent. of camphor; whereas according to the British Pharmacopœia, it should have contained at least 21 per cent. of camphor. Mr. Clare, who defended, argued that camphorated oil was not a drug. The inspector did not ask for oil containing any particular proportion of camphor, and he urged that this part of the certificate was *ultra vires*. Probably, he continued, the oil was originally up to the standard, for at the bottom of each of the twelve penny bottles purchased there would be more camphor than oil in the sediment which remained. The defendant, he might mention, was the manager of the Turvey branch of the Bedford Co-operative Society, and as a matter of fact the bottles in question were sent there by accident. It was intended that they should be recalled on account of a mistake in the composition. Defendant was fined £1 and costs.

Seidlitz Powders.—On Wednesday, August 23, at Leicester Police-court, Albert Davenport, grocer, of Great Wigston, was charged with selling seidlitz powders, of which the acid portion in the white paper instead of consisting solely of tartaric acid, contained 12 per cent. of alum, which, as an ingredient, the county analyst considered injurious.—Defendant said he thought the powders were genuine.—A fine of £2 7s. 6d., including costs, was imposed.

Self-Rising Flour.—Before the Manchester Stipendiary Magistrates recently, Annie Moffit, grocer and provision dealer, Tamworth Street, Stretford, was charged with selling 1 lb. of self-rising flour which was alleged to contain ingredients injurious to health, Dr. Bell, of Liverpool, having certified that the flour contained 170 grains of alum, 140 grains of bicarbonate of soda, and 65½ grains of salt per pound of wheat flour. To his certificate Dr. Bell added the following:—"No change had taken place in the constitution of the sample that would interfere with the analysis. Alum is an astringent drug, of which the maximum dose is 10 grains. In food it is injurious to health, whether mixed with bicarbonate of soda or not. The quantity present in this sample is excessively large, and its use in self-rising flour is quite unnecessary, and very unusual."—Dr. Campbell Bell was present at the hearing of the case, and stated that he had personally made the analysis, and believed it to be correct.—Mr. Chorlton, for the defendant, said a portion of the same sample had been analysed by Mr. William Thompson, who was prepared to state on oath that there was no alum in the flour at all.—As there appeared to be a serious conflict of evidence, the magistrates ordered that a portion of the sample be forwarded to Somerset House for analysis, and adjourned the case pending the arrival of the certificate from the Somerset House authorities.—On Thursday, August 10, the solicitors engaged in the case again attended the court, and Mr. Yates (the stipendiary) said that the certificate from Somerset House had arrived, and it showed that the self-rising flour in question was free from alum.—Mr. Chorlton, for the defendant, contended that the case ought to be withdrawn, and costs allowed to his client, but it was eventually decided to adjourn the matter to September 7.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

AUGUST 31, 1899.

Business has been quiet during the past few days, while there are few changes to record. Quinine has had another slump, while Quicksilver is dearer, and as a consequence, an advance in makers' prices for mercurials has taken place. Linseed Oil and Rape Oil are dearer; Rosin is also quoted higher. Otherwise, there are practically no alterations to report in value of articles usually noticed in these columns.

The following are the prices ruling for some articles of chief interest:—

ACETANILIDE—Continues dull and weak at 11d. to 1s. 2d. per lb., according to quantity, etc.

ACID BORACIC—Steady, and without alteration in price.

ACID CARBOLIC.—Market is quiet, but firm, at 7d. to 7¼d. per lb., according to make, quantity, and packing, for the 35-36°C. ice crystal, other qualities being also unchanged at proportionate prices. Crude, 60°F., 2s. per gallon; 75°F., 2s. 6d. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. per gallon in 40-gallon casks.

ACID CITRIC—Quiet and slow of sale at 1s. 6d. to 1s. 7d. per lb., according to make, for crystals in 5 cwt. casks.

ACID OXALIC—Steady at unchanged rates.

ACID TARTARIC—Unchanged.

AMMONIA COMPOUNDS.—There are no changes of any importance from the prices given last week.

BLEACHING POWDER—Is quoted 10s. dearer at £6 10s. per ton for English.

BORAX—Quiet and unchanged.

BROMIDES AND BROMINE—In fair demand at unchanged prices.

CAMPHOR—Has been very quiet, and there is no change to report either in Crude or in the Refined article.

CLOVES.—Privately Zanzibar quiet but steady; small sales comprising Oct.-Dec. delivery at 3 5-32d., and Jan.-March at 3 3/16d. No Zanzibar or Penang were offered in auction.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 2d. per gallon; pure, 2s. Benzole, 50 per cent., 9½d. per gallon; 90 per cent., 8d. per gallon. Creosote, 3¼d. per gallon. Crude Naphtha, 30 per cent., at 160° C., 3¾d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 5d. per gallon; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene, 4d. per unit; B., 2¾d. Pitch, 35s. per ton f.o.b. Tar, crude or refined, 13s. per barrel; 2¼d. per gallon.

CODEINE—Is very firm at 12s. 6d. to 12s. 9d. per oz. for the pure, and 1s. per oz. less for the salts.

COD LIVER OIL.—There has been practically no business doing in the article during the past few days.

CREAM OF TARTAR—Quiet.

ERGOT OF RYE—Is extremely scarce, and very high prices are asked, up to 2s. to 2s. 6d. per lb. for sound Russian, and 2s. 6d. to 3s. per lb. for Spanish, for the comparatively small lots which are offering in this market. It would appear possible that even higher prices may rule for this article in the not too distant future, before any reduction in value can take place.

ESSENTIAL OILS—Have been extremely quiet, with very little business passing, while there are no changes in value of any particular importance to record.

GALLS.—The demand for all descriptions shows no improvement, but prices are generally steady. China nominal in the absence of business; usual shape quoted 59s. Persian Blues and Greens have met with a moderate inquiry, but few sales have resulted, holders remaining firm. The reports of the new crop are favourable; Blues quoted 62s. 6d. to 65s., Greens 56s. to 57s. 6d., and Whites 50s. to 52s. 6d. Smyrna and Morea are in slow demand, with few sales passing.

GINGER.—Cochin, in moderate supply, found slow demand. 709 bags rough offered and 179 sold; Calicut rough, good bold bright, some medium slightly mouldy at 26s., washed medium and small bright plump at 22s., small and shrivelled part mouldy at 19s., fair cuttings at 15s. 6d. Of 64 cases cut kinds 16 cases sold, fair medium cut and scraped 50s., small ditto but mouldy at 26s. Small supplies of Jamaica sold steadily, fair to good at 65s. to 69s., good common to middling 54s. to 60s.

GLYCERIN.—Refined is quiet and unchanged in spite of the continued firmness of the Crude article.

IODIDES AND IODINE—Steady and without change.

MERCURIALS.—In consequence of the advance in price of Quicksilver makers of mercurials advanced their price on Saturday 1d. per lb. to 2s. 11d. per lb. for Calomel, and 2s. 7d. per lb. for Corrosive Sublimate.

MORPHINE—Continues firm and scarce for prompt delivery, at 4s. 9d. to 5s. per oz., according to quantity, for the Hydrochlorate powder, the Crystal salt costing 2d. per oz. more money.

OILS (FIXED) AND SPIRITS.—Linseed very firm. London spot pipes, £21 10s.; barrels, £21 12s. 6d.; September-December, £21 5s. to £21 7s. 6d.; January-April, £20 10s. to £20 12s. 6d. Hull, spot naked, £20 12s. 6d.; September, £19 15s.; January-April, £19 5s. Rape firm; ordinary brown spot and September-December, £23 5s. Refined spot, £24 15s. Ravison naked spot and September-December, £20. Cotton quiet. London crude spot and September-October, £16 10s. Refined spot, £17 15s. to £19 10s., according to make. Hull naked refined spot, £15 17s. 6d. September-October, £15 15s.; November-April, £14 10s. Crude spot, £14 17s. 6d.; November-April, £13 5s. Castor oil dearer. Belgian, first pressing spot, £26; second pressing spot, £23 10s. per ton, ex wharf. Hull manufactured, guaranteed cold drawn pure Pharmaceutical quality, £28 per ton in barrels, 3 5/16d. per lb. in cases. Pure firsts, £25 10s.; seconds, £24 per ton in barrels; firsts, 3d. per lb. in cases; seconds, 2⅞d. per lb. in cases for prompt delivery, ex wharf, London. Turpentine: Market opened depressed and weak, 32s. 9d. per cwt. being accepted for spot and September-December; prices, however, speedily recovered, but in absence of buyers the recovery was hardly maintained at the close, quotations being—American spot, 33s. 1½d. to 33s. 3d. per cwt.; September-December, 33s. 4½d.; January-April, 34s. 3d. The other articles usually quoted under this heading remain quiet and practically without change in price.

OPIUM.—Market in London remains quiet at nominally unchanged to slightly firmer prices. In Smyrna, towards the end of last week, 100 cases were sold to the Dutch Government at 8s. 9d. per lb, and early this week further 100 cases are reported to have changed hands at 2d. per lb. advance for manufacturing kinds.

PHENACETINE—Continues weak at 3s. 6d. to 3s. 9d. per lb., according to quantity and packing, for both crystals and powder.

POTASH COMPOUNDS—Are quiet and without any particular alterations in values.

QUICKSILVER.—The importer late last week advanced his price, which is now £8 12s. 6d. per bottle; while second-hand quotes £8 12s. A further advance is considered not improbable.

QUININE.—Makers last week reduced price to 1s. 2d. per oz. for the favourite German brands, B & S. and Brunswick, while price of Howard's Sulphate has also been reduced to 1s. 5d. per oz. for vials in 1,000 oz. lots. In the speculative market a few thousand ounces have changed hands at 1s. 0½d. per lb. for best German Sulphate on the spot, and 1s. 0¾d. to 1s. 1d. per oz. for December delivery, the market closing with a rather steadier tone.

ROSIN—Dearer at 4s. 6d. per cwt. for strained on the spot, and 4s. 1½d. to 4s. 2d. per cwt., ex-ship terms for September-October and November-January shipment per sailing vessel.

SEEDLAC—Slow of sale, and 43 bags Kurrachee in auction were all bought in.

SHELLAC.—There has been a fair inquiry on the spot, resulting in sale of about 300 cases at steady rates, including TN Orange, on a basis of 64s. for fair, short prompt. The Future market continues neglected; quotations are, therefore, uncertain. The Calcutta market remains firm. These auctions to-day produced small supplies of Second Orange, which met a fair demand at about steady previous sales' rates, standard TN value 64s. Garnet quiet, and all bought in. Button was offered chiefly in small lots, and partly sold at fairly steady prices. A total of 497 cases was offered and 228 cases sold. Second Orange: Of 358 cases 183 sold, strong flat bright reddish at 64s., fair curly at 64s., middling to fair reddish

livery at 63s. to 64s. Garnet: 42 cases offered and bought in, pale ruby flat weakish at 64s., and blocky Rangoon. Button: Of 97 cases, 45 sold, fair firsts at 72s. 6d., blocky to fair seconds at 64s. 6d. to 67s. 6d., ditto thirds at 60s. to 62s. 6d., blocky chips at 60s.

SODA COMPOUNDS—Remain quiet and without any special changes in values.

SPICES (VARIOUS).—Black Pepper: 23 bags Singapore sold at 5½d. and 15 bags Aleppy at 5⅜d. Penang bought in at 5¼d. White Pepper firm; 52 bags Singapore bought in at 10d. to 10½d. Chillies steady; 102 bags Natal sold, fair to good bright at 36s. to 40s. 6d., ordinary dull, part perished, at 28s. 6d. to 31s. Capsicums dull; 151 bales Bombay bought in; fair bright cherry pods at 30s. to 32s. Mace: 40 packages West Indian sold, fair to good pale at 1s. 7d. to 1s. 9d., ordinary to fair red at 1s. 4d. to 1s. 6d., broken at 1s. 3d. Nutmegs: 133 packages West Indian sold, 70's, 1s. 9d. to 1s. 10d.; 80's to 85's, 1s. 5d. to 1s. 6d.; 92's, at 1s. 3d., 101's to 114's, 11½d. to 1s. 1d.; 134's, 8½d. Pimento quiet, but firm; of 305 bags, only 55 sold, fair at 3¼d.

STICKLAC—Remains quiet. In auction 66 cases offered and bought in, fair Saigon at 45s., and unsifted Siam, part small and woody, also at 45s.

SULPHATE COPPER—Is slightly easier in tone, quotations being nominally £23 17s. 6d. to £25 per ton, according to make, etc.

SULPHONAL—Remains practically unchanged, there being still offers at prices below maker's figure of 17s. per lb. for crystals or powder.

TURMERIC.—In auction nothing was offered, and privately but little business is passing, demand being slow for all descriptions; while prices show no quotable change at 18s. 6d. per cwt. for Bengal, 25s. to 27s. 6d. per cwt. for fair to good bright Madras Finger, and 8s. 6d. per cwt. for Cochin split bulbs.

To-day's drug auctions passed off very quietly, a large proportion of the lots offered failing to find a buyer. There were no changes in value of any special importance.

ACONITE ROOT.—10 bags good Japan root were bought in at 28s. per cwt.

ALOES.—Eight cases fine East Indian in monkey skins were taken out at 70s. per cwt. Eighteen cases fair, bright, hard Cape part sold at 25s. 6d. to 26s. per cwt., while two cases low, soft, and drossy were taken out at 18s. per cwt.

ANNATTO SEED.—For one bag an offer of 1d. per lb. was to be submitted.

ARECA NUTS.—Ten bags of good sold cheaply at 21s. per cwt.

ARGOL.—2 bags Cape bought in at 37s. per cwt.

ASHPALTUM.—Eighty-six cases Syrian were bought in at 31s. 6d. per cwt.

BALSAM PERU.—Five cases good quality, but rather dark in colour, taken out at 8s. per lb.

BALSAM TOLU.—Four cases bought in at 1s. 3d. per lb.

BUCHU LEAVES.—Eight bales part sold at 6¼d. per lb. for good green leaves.

CAMPHOR OIL.—280 cases dark Japan were taken out at 35s. per cwt.

CARDAMOMS.—Of 59 cases Ceylon part sold at 2s. 6d. for fair quality; while fine bold were held for 3s. 2d. to 3s. 6d. per lb., a bid of 3s. 1d. being declined. Lower qualities were bought in at 2s. 2d. down to 1s. 6d. per lb.; other 54 cases sold freely at 1s. 5d. up to 2s. 7d. per lb. for low to fair medium. Other 72 cases part sold, realising up to 3s. per lb. for fine bold. Other 94 cases sold at 3s. 1d. for fine bold oblong Ceylon Mysores. Seeds sold at 2s. 1d. to 2s. 4d. per lb.

CASTOR OIL.—20 cases fair Calcutta were taken out at 3¾d. per lb.

CINCHONA BARK.—20 serons Crown bark sold at 7d. to 11d. per lb. for sound, and 6d. per lb. for damaged.

CIVET.—5 horns all bought in at 10s. per oz.

COCCULUS INDICUS.—85 bags fair quality were taken out at 9s. per cwt.

COLOCYNTH.—6 cases good pale Turkey taken out at 1s. 6d. per lb. Rather less would, however, probably have been accepted, while for other 20 cases 1s. 7d. per lb. was the price required.

COLOMBO ROOT.—7 bags of fair quality were taken out at 40s. per cwt.; 58 bags dark sorts all sold at 13s. 6d. per cwt.

CROTON SEEDS.—12 bags of rather dull appearance were held for 60s. per cwt.

CUS CUS ROOT.—Eight bales, very sandy, were bought in at 25s. per cwt.

DRAGON'S BLOOD.—Nine packages drop, rather woody, were taken out at 90s. per cwt.

ERGOT OF RYE.—8 bags good sound Spanish was bought in at 2s. 6d. per lb. For another lot of 9 bags an even higher price was mentioned, the article being apparently very scarce.

ESSENTIAL OILS.—15 cases Ceylon Citronelle were bought in at 1s. per lb. Five cases China Star Aniseed at 6s. 3d. per lb. Two cases West Indian Oil of Orange at 10s. per lb. Three cases Neroli Bigarade at 2s. 6d. per oz.

FŒNUGREEK SEEDS.—125 bags yellow taken out at 6s. 6d. per cwt.

GENTIAN ROOT.—Thirty-four bags of cut root taken out at 15s. per cwt., while for 20 bales good whole root 14s. 6d. per cwt. was price required.

GUM AMMONIACUM.—One case of good fair quality bought in at 30s. per cwt.

GUM ARABIC.—4 cases picked gum were taken out at £6 10s. per cwt. 36 bales Turkey sorts at 47s. 6d. to 75s. 5 cases grains at £6 12s. 6d. per cwt.

GUM BENZOIN.—75 cases were all bought in at 47s. 6d. to 60s. per cwt. for medium to fair Palembang, and £8 15s. for medium to fair seconds Sumatra.

GUM CHICLE.—Five bales of fair quality were sold at 8¼d. per lb.

GUM GALBANUM.—15 packages bought in at 9d. to 1s. 3d. per lb.

GUM GUAIACUM.—19 packages part sold at 10d. to 1s. 2d. per lb. for fair, 1 case being bought in at 2s. per lb.

GUM KINO.—3 cases were bought in at 3s. 6d. per lb. for fair Cochin, 1 case good black selling cheaply at 2s. per lb.

GUM MASTIC.—Nineteen cases, all bought in at 1s. 7d. to 1s. 9d. per lb.

GUM MYRRH.—Of 7 cases 1 case pale, rather soft, sold at 35s. per cwt., while 4 bales dark realized 25s. per cwt. Good sorts were bought in at 65s., and siftings at 40s. per cwt.

GUM THUS.—5 casks were bought in at 12s. per cwt.

GUAZA.—29 Robbins fair tops were bought in at 3¾d. per lb.

HONEY.—2 casks liquid West Indian sold at 20s. 6d. per cwt. 10 barrels Chilian bought in at 28s. per cwt. 20 cases fair Californian at 40s. per cwt.

ICELAND MOSS.—Two bales of fair quality fetched 4s. per cwt.

IPECACUANHA.—14 packages Rio part sold at 14s. 6d. per lb., while 16s. was the price for 4 bales picked, a bid of 15s. 3d. being refused. 2 cases Carthagena bought in at 11s. per lb. Other 16 bags ditto were also held for the same figure.

KOLA NUTS.—5 bags were taken out at 4d. per lb., 1 bag dark inferior selling at 1¾d. per lb.

LIME JUICE.—1 puncheon from New York sold at 1s. per gallon.

LIQUORICE ROOT.—71 bales cut root bought in, only 11s. per cwt. being offered, which was declined.

MENTHOL.—Six cases good Japan crystals were taken out at 7s. 3d. per lb.

MUSK—4 caddies Tonquin were bought in.

NUX VOMICA.—79 bags bought in at 6s. up to 7s. 6d. per cwt. for good small bright.

ORANGE BLOSSOMS.—20 cases, catalogued as Italian dried blossom bitter orange were bought in at 1s. 6d. per lb.

ORANGE PEEL.—Four cases were bought in at 6½d. per lb., while eight cases dark offered without reserve only realised 1½d. to 3¾d. per lb.

RHATANIA ROOT.—99 bales were all taken out at 4d. to 4½d. per lb.

RHUBARB.—16 cases flat high dried were taken out at 10d. per lb.

ROSE FLOWERS.—10 bales brown, from Jedda, were taken out at 20s. per cwt.

SARSAPARILLA.—12 bales Lima sold at 7d. to 7¼d. down to 6d. for country damaged. Other 7 packages ditto realised up to 7½d. per lb., while for 4 bales of same 8½d. per lb. was bid and refused. For other 7 bales ditto 1s. 1d. per lb. was price required. Eight bales Jamaica sold at 1s. 5d. per lb. Eight serons Honduras were taken out at 1s. 3d. to 1s. 5d. per lb.

SENNA.—119 packages Alexandria were chiefly bought in at 4½d. to 8d. per lb., according to quality and condition. 1 bale Alexandria pods, which was catalogued, had been disposed of previous to the auctions. 114 bales Tinnivelly sold freely at 2¼d. up to 4½d. per lb., according to quality, condition, etc. Other 146 bales also sold readily up to 5½d. per lb. for fair green leaf.

SCAMMONY ROOT.—309 bales were bought in at 18s. to 21s. per cwt.

SQUILLS.—10 bags sold at 1¼d. per lb.

STROPHANTHUS SEED.—Two bags rather dark Kombé bought in at 3s. per lb.

TAMARINDS.—40 barrels West Indian part sold at 9s. 1d. per cwt., balance being bought in at 9s. 6d.

TONQUIN BEANS.—3 cases fair Paras were taken out at 2s. 5d. per lb. 1 cask fair Angosturas bought in at 3s. 6d. per lb.

WAX.—Fair Jamaica sold at £6 15s. per cwt., which shows rather lower value. Fair Madagascar bought in at £6 10s., a bid of £6 being declined, while lower quality sold at £5 10s. to £5 15s. per cwt.

YELLOW BERRIES.—29 bags of fair quality bought in at 20s. per cwt.

Liverpool Market Report.

August 30, 1899.

The firm prices ruling of late for Linseed, Canaryseed, and Olive Oil still continue, but reduced quotations are now given for Spirits of Turpentine. Good sales of Chilian Honey and Sierra Leone Beeswax are reported, together with fair business in Castor Oil, both spot and forward. A fair inquiry is experienced for Caustic Soda and Bleaching Powder, which are both firm, as is also Borax.

AMMONIA SALTS.—Carbonate is firm at 3¼d. to 3½d. per lb. Sal Ammoniac is still at £33 to £35 per ton. Sulphate is scarce here at £12 10s. per ton.

BEESWAX.—12 blocks of Sierra Leone went at £6 per cwt.

CANARY SEED.—There is a shade more inquiry for Turkish, and 240 bags have sold at 39s. 3d. to 39s. 6d. per 464 lbs. Holders ask 40s. for fine samples.

COPPERAS.—37s. per ton Welsh, 39s. Lancashire.

COPPER SULPHATE—Is quiet on the spot at £23 10s. per ton, with a good inquiry for forward parcels.

HONEY.—150 barrels of Pile 3 Chilian have been sold at firmer rates privately.

LIME, CHLORIDE OF (BLEACHING POWDER)—Is firm at £4 15s. to £5 per ton.

LINSEED—Continues very strong, with little business done, except in River Plate seed, of which 400 tons of August shipment sold at 37s. per 416 lbs. early in the week, and subsequently 250 or more tons changed hands at 37s. 6d. The price now asked is 38s. 9d.

OIL (FIXED) AND SPIRITS.—Castor Oils are passing out of stock fairly well at the steady rates of last week, viz.:—Calcutta, 2 15/16d. per lb.; French, 1st pressure, 2¾d. per lb., 2nd pressure, 2 9/16d., and 2nd Sulphur at 2⅝d.; Madras, 2¾d.; French, 1st pressure to arrive, has been selling at £22 15s. to £24 per ton, f.o.b., at Marseilles. Olive Oils are all firmly held. Levant at £32 10s. to £33 per tun, and to £34 for other oils. Linseed Oil of Liverpool pressure has become very strong in tone and has advanced to 22s. 9d. and 23s. per cwt. Cottonseed Oil: Liverpool refined oil is steady and selling satisfactorily at 18s. to 18s. 6d. per cwt. Spirits of Turpentine are again easier and can now be had here at 35s. per cwt.

POTASH SALTS.—Bichromate, 3¼d. per lb.; Chlorate is quiet at 3½d. to 3¾d. per lb.; Cream of Tartar is in moderate demand at 75s. to 80s. per cwt.; Pearlashes are dead at 30s. per cwt.; Potashes are nominal at 21s. to 21s. 3d. per cwt.; Prussiate is very firm at 8d. to 8½d. per lb.; Saltpetre, 21s. 9d. per cwt.

SODA SALTS.—Bicarbonate, £6 6s. to £6 15s. per ton; Borax, £16 to £16 10s. per ton; Caustic, 76 per cent. to 77 per cent., £8 15s. per ton; 70 per cent., £8. Nitrate is steady with only a small trade, at 7s. 6d. to 7s. 9d. per cwt.

Newcastle-on-Tyne Chemical Report.

August 30, 1899.

Activity in heavy chemicals still continues on this market. Bleaching powder for general sanitary purposes is in brisk demand. Stocks are small, and prices quoted are firmly made. Caustic Soda is pretty much in the same position. The higher strengths have been further advanced in price by 10s. per ton. Soda crystals move freely; prices, however, are unchanged. Other goods very steady in tone. Quotations are:—Bleaching Powder, £5 10s. to £5 15s. Caustic Soda, 70 per cent., £8 to £8 10s.; 77 per cent., £8 15s. to £9. Soda Crystals, 45s. to 47s. 6d. Soda Ash, 52 per cent., £4 5s. to £4 10s. Alkali, £5 to £5 5s. Sulphur, £4 17s. 6d. to £5 per ton.

Manchester Chemical Report.

August 30, 1899.

There is little change to report in the position of heavy chemicals, which continue in good consumptive demand. Caustic Soda is very firm at late rates; and Soda Crystals, owing to the hot weather, are scarce. Glycerin is firm at £50 per ton, chemically pure on rails or f.o.b., and £44 naked. It is evident that supply and demand is once more asserting itself in this direction, notwithstanding the break-up in the combine of English makers. The advance in Bleaching Powder is well maintained, Chlorate of Potash is firm, and Soda is bringing rather better prices than last month. Naphthas have recovered a little, and Benzols are very firm. Yellow Prussiate is dull and somewhat lower prices are in vogue owing to the Transvaal troubles. Coal Tar products are rather dull generally. Acetate of Lime is very steady, but without change in price. Acetate of Soda is firm and in short supply. Aniline Oil and Salt are in better request.

Marriages.

Ridley—Chapman.—On August 29, at St. Stephen's Church, by the Rev. Canon Nicholson, assisted by the Rev. W. W. Loudon, Charles Ridley, chemist and druggist, son of the late Thomas Ridley, to Margaret (Morsie), daughter of the late Hedley Chapman, J.P.

Coward—Kingston.—On August 29, at St. Margaret's, Lidlington, Bedfordshire, by the Rev. F. Veasey, M.A., vicar of the parish, Miles Coward, chemist and druggist, Devizes, to Helen, younger daughter of the late Chas. Kingston, "Hillside," Lidlington.

Deaths.

Garrad.—On August 16, Charles Garrad, Chemist and Druggist, Leamington. Aged 68.

Allanson.—On August 20, William Allanson, Chemist and Druggist, Wishaw, N.B. Aged 58.

Townley.—On August 20, Thomas Townley, Chemist and Druggist, Taporley. Aged 70. Mr. Townley was a member of the Pharmaceutical Society.

Heden.—On August 26, Joseph Henry Heden, Chemist and Druggist, Leamington. Aged 26.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Herbert Bennett Billington, chemist and druggist, 103, Sheffield Road, Barnsley, at the recent Borough Brewster Sessions, was granted a licence to sell wines to be consumed off the premises.

Professer Lopper, Dublin, has been appointed analyst to the Castleblayney Board, at a remuneration of 10s. 6d. per sample.

The Ballymoney Guardians, after much correspondence with and opposition to the Local Government Board, have selected Mr. R. F. Blake, F.I.C., as analyst, at a salary of £10 per annum.

Publications Received.

Die Aetherischen Oele. Von E. Gildemeister und Fr. Hoffmann. Bearbeitet im auftrage der firma Schimmel and Co., in Leipzig. Mit vier karten und zahlreichen abbildungen. Pp. iv. + 919. Berlin: Verlag von Julius Springer. 1899. From Messrs. Schimmel and Co.

Asthma: Recent Developments in its Treatment. By Ernest Kingscote, M.B., C.M., L.R.C.S. Edin. Pp. xii. + 184, with coloured frontispiece and illustrations. Price 5s. net. London: Henry J. Glaisher, 57, Wigmore Street, Cavendish Square, W. 1899. From the Publisher.

TERMS OF SUBSCRIPTIONS.

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EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—WARNES, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—EDWARD PECK, East Dereham.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—HUGHES, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Cork Presser and a bandage-roller; good make.—BARBOUR, Swanage.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

PHARMACEUTICAL Chemist; 24; Square medallist, with good business experience, seeks MANAGERSHIP or Senior in a good-class business. Highest references.—BUSINESS, 5, Serle Street, W.C.

Partnerships Dissolved.

(From the London Gazette.)

Benj. Hepworth and John Fehbenbach (trading as B. Hepworth and Co.), Chemical Manufacturers, 24, Coventry Street, Kidderminster. Debts will be received and paid by Benj. Hepworth.

W. Wigglesworth and E. J. E. Coop, Physicians and Surgeons, 57, Darnley Road, Hackney, and 75, Cazenove Road, Stamford Hill, N. Debts will be received and paid by E. J. E. Coop, who will continue the business.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Alfred T. Maguire (lately carrying on business as Maguire's Drug Co.), Artificial Teeth Manufacturer, 65, Bow Road, E., lately at 61, West Ham Lane, and formerly at 3 and 4, High Street, Ponders End, as A. Wilson.

Henry S. Planck, Dentist, 446, Fulham Road, S.W., and lately at 23, High Street, Kingston-on-Thames.

Robert S. Barcham, Veterinary Surgeon, North Walsham, Norfolk.

George Pearson, unregistered Medical Practitioner, 4, Cromwell Terrace, Halifax.

ENGLISH NEWS.

Hydrogen has been Solidified by Professor Dewar, according to an exceedingly brief note in the *Chemical News*, which gives no particulars beyond the statement that the solidified hydrogen forms a glassy transparent mass. It is just seven months since Professor Dewar explained to a greatly-interested audience how he had reduced hydrogen to the liquid form, and it was not until two months ago that he was able to exhibit liquid hydrogen in public. The real temperature of the liquid was then stated to be 21° on the absolute scale, equivalent to 252° below zero Centigrade.

The Medical Schools, like the School of Pharmacy, will be opened, for the winter session, on Monday, October 2. At Bloomsbury Square, as already announced, the introductory sessional address is to be delivered by Professor D. J. Leech, of Owens College, Manchester. At the Middlesex Hospital, the introductory address will be delivered by Mr. John Murray; at St. George's Hospital, by Dr. Howship Dickinson, consulting physician to the hospital; at University College the session will be opened by Dr. G. F. Blacker, assistant obstetric physician to the hospital; at St. Mary's Hospital the address will be given by Mr. H. G. Plimmer; and at Charing Cross Hospital Dr. Mitchell Bruce will address the students. At Guy's Hospital the term begins on October 2, when the first meeting of the session of the Physical Society will be held at 8, in the new physiological theatre, Sir Samuel Wilks presiding. After the meeting a conversazione will be held in the new laboratories and class-rooms. At St. Bartholomew's Hospital there will be no formal opening, but the old students' dinner will be held in the great hall of the hospital, Dr. T. Lauder Brunton presiding. The session at King's College will begin on October 2, and the old students' dinner will be held in the evening. At the London Hospital the annual dinner will be held in the college library, when Dr. Herman will take the chair. At Westminster Hospital the opening will be celebrated by a dinner at the Holborn Restaurant, Mr. Thomas Bond in the chair. At the London School of Medicine for Women the introductory address will be given by the dean, Mrs. Garrett Anderson, M.D., after which the prizes for the past year will be distributed. The winter session of the London School of Tropical Medicine will open on October 2, when the new school will be formally opened to students. At St. Thomas's Hospital the Session will open on October 3, when the prizes will be distributed by Professor Clifford Allbutt. In the country, work begins on or about the same day as in London. Thus, the winter session at Mason College, Birmingham, will begin on October 2, when Sir William Gairdner will deliver the introductory address. At University College of South Wales and Monmouthshire, Cardiff, the address will be given on October 6 by Professor A. W. Hughes. At Yorkshire College, Leeds, the address will be given on October 2, and the prizes distributed by Dr. Byrom Bramwell. The session at University College, Liverpool, will begin on October 3, with an address by the Rev. S. A. Thompson-Yates, who will afterwards distribute the prizes. The introductory lecture at Queen's College, Manchester, will be given on October 2 by Sir J. Crichton Browne. At University of Durham College of Medicine, Newcastle-on-Tyne, the session begins on October 2, when a conversazione will be held. At University College, Bristol, and University College, Sheffield, the session will also begin on October 2.

Manchester College of Pharmacy.—On Saturday last the students of this college with Mr. Charles Turner passed a most enjoyable afternoon at the farm at Hayfield, where they not unfrequently resort. Science was for the time being discarded and recreation was the order of the day. Mr. Hirst made all the arrangements and very kindly paid all expenses. A cordial vote of thanks was proposed to him by Mr. Turner, seconded by Mr. Mitchell, and carried unanimously. The weather, which had been threatening, was almost all that could be desired, though at that altitude the barometer read 28·5 inches.

Chemical Trade Developments.—According to the *Liverpool Post*, the town of Middlewich, which has long suffered severely from trade depression, chiefly owing to the stoppage of the Cheshire Alkali Works, is about to be the scene of an important development in the chemical industry, which will probably find employment for some hundreds of hands. A large piece of land has been purchased at Cledford Bridge, Middlewich, by the present electrolytic company, with which Messrs. Pilkington, St. Helens, are closely identified. A subsidiary company has been formed for the manufacture of chemicals by the new electrical process. The news has been received with great rejoicing in Middlewich. Another works is also expected to be built in the same neighbourhood.

Cruelty to a Mare.—According to a report in the *Midland Evening News*, at Dudley Police-court, on Monday, September 4, Thomas Salt, Castle Foot, Dudley, was charged with cruelty to a mare, and Charles Goldstraw, chemist and druggist, Castle Foot, Dudley, was charged with permitting it to be worked.—Evidence was given to the effect that the mare was attached to a gig containing the defendants while it was suffering from several wounds underneath the saddle.—Both the defendants admitted that the animal had suffered from a bad back, and it was turned out to graze for a time. They, however, had not seen the condition of the mare on the day in question, as they had nothing to do with the harnessing of it.—Goldstraw was fined 10s. and costs, and Salt 10s. and costs.

Coroner and Chemists' Prescriptions.—On Friday, September 1, an inquest was held at Trowbridge before Mr. F. T. Sylvester respecting the death of May Mizen, 75, wife of a carpenter. According to a newspaper report, evidence was given to the effect that deceased refused to see a doctor, but consented to have a bottle of medicine from the chemist.—Mr. Dyer, pharmaceutical chemist, was called, and asked why he, in common with other chemists, prescribed for people.—Witness: Because we could not live if we did not.—Dr. Pearse said the medicine supplied by Mr. Dyer could not do any harm, even if an overdose was taken.—The Coroner pointed out that, under the Medical Act, none but a qualified person could prescribe for people. There was nothing to stop a chemist from selling patent medicines, but when he prescribed for anyone he exceeded what the law allowed him to do. He knew it was generally done, and it was a great pity it was not put an end to. The Coroner also stated that the husband had failed to do his duty by not calling in a doctor.—Verdict: "Death from natural causes."

Secret Commissions.—Replying to a letter in the *Times* of September 2 from Sir Edward Fry, headed "Secret Commissions and the Medical Profession" (see p. 255), Dr. J. Roberts Thomson, President of the British Medical Council, emphatically denies the statement that "The Council of the British Medical Association has sought to hamper rather than to help the London Chamber of Commerce in its effort after honesty," and quotes from the report of the Council submitted to the general meeting of the Association at Portsmouth this year, as follows:—

> In consequence of charges made in a report of the London Chamber of Commerce against members of the medical profession, the following resolution was passed:—"Resolved that the attention of the Council has been called to grave general accusations impugning the probity of the medical profession in the matter of receiving secret commissions, and the Council calls upon the London Chamber of Commerce to substantiate such accusations, in order that the Council may be in a position, should such practices exist, emphatically to condemn them as a grave breach of professional good conduct, and inconsistent with membership of the British Medical Association."

Dr. Thomson goes on to express the opinion that Sir Edward Fry's description of the Association's action is the reverse of the actual position, and a gross travesty of the facts.—The Vice-President of the British Medical Association, Dr. Robert Saundby, also states explicitly that "the acceptance of any payment or consideration from a tradesman for recommending his wares is repudiated by the medical profession as a most dishonourable transaction," but he is of opinion that it would be better for the medical profession if the General Medical Council would take more notice of the conduct of members than it does.—Dr. Nelson C. Dobson, Emeritus Professor of Surgeory and Consulting Surgeon of the Bristol General Hospital, while not denying that individual members of the medical profession, owing to poverty, may be tempted to accept secret commissions, states that "such practices would be condemned in the strongest possible way by all that is best in the profession, and anyone known to be guilty of such practices would be ostracised, socially and professionally." Dr. Dobson also states that during a large practice of thirty years he has never received any secret or other commission, nor has the smallest suggestion or hint of the kind ever been made to him.—As a chemist of twenty-five years' extensive experience among both medical men and chemists, Mr. John D. Marshall states that he has never given a bribe, never offered one, and has never known one to be accepted.

THE METRIC SYSTEM.—At the meeting of the Associated Chambers of Commerce, on Wednesday, five resolutions on the subject of the metric system appeared on the agenda, from Birmingham, London, Bristol, and Leicester Chambers, but with the acquiescence of the delegates, only one motion, covering the entire question, was proposed. This was: "That the Association, reaffirming its frequently expressed opinion that the metric system of weights and measures should be made compulsory in the United Kingdom, strongly urges her Majesty's Government to use it in all Government departments, and to strictly enforce the existing provisions in the Educational Code with regard to the teaching of, and examinations in, the subject in elementary schools, and that representations to this effect be made to the Government."—This was moved by Mr. Walsh (Birmingham) and seconded by Mr. A. Lee (Bristol).—Mr. Stiebel said one of the most serious obstacles to British trade in foreign countries was the antiquated system of weights and measures.—Mr. G. Evans, D.L. (Llanelly), held that it would be impossible to have a practical system taught in schools unless the Educational Boards would supply the material for a practical education on the subject.—Mr. Miller (Edinburgh) suggested that a rider should be added to the effect that each Chamber and trade organisation should be asked to use their influence with the School Boards within their district to have the system properly taught as now authorised in the code. The suggestion was agreed to, and the resolution as amended was adopted.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—Applications for the October Preliminary Examination must be lodged with the Registrar, 67, Lower Mount Street, Dublin, *not later than 11 o'clock on the morning* of Tuesday, the 19th inst.

SOME CASES OF FRUSTRATED SUICIDE seldom occur without bringing before the mind's eye the picture of Mr. Mantalini struggling with theatrical futility to terminate existence with a small bottle and a teaspoon, the while lamenting that the "apothecary had not mixed the prussic acid strong enough." An incident which happened a few weeks ago in Belfast can hardly be placed in the same category, although the bizarre effects lent to it by "punishing" two bottles of laudanum under the evening sky in the presence of witnesses might suggest points of resemblance to the bloodless French duel. The gentleman's further endeavour, however, to supplement the dose with a third bottle of the opiate, which was wrested from him by his wife, was conclusive proof to the magistrate of a "most deliberate attempt" at suicide, but considering that prisoner had been drinking and was otherwise exemplary, his Worship took a merciful view of the aberration.

THIS RECALLS AN ALMOST SIMILAR CASE in which the hero purchased four single pennyworths of the "tincture of opium" (as a learned writer in *Harmsworth's Magazine* puts it). Having addressed a solemn farewell to the unfeeling world, he consumed the collection. Like Clive, however, he found out that he could not choose his hour, and awakened with such knife-cutting pains that for a flicker of time he was horrified to think he was in "another place." More tragical was the instance which occurred in Ireland twenty years ago. A gentleman, whose business affairs had not prospered, took an abnormal dose of strychnine, and had the determination to walk out for a few minutes, that the poison might be quickly distributed through the blood. A person who inserted a steel blade between the teeth, to open his mouth, asserted that the agonised energy of the jaw was such that the knife was snapped in pieces, and a portion of the steel was even ground to powder.

"A PRESCRIPTION procured from a gentleman who was not a medical man" was evidence given at a recent inquest in Belfast. It is satisfactory to know that he was not a pharmacist, though the instance, which occurred in a provincial town during the week, is proof that the latter is sometimes useful. A woman rushed into the Medical Hall with a baby which had got a match in its nostril. She had been to four doctors, but they were out of town. As the case seemed urgent, the young gentleman reached for a bottle of veratrine. The child sneezed thrice and, hey presto! half an inch of match, and the baby was saved.

ALONG WITH THE ABOVE if it is remembered that the scrimmages in Derry brought the usual assortment of injured to the chemist's shop, the dispenser may be excused if he sings:

By the law of the land
The Chemist can't demand
A fee if he should prescribe.
The scalp wound in a riot
He must genially tie it,
And take naught—for that's a bribe.

SURELY THE LEGISLATURE might in all fairness dower the pharmacist with some supplementary privileges, in view of the fact that he is so often resorted to in temporary ailments, and especially as he is being driven out of the market by those, who, though untitled, yet contrive by elusory anomalies to prescribe for all diseases by paying the Medicine Stamp Tax, which should be abolished so far as chemists are concerned.

SCOTTISH NEWS.

LAUDANUM POISONING CASE.—An elderly man was found unconscious in Pollokshields on Thursday last, 31st ult., with an empty half-ounce laudanum bottle in his pocket. As he was evidently suffering from the effects of an overdose of laudanum, the police surgeon, Dr. Chalmers, ordered his removal to the Royal Infirmary.

SUSPECTED POISONING CASE.—A girl, aged 16, named Beattie, was tried at the Glasgow Circuit Court last week, charged with attempting to poison a child, 17 months old, with laudanum. The baby was found in the cradle, and alongside it a note from the girl to her mistress saying she had given it a dose.—Jane Stevenson, in the employment of Dr. Ferguson, Dumbarton Road, stated that she had sold laudanum to the girl on the day in question.—The prisoner, who gave evidence for herself, said she had given the laudanum to the child to stop it crying, but ran away out of fright when she saw what happened, leaving the note by way of explanation.—The jury acquitted the girl of intent to poison, and Lord Young, after discharging the prisoner, remarked to the jury—"Gentlemen, you can return to the body of the court; we will have another jury."

BLAMING THE NARCOTICS.—At the Glasgow Central Police-court last week, a clergyman named Palmer was convicted of obtaining goods on false pretences.—Dr. Stevenson said the accused had been in the habit of taking narcotics in such enormous doses that he believed he would really act automatically, and do things without knowing what he was doing or saying. He took 130 drops of chlorodyne several times a day, enough to kill an ordinary man, and had taken these doses for years for a painful internal disease.—Palmer was sent to prison for seven days.

AN ADDITION TO THE CLYDESDALE FLORA has just been made by Mr. T. S. Barrie, of the West of Scotland College of Pharmacy, the plant, which is very rare in Scotland, being *Linaria repens*. Professor Bower of Glasgow University, writing to Mr. Barrie, asks him to send a notice of the discovery to Professor Scott Elliot, in order that the plant may be included in the list being prepared for the British Association Glasgow meeting in 1901.

FOREIGN NEWS.

ICED CHLOROFORM has been used as an anæsthetic with good results at the Julius Hospital, Wurtzburg, by Professor Shorburg. It is said to act more quickly, and to be less dangerous or nauseating than ordinary chloroform.

COLOUR PHOTOGRAPHY.—Judging by the number of brands of colouring media on sale at the vendors of photographic materials, one might conclude that "colouring" was in vogue. A list of formulæ, etc., by which excellent results have been obtained in all classes of photography is here given. It is not necessary to be a born artist to paint by this method, neither is it necessary to lay

out more than a few pence to purchase the necessary materials, which consist of five or six camel-hair pencils and four bottles of solution. Three colours suffice for this class of work, blue, yellow, and red, and in addition a bottle of colourless adhesive liquid. The blue is prepared by dissolving 25 centigrammes (or about 4 grains) of methylene blue in 30 grammes (or ʒi.) of distilled water. The yellow by dissolving 50 centigrammes (or about 8 grains) of picric acid in 30 grammes (ʒi.) distilled water. The red by dissolving 25 centigrammes of eosine in 30 grammes distilled water. The colourless adhesive liquid is prepared by dissolving in 100 grammes of distilled water a quarter of the albumin of an ordinary-sized egg, beaten to froth and passed through muslin, and finally 2 grammes of liquor ammonia added. The colours ready, one large and a few small finely pointed camel-hair pencils and a few sheets of good blotting paper complete the outfit. As for the *modus operandi*, it is simplicity itself. The surface and back of the print should be first washed with a large brush charged with the colourless adhesive solution. If, however, the print be mounted, simply wash the surface only, but, if unmounted, the back also, the better to ensure evenness during the colouring process. After this preliminary washing, the print is allowed to thoroughly imbibe the albuminous solution, but if the paper be a gelatin or enamelled one, two or three layers of the liquid are indispensable, allowing the previous one to dry before another is applied. Heat may be employed to hasten the drying process, the albumin coagulating thereby being of no importance. Then a few drops of the blue liquid are mixed in a saucer with a little of the colourless solution, and the mixture passed upon the whole recto surface of the print. This slightly azures and accentuates the white parts of the image. If there be already blue colours in the subject, a solution, richer in blue, is passed upon those regions until the desired tint is obtained. If a colour when applied be deemed too pronounced, it may easily be modified by pressing a little blotting paper upon the surface whilst the colouring is still wet. The strength of the colours, by the way, should be in the proportion of one drop of colour to twenty drops of albuminous solution. In portraits, the flesh colour solution is obtained by mixing one drop of yellow solution, two drops of red, and a few of the adhesive solution. The colour of the cheeks and lips may be heightened by the discreet application of the red solution. For landscapes the sombre green colour for trees and grass is obtained by mixing the blue and yellow; and a mixture of red and yellow in the sky portion gives the illusion of a sunset. In heightening the colours, always allow each layer to dry before applying another, preceding each layer of the colouring medium by a layer of colourless adhesive solution.

Project of an International Pharmacopœia.—At the sitting of the Belgian Royal Academy on April 29 last, a Commission was nominated to study the proposition relative to the elaboration of an International Pharmacopœia. The result of the Commission has just been reported, thus:—The governments of different countries publish an official Pharmacopœia indicating the modes of preparation and preservation of various medicaments, and it is in conformity to such principles that medical prescriptions are written and dispensed. The national character of these pharmaceutical codes restrain their action to the limit of the country wherein they are formulated, and as the same drug may be treated differently in different countries, it follows that the same prescription differs somewhat according to the country in which it may be dispensed. With simple and harmless drugs this is of but slight importance, but in the case of strong and dangerous substances, the harm which might occur is apparent. The necessity for some sort of *entente* between the various governments is more evident in view of the numerous new preparations which are ever and anon cropping up, and a mode of preparation which shall be general for all countries and which will ensure a uniformity of dose of the active constituent contained therein, is a consummation devoutly to be wished. The first question which presents itself, however, is, "Are the differences which exist in the various pharmacopœias between a preparation formulated in identical terms of sufficient importance to constitute a danger?" This is the principal point which the various governments will have to decide, for no action in the matter need be expected unless they be convinced of the utility of the step. Take, for instance, *Tincture of Iodine*, the percentage in Belgium is 8; in England, 2·5; in France, 8·33; Holland, 8; Switzerland, 10; Italy, 8·33; Germany and Russia, 10; or, *Tincture of Digitalis*, the percentage in Belgium is 20; in England, 12·5; France, 20; Holland, 10; Switzerland, Italy, and Germany, 10. Two principal facts are noted upon the tableau of Monsieur le Professeur Herlant:—(1) The difference, sometimes considerable, between the activity of a medicament known under the same denomination, but prepared in Brussels, Paris, Berlin, London, or elsewhere, to wit, the preceding tinctures, by way of example. (2) To total absence of any mention of some active medicaments in certain pharmacopœias, whilst they have prominence in others These two facts are certainly conducive to danger. A patient who is accustomed to have recourse to tincture of digitalis in certain grave crises of heart trouble, prepared according to the Belgian Pharmacopœia, is afforded little or no relief when the English, Dutch, Swiss, Italian, or German tincture is employed. The prescription which had hitherto assured the calm and relief so much needed, seems to fail, or its activity is at least reduced by half.

The Absence of Certain Popular Medicaments from a Pharmacopœia presents no less an inconvenience. Thus the gouty individual who is accustomed to tincture of colchicum prepared according to the Belgian Pharmacopœia will not find any mention of the same tincture in the Italian Pharmacopœia. In view, therefore, of the extent to which the peoples of different countries travel nowadays, the majority of such being generally fortified with a few pet prescriptions, in which they place unbounded reliance in the hour of need, one must conclude from the foregoing invitations that the preparation in a foreign country of a prescription formulated, for example, in Belgium, exposes the patient to danger by virtue of the disparity in the activity of the medicaments of neighbouring states. One point which the Commission has not lost sight of is the fact that certain preparations exist in some pharmacopœias which are old standing and well-known household remedies, and to which old prescribers will ever adhere. It is not such, however, that the Commission desire to revolutionise, nor does it aspire to the remodelling of all pharmacopœias upon the same basis. More particularly do its efforts apply to the innumerable new remedies now being daily foisted upon the profession, and in addition the whole of such existing medicaments as may be denominated "dangerous." It is for these that the Commission considers that necessity for international intervention exists. If but an *entente* between the various governments were realised, respecting what may be termed "new and heroic" medicaments, to formulate a mode of preparation which shall be uniform for all countries, and a small booklet, or a series of fly-leaves issued for gumming into the existent pharmacopœias, the Commission will feel that at least something considerable will have been accomplished, and the thin end of the wedge inserted. Having gained this precedent, the way will be paved for future amelioration as necessity may require.

Feminine Vengeance.—Incompatibility of temper recently brought about the mutual decision of a provincial pharmacien and his wife to break up their happy (?) home, and go their respective ways. The husband came to Paris, and the wife returned to her parents. Whether a warm reception under the parental roof, or an inward conviction of having been the instigator of the little bickerings, set her reflecting in her loneliness, history sayeth not; it however happened that she wrote her husband imploring him to "bury the hatchet" and recommence life with her (presumably under more auspicious conditions). Failing to receive any response to her entreaties, and suspicious lest he may have found a more congenial partner, she vowed to avenge herself, employing a means to which, unfortunately, too many French women have recourse when the tide of their love affairs is on the ebb. Armed with a bottle of vitriol (most probably purchased from one of those privileged vendors of dangerous substances, the drysalter), Madame C——l set out in search of her husband, and met him, eventually, on the Boulevard des Invalides. Her greeting was somewhat tragic, for crying "The hour for vengeance has arrived," she dashed the contents of the phial in his face, burning him fearfully. Passers-by conducted him to a neighbouring pharmacie, where he received every attention in the shape of first aid, whilst others seized and held his murderous better-half until the gentlemen in blue arrived. The unfortunate man, whose eyesight, happily, is not destroyed, was conveyed to hospital, and Madame C——l to the "cellule de police," where she will, no doubt, have ample time to reflect upon the horror of her deed ere justice metes out to her the sentence she rightly merits.

TRADE NOTES.

MEDICATED TOILET ROLL. — Messrs. Marlborough, Gould and Co., 52, Old Bailey, London, E.C., submit a specimen roll of the "Vade Mecum Medicated Toilet Paper," sold at 6d.; wholesale, 4s. per dozen. This roll is guaranteed to contain the best medicaments for hemorrhoids and to be a perfect antiseptic paper. It is especially recommended for invalids.

SOUTHALL'S STUDENTS' REQUISITES.—Messrs. Southall Bros. and Barclay, Limited, Lower Priory, Birmingham, send a copy of their most recent catalogue of pharmaceutical students' requisites. The materia medica collections have been brought up to date, and several useful additions have been made. We understand that Mr. John Barclay is busy with a new edition of Southall's 'Materia Medica,' which will probably be published in the course of two or three months.

BENZOSOL.—The Farbwerke vorm. Meister Lucius and Bruning, of 46, St. Mary Axe, requests us to state that, through a printer's error, the word "Benzosol" has appeared as "Denzosol" in their advertisement in the Journal, and has caused them a lot of correspondence. Benzosol is the firm's preparation, and there is no such article as Denzosol on the market.

X-RAY APPARATUS.—A visit to Messrs. Harry W. Cox, Limited, 10, 11, and 28, Cursitor Street, Chancery Lane, W.C., the well-known manufacturers of X-Ray Coils and Apparatus, is full of interest to those who have taken up radiography. Here the latest improvements in the new Electrolytic Interruptor can be seen, the results obtained being really wonderful. With the aid of the Fluorescent Screen the pelvis in a human subject can be seen distinctly. We understand that among this firm's best customers are a number of chemists, and as Messrs. Cox are the actual makers of all the apparatus, we have no hesitation in recommending the firm to those of our readers who think of taking up this new branch of business. The firm publishes a very complete catalogue which contains much useful information. A copy will be sent post free, to chemists, on mentioning this Journal.

MR. R. M. CROSSDALE, chemist and druggist, has commenced business at 340, Manchester Street, Oldham, the entire fittings of the pharmacy being supplied by Messrs. Ayrton and Saunders, Liverpool.

THE PURITY OF FOOD AND DRUGS.

CAMPHORATED OIL.—Edmund Jackson, Burton-in-Lonsdale, was fined 10s. and costs £1 13s. 7d., for selling camphorated oil which contained 13 per cent. of camphor, instead of 21 per cent.—The defendant said he sold it just as he bought it, and he had returned all his stock to the wholesale dealer.

SPIRIT OF NITRE.—At Ingleton Police-court, on Friday, September 1, Joseph Thornton, manager of the Ingleton Co-operative Society, was fined 20s. and costs £1 14s. 1d., for selling sweet spirit of nitre containing an excess of 1·12 of water, and only a trace of nitrous ether, instead of $1\frac{3}{4}$ per cent.

LIME WATER.—At the North London Police-court, on Wednesday, August 16, Alfred Croft, trading as the Graham Drug Stores, 211, St. Paul's Road, Highbury (the name Alfred Croft does not appear on the Register of Chemists and Druggists for the year 1899.—Ed. *P.J.*), was summoned for selling lime-water which was certified to be 14·5 per cent. deficient in strength.—The defendant pleaded that he had not in any way wilfully deteriorated the lime-water, and that he sold it as he got it.—Mr. Cluer said that was probably correct, the percentage was very small, and the case to his mind was not so important as the vestry appeared to imagine. It was a trivial case, and justice would be met by the defendant paying costs—2s. for the summons and 10s. 6d. for the analysis.

COPPER IN PEAS.—A few weeks ago a firm of grocers was fined for selling bottled peas coloured with copper sulphate (see *ante*, p. 168*a*), and as a sequel to that case Messrs. Petty, Wood and Co., wholesale grocers, 41 to 57, Southwark Bridge Road, S.E., were summoned at the Spelthorne Sessions on Monday, August 21, for having wilfully given to Messrs. Budgen and Co., Limited, tho firm implicated, a label which falsely described the article of food sold by them.—A letter from the defendant company was read, however, asking for an adjournment of the case, and this request was granted.

MILK OF SULPHUR.—At the East Riding Police-court, Hull, on Wednesday, August 30, George Kirk, chemist and druggist, Hallgate, Cottingham, appeared in answer to an adjourned summons charging him with selling milk of sulphur adulterated with 19 per cent. of calcium sulphate.—Mr. Rollit, who represented the defendant, explained that the case was adjourned in order that a sample of milk of sulphur might be sent up to Somerset House for analysis. This had been done, and the authorities certified there was practically no adulteration.—The Bench dismissed the case.

SEIDLITZ POWDERS.—Richard Parsons, of Shepshed, described as a chemist (the name, Richard Parsons, does not appear on the Register of Chemists and Druggist, 1899.—Ed. *P. J.*), was summoned at the Loughborough Petty Sessions for selling seidlitz powders not of the nature, substance, and quality demanded.—Deputy Chief Constable Smith, inspector under the Foods and Drugs Act, stated that he bought a dozen seidlitz powders from defendant for 11d. The analysis showed that the powders were not composed in accordance with the British Pharmacopœia.—Mr. H. J. Deane, for defendant, pleaded guilty, but said he sold the powders in perfect good faith, selling them exactly as he received them from the makers. The boxes were stamped "genuine," and he asked the Bench to believe that defendant fully thought that the powders were genuine. The wholesale dealers had admitted that the fault was theirs, and were prepared to accept the whole responsibility.—Wm. Stevenson, druggist, Shepshed, was summoned for a precisely similar offence.—The evidence was the same, except that 8d. was paid for the dozen powders, and Mr. Deane offered the same explanation. These powders, he said, came from the same wholesale house as in the other case, showing that defendants were not at fault.—The Bench believed the defendants did not intend to deceive the public by supplying inferior goods. A fine of £1, and half a guinea, the analyst's fee, was ordered to be paid by each defendant.

SPIRIT OF NITRE.—At the Barnsley West Riding Police-court, on Wednesday, August 16, Miriam Tomlinson, shopkeeper, of Darfield, was summoned for having sold spirit of nitre which was not in accordance with the British Pharmacopœia.—Mr. Wardell, of the West Riding County Council, prosecuted, and Mr. Hodgson, barrister, Manchester, defended.—Mr. Wardell said evidently the case was of importance to the wholesale trade, as counsel appeared to defend. So far as he was concerned his duty was in the interests of the public, and they had only to see that the article when it reached the public was of the proper strength. In this case there was no allegation of adulteration, and though he admitted evaporation might have taken place, a conviction must follow, because the article sold to the public was not of such a strength as demanded. Evaporation was provided for, but in the sample in question there was a deficiency of three-sevenths per cent. below the minimum allowed by the B.P.—Alfred Henry Allen, County Analyst, gave evidence to the effect that he had analysed the sample in question. It contained, nitrous ether, 0·98 per cent.; alcohol and legitimate water, 99·02 per cent. Mr. Allen added that the sample only contained four-sevenths of real nitrous ether, which was the most active and characteristic constituent of sweet spirit of nitre, required by the British Pharmacopœia to be present in proportion of not less than $1\frac{3}{4}$ per cent., even after the preparation had been kept for some time and the vessel containing it had been occasionally opened. For the defence Mr. Hodgson submitted that the Act did not apply in a case where admittedly there had been no fraud on the public, as the result was due to causes beyond control.—Evidence was given by Adolphus J. Coates, chemist, employed by Messrs. Parkinson and Son, wholesale druggists, to the effect that the preparation was of full strength when sent out by the firm.—The Bench was satisfied the spirit was not of the quality demanded, and a fine of 10s. and costs was imposed.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

September 7, 1899.

Business has been decidedly quiet during the past few days, partly, no doubt, owing to the fact that many people are still away from town. There has, however, been a firm undertone as to prices, while there are no changes in value of any especial importance to record. Quinine has had a further relapse as regards the speculative market, and things look now very unpromising for those unfortunates who rushed in to buy at almost, if not actually, the highest figure which the article touched not so very long since. Opium is rather better, same applies to Morphine. There has also been an advance in price of refined Glycerin. Quicksilver is very firm, as also are Mercurials, Acetanilide, and Phenacetine weak. Sulphonal remains in a doubtful position. Cod Liver Oil is very dull. Acid Carbolic firm. Menthol rather better. Acid Citric dull. Tartaric and Cream of Tartar quiet and unchanged. Borax and Acid Boracic steady. The following are prices actually ruling for some articles of chief interest:—

ACELANILIDE.—Weak at 10¾d. per lb. for 2-cwt. lots.

ACID BORACIC.—Unchanged at 25s. per cwt. for crystals and 27s. per cwt. for powder.

ACID CARBOLIC.—Prices are decidedly firm at 7d. per lb. for best make of 35-36° C. ice crystal in 2½ cwt. drums, and overcasks 7½d. for 39-40° C. ice crystal, and 8½d. per lb. for 39-40° C. detached crystals (which is now the kind demanded by the requirements of the B.P.). Crude 60° F., 2s. per gallon; 75° F., 2s. 6d. per gallon. Liquid 95-98 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. per gallon in 40-gallon casks.

ACID CITRIC—Continues quiet and dull at 1s. 6d. to 1s. 7d. per lb. for crystals in 5 cwt. casks.

ACID OXALIC—Is still quoted 3d. to 3¼d. per lb. nett, delivered free London.

ACID TARTARIC—Steady at 1s. 1d. per lb. for English and 1s. 0¼d. per lb., c.i.f., for foreign.

AMMONIA COMPOUNDS.—Bromide very firm at 2s. 2d. per lb. Carbonate unchanged at 3d. to 4d. per lb., according to packing, quantity, and make. Muriate, commercial, free from metals, 25s. to 27s. 6d. per cwt; chemically pure small crystals, 30s. to 32s. 6d. per cwt. Iodide, 13s. 7d. per lb. Sal Ammoniac: Firsts, 35s. per cwt.; seconds, 33s., crushed for batteries costing 2s. per cwt. more money. Sulphate dull and lower; gray, prompt, 24 per cent.; London, £12 2s. 6d. per ton; Hull, £12 2s. 6d.; Leith, prompt, £12 2s. 6d.; Beckton, September, £12 3s. 9d. to £12 5s.; October-March, £11 17s. 6d.; Beckton, terms prompt, £12 2s. 6d. Sulphocyanide, 1s. to 1s. 1d. per lb., according to quantity, etc.

ANTIMONY.—Regulus, £39 10s. to £40 per ton. Crude Japan (Black Sulphide), £23 to £23 10s. per ton.

ANTIPYRINE AND PHENAZONE—Are in good demand at unchanged price, both as regards Dr. Knorr's article and its cheaper chemical equivalent.

ATROPINE—Is firm at makers' prices, which are 15s. 6d. per oz. for the Sulphate, B.P., and 17s. 10d. per oz. for the pure alkaloid.

ASHES.—Pots, 22s. 9d.; Pearls, 32s.

BELLADONNA ROOT.—Price of really good root is 42s. 6d. to 45s. per cwt., inferior quality being quoted 37s. 6d. to 40s.

BISMUTH SALTS—Are unchanged at 5s. 1d. per lb. for the Subnitrate, the commercial quality of the metal being also unchanged at 5s. per lb.

BLEACHING POWDER (CHLORIDE OF LIME)—Steady at £6 10s. per ton for English make.

BORAX—Quiet, but steady at 16s. per cwt. for cystals and 16s. 6d. for powder.

BROMIDES—Are in good demand at unchanged rates—viz., 1s. 10½d. per lb. for Potassii Bromid., 2s. 1½d. per lb. for Sodii Bromid., and 2s. 2d. per lb. for Ammon. Bromid. Bromine, 2s. 2d. per lb. in cases of 60lb.

CAMPHOR.—Market for crude is firm, while high prices are asked from the East. There is no change in price of the refined article, English makers still quoting 1s. 7d. per lb. for Bells and Flowers for ton lots.

CLOVES.—Privately Zanzibar are rather dearer but quiet, business comprising October-December delivery at 3¼d. and January-March at 3 5/16d. At auction of 53 cases Penang 13 sold, fair bright picked but little damp, at 7d.; 40 bales Zanzibar were bought in at 3¼d. to 3⅜d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 90 per cent., 1s. 2d. per gallon; pure, 2s. Benzole firmer and dearer, quotations, being 50 per cent., spot, 11d. per gallon; 90 per cent., 8½d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent., at 120° C., 4d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 5½d. per gallon; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene, A., 4d. per unit; B., 2¾d. per unit. Pitch, 35s. 6d. per ton, f.o.b. Tar, crude and refined, 14s. 3d. per barrel; 3d. per gallon.

CODEINE—Is in good demand at unchanged price, viz., 12s. 6d. to 12s. 9d. per oz., according to quantity, for the pure, and 1s. per oz. less for the salts.

COD LIVER OIL—Remains very dull at nominally 60s. per barrel for best Newfoundland oil in tin-lined barrels of 25 gallons each.

CREAM OF TARTAR.—First white crystals are quoted 75s. to 76s. per cwt. on the spot; powder, 78s. per cwt.

ESERINE (PHYSOSTIGMINE)—Is firm at 2s. 3d. per gramme for the Sulphate and Salicylate Salts.

EXTRACT FILICIS MARIS (OIL OF MALE FERN).—Price has been advanced to 4s. 6d.-5s. per lb., according to quantity; while in view of the rise in cost of Ether, a further advance in price of this article is considered probable.

ESSENTIAL OILS—Continue quite inactive, and there has been practically no business passing. H. G. Hotchkiss American Oil of Peppermint is quoted 5s. 3d. to 5s. 6d. per lb., and Wayne County 3s. 6d. to 3s. 9d. for fair to good.

GALLS—Have been quiet. In China no transactions are reported, but prices are steady at 59s., usual shape. Persian have been dealt in to a small extent at previous rates; blues, of which the present stock principally consists, are firmly held and quoted 62s. 6d. to 65s.; greens, 55s. to 57s. 6d.; and whites at 50s. to 52s. 6d. Smyrna quiet and unchanged.

GINGER.—Cochin in large supply but slow demand. Of 221 cases cut kinds 65 cases sold, fair medium, little bold and rough, and part limed, at 49s.; small and tips ditto at 26s. Calicut rough, medium and small bright, little wormy, at 23s. Jamaica, in small supply, was firmly held, and nearly all bought in. Of 155 barrels 14 sold, good common to middling, at 52s. 6d. to 60s. 29 bags St. Lucia sold at 49s. to 50s.

GLYCERIN.—The market for refined has taken a decided turn for the better. A moderate advance in price has taken place, and a further rise is confidently anticipated. Present quotations are for English best white double distilled chemically pure 1,260° quality in tins of 56lb., two (or four) in a case, 54s. per cwt., and for German 55s. to 62s. 6d., according to make, etc. Crude remains very firm at £31 to £32 per ton for the quality most suitable for refining purposes.

IODIDES—Unchanged, at 10s. 6d. per lb. for Potassii Iodid., 13s. 10d. per lb. for Ammon. Iodid., 11s. 10d. per lb. for Sodii Iodid., 12s. per lb. for Iodine resublimed, and 13s. 10d per lb. for Iodoform crystals, powder, or precipitated. Commercial Iodine is also unchanged, at 7½d. per oz.

MENTHOL—Has an upward tendency, 7s. 6d. to 7s. 9d. per lb. being now asked for fine white dry crystals in 5-lb. tins (12 tins in a case).

MERCURIALS—Continue very firm at the late advance to 2s. 11d. per lb. for Calomel, and 2s. 7d. per lb. for Corrosive Sublimate.

MORPHINE.—is firm at nominaly unchanged rates, say 4s. 10d. to 5s., according to quantity, for the Hydrochlorate Powder, and 2d. per oz. more for crystals.

OILS (FIXED) AND SPIRITS.—Linseed, spot, pipes. London, are quoted £21 5s. per ton; barrels, £21 10s.; October-December, £20 15s. to £20 17s. 6d.; January-April, £20 10s.; Hull, spot, naked, £20 15s.; October-December, £19 10s.; January-April,

£19; May-August, £19 5s. Rape steady; ordinary brown spot and October-December, £23. Refined, spot, £24 10s.; Ravison, naked, spot, £20; October-December, £20 5s. per ton. Cotton firm. London crude, spot, £16 per ton; November-April, £14 15s. to £15; Refined, spot, £17 15s. to £19 10s., according to make. Hull, naked, refined, spot, £16; November-April, £14 15s.; crude, spot, £14 17s. 6d.; November-April, £13 12s. 6d. per ton. Olive higher, quotations being: Mogador, £33; Spanish, £33 to £33 10s. Cocoanut: Ceylon, spot, landed, £25 per ton; August-October, £23 5s. c.i.f.; Cochin, spot, £28 15s. to £29 per ton landed terms; August-October, £26; December-February, £25 15s. per ton c.i.f. Lagos, firm and rather higher at £26 per ton. Castor Oil dearer. Belgian, first pressing, spot, £26; second pressing, spot, £23 10s. per ton, ex. wharf. Hull manufactured: Guaranteed Cold Drawn Pure Pharmaceutical, £29 5s. per ton in barrels; 3⅜d. per lb. in cases. Pure firsts, £26 15s.; seconds, £25 5s. per ton in barrels; firsts, 3⅛d. per lb. in cases; seconds, 3d., ex wharf, London. Lubricating Oil: Pale American, spot, 5s. 9d. to 7s. 3d.; black, 5s. 6d. to 6s.; Russian black, 5s. to 5s. 6d.; pale, 6s. to 8s. 6d. Turpentine: Quiet; American spot, 33s. to 33s. 1½d. per cwt.; October-December, 33s. 3d.; January-April, 33s. 10½d. Petroleum: Strong; American has again advanced ⅛d. Russian importers have temporarily withdrawn from the market; spot quoted second hands, 5¼d. to 5½d., and to end of March; American spot, 6½d. to 6⅝d., and to end of March; Water White quoted 7¾d. to 7⅞d. Petroleum Spirit: American, 8d. to 8½d. per gallon; deodorised, 9d. to 9½d.

OPIUM.—The improvement in the demand previously noted has been maintained for most descriptions, and business of fair extent has resulted. Holders continue very firm, and higher prices are now required. Persian is quiet, with only small sales; sellers are firm at 12s. for finest and 10s. to 11s. for medium quality.

PARAFFIN WAX.—Crude: 2½d. to 2¾d. per lb. Refined, 3d. to 3¾d.

PHENACETIN.—Still very weak, the agent for one maker endeavouring to press sales at 3s. 3d. per lb. Buyers of the article have, however, become very cautious, both as to buying quantity and also as to the quality of what they buy.

PILOCARPINE.—Makers are very firm at the lately advanced price of 30s. 6d. per oz. for the Nitrate and Hydrochlorate Salts.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide firm and in good demand at 1s. 10½d. per lb. Chlorate crystals, 3¾d. per lb.; powder, 4d. per lb., free London for spot delivery. Iodide, 10s. 6d. per lb. Permanganate, 52s. 6d. per cwt. in 1-cwt. kegs for small crystals,, and 57s. 6d. per cwt. for large crystals. Prussiate, yellow, Beckton make, 7¾d. to 8d. per lb. Other English makes, 8½d. per lb.; red, 1s. to 1s. 2d. per lb.

QUICKSILVER.—Very firm at £8 12s. 6d. per bottle from the importer, and 1s. per bottle less from second hand. A further advance in price is still spoken of as not beingimprobable.

QUININE—Has had another set-back, with a good business passing at the decline. About 80,000 ozs. B&S and/or Brunswick have changed hands, comprising spot at 1s. ¼d. to 1s., the bulk at 1s., and at the close one transaction at 11⅞d., and December delivery at 1s. ¼d. to 1s. ½d., closing at the lowest. The makers of these brands still quote 1s. 2d. per oz., but are for the moment practically quite out of the running. Prospects hardly look very bright for those rash speculators who paid 1s. 10d. per oz. not so very long since.

ROSIN.—Firm and dearer, strained spot being quoted 4s. 6d. per cwt., while for shipment, September-October and December-February, by sailing vessel, 4s. 1½d. to 4s. 2d. per cwt., ex-ship terms, is asked.

SANTONINE—Continues very firm at the late advance to 9s. 6d. per lb., there being still a little obtainable from second hand at rather less money.

SHELLAC.—There is still very little demand on the spot, and only retail sales have been effected, at about previous rates, including Second Orange on basis of 64s. per cwt. for fair TN. In "Futures" the market continues very inactive.

SODA COMPOUNDS.—Crystals are quiet but steady at 55s. per ton, ex ship Thames for barrels, and 52s. 6d. per ton for bags. Ash, £5 5s. to £6 per ton, according to percentage, etc. Bicarbonate Commercial, £7 10s. to £8 10s. per ton, the fully bicarbonated quality being quoted 20s. to 22s. 6d. per cwt. Bichromate, 2¾d. per lb. Bromide firm and in good demand at 2s. 1½d. per lb. Caustic, white 70 per cent., £8 10s. per ton, 60 per cent. £6 10s. Hyposulphite (Antichlor.), 6s. to 8s. 6d. per cwt. according to make, packing, and quantity. Iodide 11s. 10d. per lb. Nitrate, £8 per ton for spot delivery.

SPICES (VARIOUS).—Black Pepper dearer; 105 bags Singapore sold at 5½d. to 6d.; 240 bags Aleppy bought in, 5⅝d.; 5 bags Ceylon sold at 5¾d. White Pepper firm; Singapore bought in at 8¾d. to 10d.; of Penang 26 bags sold at 8 7/16d. to 8⅞d. Chillies quiet; 20 bags Japan sold, good bright, at 36s. Capsicums quiet; 10 bales Bombay sold, fair cherry pods, at 26s. Cassia Lignea dull; 325 cases China bought in, fine old, at 50s.; 425 bales broken bought in at 37s. 6d. to 38s. Cinnamon Chips: Only 40 packages sold, stout quillings, at 6d.; ordinary chips and bark at 2½d. to 3d. Mace firm; 33 cases Penang sold, good, bold pale, little wormy, at 2s. 5d.; fair reddish but broken and little wormy at 1s. 5d.; 13 packages West Indian sold at 1s. 4d. to 1s. 8d. Nutmegs steady at previous values. Pimento dearer; 221 bags sold at 3¼d. to 3⅜d.

SULPHATE OF COPPER.—Spot, £23 15s. to £24 10s. per ton.

SULPHONAL.—The two official makers' price remains at 17s. per lb. for both crystals and powder. There are, however, offers in the market at a lower figure, whether of other make does not transpire.

TURMERIC.—Business continues to be only of moderate extent, but prices are somewhat higher—viz., 19s. per cwt. for Bengal; ditto, with dark fracture, 20s. Cochin split bulbs, 8s. 6d. to 8s. 9d. Madras fair to good bright finger, 25s. to 27s. 6d. per cwt.

TAR.—Stockholm, 25s. 6d. to 26s.; Archangel, 18s. to 18s. 6d.

THYMOL—Is rather firmer at 7s. per lb. It is thought probable that this article will be dearer.

Liverpool Market Report.

SEPTEMBER 6, 1899.

During the week a good amount of Beeswax has changed hands at full rates. The same remark applies to Honey, particularly Chilian, which, together with fine Canadian has been bringing very good prices. In Seeds not much business has been transacted as regards Linseed, but Turkish Canary has sold well at high rates. Castor Oil has advanced a shade for most varieties, and the demand continues good; other oils are but slightly changed. Heavy chemicals have only been in fair to moderate demand, but prices have been firm and there is a forward prospect of better prices in Alkali, Caustic Soda, and Bleaching Powder.

AMMONIA SALTS. — Sulphate is easier at £12 7s. 6d. per ton.

BEESWAX. — Good amounts of Gambia—about 21 bales—changed hands at late rates; 21 packages of Sierra Leone at £6 2s. 6d. per cwt.; 60 sacks of Chilian at £6 12s. 6d. to £7; and 2½ tons of Benguela at £6 per cwt.

BLEACHING POWDER—Is scarce, and easily brings £5 per ton.

CANARY SEED.—The demand is fair and prices firm. 60 bags of fair average Turkish made 39s. 6d. to 40s. per 464 lbs., and poor quality, 38s. 6d. Towards the close of the week a further 100 bags of fair Turkish sold at 39s. 6d.

HONEY.—There is a continued good inquiry for Chilian, of which 125 barrels sold for 19s. per cwt. 78 cases of choice Canadian changed hands at 46s. per cwt. Californian is held for very full prices.

LINSEED.—With the exception of the sale of 60 bags of Turkish at 45s. per 416 lb., there is no business to report, the market being bare of supplies, and what little there is in hand is very firmly held.

OILS (FIXED) AND SPIRITS.—Castor Oils have been sellingto a considerable amount, and there is a shade better price obtainable Calcutta, "good seconds," bring 3d. per lb; French 1st pressure, 2¾d. to 2⅞d. per lb.; 2nd pressure, French or Belgian, 2⅝ per lb.; Madras, 2¾d. 30 tons of 2nd pressure French, sold second-hand, to arrive October-December, at £23 15s. per ton f.o.b. Marseilles, but quotation is now advanced to £25 per ton. Olive Oils are in limited compass, and sales are therefore restricted. For shipment Malaga is at £33 10s. per tun, cost and freight. Candia and Levant are £32 10s. to £34 per ton. Linseed Oil of Liverpool make is firm at 23s. per cwt., but business done is small. Cotton-Seed Oil is still quoted at 18s. to 18s. 6d. per cwt., and is steady in tone. Spirits of Turpentine are in fair to moderate demand at 35s. per cwt. Potash Salts.—Chlorate is in better demand at 3½d. to 3¾d. per lb. Soda Salts.—Caustic is improved 76 per cent. to 77 per cent. £8 17s. 6d.; 70 per cent., £8 per ton. Crystals, £3 per ton.

Manchester Chemical Report.

September 6, 1899.

The accounts from the principal centres of the chemical industry continue good. There is great scarcity in some departments owing to the prevalent hot weather, but generally orders are executed with fair promptitude. Miscellaneous Chemicals are rather dull. Current quotations for 77-78 per cent. White Caustic Soda are £9 5s. to £9 12s. 6d.; 70 per cent., £8 to £8 5s.; and 60 per cent., £7 to £7 5s., on rails, at works. Bleaching Powder has been in request at late rates, and Ammonia Alkali, 58 per cent., is scarce, and selling at full prices. Sulphate of Copper is dull at £23 15s. to £24 10s. per ton, according to brand, delivered Manchester. White Powdered Arsenic easier at £18 10s. to £18 15s. per ton, *ex* ship, Garston. Yellow Prussiate is a shade firmer at 7¾d. to 8d. for best Lancashire. Acetate of Soda shows some improvement at £13 10s. to £13 15s. Acetates of Lime are dull but unchanged at £4 15s. to £5 per ton, Welsh and American, rails, and c.i.f. Manchester. Coal Tar Products are without material change for local makes. Pitch is perhaps a shade better at 31s. to 32s. per ton, f.a.s. Manchester Ship Canal, and fair quantities are being shipped in spite of the hot weather. Green Copperas firm at late rates for Lancashire make.

Birth.

Prince.—On Friday, September 1, at the Pharmacy, Connah's Quay, the wife of J. Prince, M.P.S., of a son.

Marriages.

Prior—Robinson.—On August 31, at Bunyan Meeting, Bedford, by the Rev. John Brown, D.D., James Siddall Prior, Pharmaceutical Chemist, of 19, High Street, Stanford, elder son of Samuel Oldfield Prior, of Oldfield Lodge, Melton Mowbray, to Gertrude Helen, only daughter of W. J. Robinson, Belmont, De Parys Avenue, Bedford.

Clarke—Hodgkinson.—On September 5, at Christ Church, Coventry, by the Rev. F. M. Brodie, B.A., Arthur Bertram Clarke, M.P.S., of Coventry, to Millicent Annie, youngest daughter of the late G. Hodgkinson, of Coventry.

Deaths.

Spargo.—On August 22, James Alfred Spargo, Chemist and Druggist, Lowestoft. Aged 79.

Williams.—On August 28, William Williams, Chemist and Druggist, Liverpool. Aged 78.

Ashby.—On August 29, Charles Edward Ashby, Chemist and Druggist, Chelsea. Aged 81.

Ransom.—On August 29, George Edward Ransom, Chemist and Druggist, Kirmington. Aged 55.

Ritchie.—On August 29, Thomas Ritchie, Chemist and Druggist, Manchester. Aged 71. Mr. Ritchie, who had been a member of the Pharmaceutical Society since 1892, was born near Aberdeen, where he was apprenticed to Mr. Alexander Kemp, subsequently going to Limerick (Ireland), where he stayed several years. He then went to Manchester to Messrs. Wright and Barnaby, finally joining the staff of Messrs. Standing, Son and Co., with whom he served for some twenty years.

Goodchild.—On August 31, Robert Stratford Goodchild, Chemist and Druggist, Walthamstow. Aged 84.

Venables.—On September 2, George Venables, Chemist and Druggist, lately living at 2, Malvern Terrace, Barnsbury. Aged 49. Deceased had been in the habit of taking narcotics to induce sleep, and on Thursday, August 31, took an overdose of opium, from the effects of which he never recovered. A verdict of "Death from misadventure," was returned by a coroner's jury.

Newcastle-on-Tyne Chemical Report.

September 5, 1899.

Heavy chemicals still form a fairly brisk feature on this market. Baltic and Mediterranean shipments keep bulky. Bleaching Powder for general sanitary purposes is still eagerly sought after, and as the article is scarce through reduced stocks, holders have advanced the price 10s. per ton. Caustic Soda moves freely, and Soda Crystals go somewhat better. Quotations are:—Bleaching powder, according to markets, £5 10s. to £6. Caustic Soda, 70 per cent., £8 to £8 10s.; 77 per cent., £9. Soda Crystals, 45s. to 47s. 6d. Soda Ash, 52 per cent., £4 5s. to £4 10s. Alkali, 52 per cent., £5 to £5 5s. Sulphur, £4 17s. 6d. to £5 per ton.

Partnerships Dissolved.

(From the London Gazette.)

F. M. Williams and Basil T. Makins (trading as Walter Graham and Co.), Oil and Seed Crushers, Greenwich and West Drayton. The business will be carried on under the same style by F. M Williams.

Caroline Emilie Goode and Amelia T. Wiginton, proprietors of a Surgical Home at Welback, Shorncliffe Road, Folkestone. Debts will be received and paid by Caroline Emilie Goode.

Henry Phillips and W. W. Scales, Veterinary Surgeons, Ipswich. Debts will be received and paid by Henry Phillips.

Receiving Order in Bankruptcy.

(From the London Gazette.)

Geo. B. Simpson, Surgeon, Rosedale Abbey, Yorkshire.

PHOTOGRAPHIC NOTE.

Kachin Developer.—This new developer is stated to give good black negatives free from any blue tints, but with marked contrasts, gradation or softness, at will, with the entire absence of stains on the hands. It is stated to be generally preferable to pyro. The following stock solutions are found to give good results:—(A) Kachin, 120 grains; sodium sulphite, 1,200 grains; water to make 10 ounces. (B) Sodium hydrate, 80 grains; water, 10 ounces. (C) Sodium carbonate, 1 ounce; water to make 4 ounces. (D) Sodium sulphite, 1,200 grains; water to make 10 ounces. For use with correctly exposed plates where a fair amount of contrast is required, such as landscapes, take solution A, 160 minims; solution B, 30 minims; water to make 1 ounce. For a portrait, in which less contrast is required, take solution A, 80 minims; Solution B, 30 minims; solution D, 80 minims; water to make 1 ounce. For under-exposed plates use solution A, 80 minims; solution B, 60 minims; solution D, 80 minims; water to make 1 ounce. If sodium carbonate is preferred, 20 minims of solution D may be substituted for each 30 minims of solution B. In cases of slight over-exposure, all that is necessary is the addition of a little more of solution A, and slight increase of the amount of B. or C. Kachin will permit of solution of hyposulphite being added to it in such proportion that development and fixation may take place simultaneously. This renders it particularly useful in the treatment of over-exposed plates. For correct exposures the following is the best formula for the hypo stock solution:—(E) Sodium hyposulphite, 1 ounce; water, 2 ounces. The working solution for simultaneous development and fixation is, solution A, 160 minims; solution B, 240 minims; solution E, 25 minims; water to make 1 ounce. In a correctly exposed plate fixation will have taken place as soon as development is complete. In over-exposed plates the proportion of B may be reduced to one-half, and when development has proceeded some time the amount of hypo may be increased, but at the commencement it should not exceed the proportion above stated.—*Photography.*

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—WARNES, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—EDWARD PECK, East Dereham.

Materia Medica Specimen-case, 186 drawers, each labelled with botanical name, natural order, habitat of the specimen. Suitable for public school, with specimens.—BRADDOCK & BAGSHAW, Oldham.

Overstocked Bismuth Sub-Carb., 5s. 3d. lb., 2 lb. 10s.; Iodoform Precip., 13s.; Crystal, 12s. 6d. lb. Offers wanted for 6 lb Crystal. Morph. Hydroch., 5s. oz.; Cocain Hydroch., 12s. oz.—EASTMAN, Forest Lane, Stratford.

No. 2 Frena, cost £8 9s., new this year, hardly been used; Tylar's No. 2 Zenith casket of lenses, cost £4; ½-plate camera, tripod, 3 slides, case; 7.5 in. Cooke lens, nearly new, cost £5 10s.; offers wanted.—J. E. ALLENBY, Chemist, Helmsley.

Chemists' Fixtures for sale, cheap, good condition, immediately; no reasonable offer refused. Nest of 94 drawers, with shelves above; window enclosure, 2 and 3 gal. carboys (pear-shaped); counter (mahogany top), with glass cases in front; large show case; wall cases.—E. HIGHTON, Chemist, Blackburn.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—HUGHES, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Small set Dental forceps.—MAYSON, 4, Crystal Rd., South Shore, Blackpool.

Good Vanilla Pods, Daisies, 6s. 6d.; Tetlow's Swandown Powder.—EASTMAN, Forest Lane, Stratford.

Old Electric Lamps and Scrap Platinum for prompt cash. —P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Several Chemical Balances wanted—preferably second-hand—of good make.—Particulars and lowest prices to ASSAYER, 2, Brunswick Pl., Leeds.

Green's Botany, Part 2; Scott's Botany (Flowerless Plants); Bower's Practical Botany for Beginners; recent editions.—DAVIS, 90, Cotham Brow, Bristol.

Advertisements.

(Received too late for Classification.)

LONDON, S.W.—ASSISTANT wanted; could attend lectures twice a week.—Apply personally, or full particulars and photo, to F. H. GLEW, 156, Clapham Rd.

AS CHEMIST or ANALYST; experienced in Manufacturing, Medical and Commercial Analysis, Microscopy and Photography.—CHEMIST, 13, Benbow Rd., Hammersmith.

TERMS OF SUBSCRIPTIONS.

The PHARMACEUTICAL JOURNAL circulates amongst Pharmacists in Great Britain and Ireland, France, Germany, Austria, Italy, Russia, Canada, the United States, South America, India, Australasia, South Africa, etc., etc., and the average number of copies circulated weekly exceeds seven thousand.

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Publications Received.

KING'S COLLEGE HOSPITAL REPORTS. Edited by Nestor Tirard, M.D., F.R.C.P., W. Watson Cheyne, F.R.C.S., F.R.S., John Phillips, M.A., M.D., F.R.C.P., and W. D. Halliburton, M.D., F.R.S. Vol. v. (October 1, 1897—September 30, 1898). Pp. xxiv. + 270. Price 7s. 6d. London: Adlard and Son, Bartholomew Close, E.C. From the Publishers.

THE MORPHOLOGY OF THE GENUS VIOLA. By HENRY KRAEMER. Reprint from the *Bulletin of the Torrey Botanical Club.* April 26, 1899. From the Author.

AN EXAMINATION OF COMMERCIAL FLOUR. By HENRY KRAEMER. Reprint from the *Journal of the American Chemical Society*, Vol. XXI., No. 8. August, 1899. From the Author.

ORTHOPÆDIC SURGERY: A TEXT-BOOK OF THE PATHOLOGY AND TREATMENT OF DEFORMITIES. By J. JACKSON CLARKE, M.B., Lond., F.R.C.S., pp. xx. + 454, with 309 illustrations. Price 21s. London. Cassell and Company, Limited, 1899. From the Publishers.

FIRST ANNUAL REPORT ON THE SOILS OF DORSET, to which is appended analysis and notes on four soils in Berks, Hants, Oxon. By DOUGLAS A. GILCHRIST, B.Sc., and C. M. LUXMOORE, D.Sc., F.I.C. Supplement VIII. to the Journal of Reading College. Pp. 40. Reading: Dorset County Council, August, 1899. From the Authors.

PHARMACY IN BRITISH GUIANA.

We are indebted to Mr. G. H. Hawtayne, C.M.G., Administrator-General of British Guiana, and a corresponding member of the Pharmaceutical Society, for particulars of the proposed chemists and druggist's examination, to be held at Demerara.

Proposed Syllabus for Chemist's and Druggist's Examination.

Poisons.—Candidates will be required to enumerate the poisons contained in the schedule of the Pharmacy Act and Poison Act of 1899, in pursuance of the provisions contained therein. They must describe minutely the conditions required upon the sale of poisons by retail and to write the proper entry upon the sale of a scheduled poison when forming an ingredient in a medicine dispensed.

Materia Medica.—The candidate is required to recognise specimens of any crude drug mentioned in the British Pharmacopœia and to describe their characteristics so far as may be necessary to detect adulterations or substitutions, and also to name their chief active ingredient, and also the official preparations into which they enter.

Practical Dispensing.—To weigh, measure, and compound medicines, write the directions in concise language, in a neat and distinct hand, finish and properly direct each package.

Prescriptions.—To read autograph prescriptions, translate them into English, and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of posology. To calculate percentages and other quantities occurring in prescriptions, also to render in good Latin ordinary prescriptions written in English.

Pharmacy.—To possess a general knowledge of the following branches, viz. :—Evaporation, operations requiring the use of heat, water, steam, and sand baths ; distillation, ordinary, fractional and destructive, and the character and object of each; filtration, clarification, precipitation, elutriation, levigation, and rectification. The principles involved in the dispensing of medicines, particularly with reference to the best methods for forming pill-masses, the preparation and nature of emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble bodies or substances in liquids. The candidate will be required to show a practical knowledge of the processes by which the official preparations belonging to the following classes are made, viz. :—Confections, decoctions, dilute acids, extracts, glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill-masses, plasters, powders, solutions, spirits, suppositories, syrups, vinegars, waters, wines. A knowledge of the active ingredients in official preparations containing the following, viz. :—Aconite, antimony, arsenic, belladonna, calabar bean, cantharides, chloral hydrate, chloroform, caustic potash and soda, colchicum, digitalis, elaterium, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nucis vomica, opium, phosphorus, scammony, stramonium, squills.

Chemistry and Physics, Elementary Knowledge of.—(*a*) The law of gravitation, the balance, specific gravity, atmospheric pressure, the barometer, air-pump, the syphon, temperature, thermometer, the law of gaseous diffusion. (*b*) Characteristics of chemical action, elements and compounds, the law of chemical combination by weight and volume, atomic weight and molecular weight, chemical formulæ and nomenclature, distinction between metals and non-metals. (*c*) General characters of the non-metals. The chief methods of preparation of the following non-metallic elements and compounds: hydrogen, oxygen, chlorine, nitrogen, bromine, iodine, and their compounds with hydrogen and oxygen, ammonia, oxides of nitrogen, nitric acid, sulphur, sulphurous, and sulphuric anhydride and acid, phosphorus, the usual impurities in those of the above-named substances that are included in the British Pharmacopœia. (*d*) The general characters and classification of the metals and methods of forming oxides and salts, the sources, the usual method of extracting, and the chief properties of the undermentioned metals. The principal modes of preparation, properties and adulterations of such of their compounds as are described in the British Pharmacopœia, viz. :—Potassium, sodium, ammonium, lithium, barium, calcium, magnesium, lime, aluminium, iron, chromine, manganese, arsenic, antimony, tin, copper, bismuth, lead, silver, mercury, gold, and platinum. (*e*) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanide of potash, ferrocyanide and ferricyanide of potash, oxalic acid, the methods of preparing alcohol, acetic acid, spirit of nitrous ether, chloral hydrate, nitrate of amyl, chloroform, iodoform, ether, the principal properties and reactions of these compounds.

Practical.—Specific gravity of liquids and solids, and be familiar with the use of thermometer and hydrometer. To recognise by chemical tests the more important non-metallic elements and compounds. To recognise those of the B.P. by their physical properties and characteristics. To identify by chemical tests tartaric acid, citric acid, starch, quinine, morphine, and strychnine. To be familiar with the use of balance, and have a practical knowledge of the British and Metric system of weights and measures.

Conditions of Entry.—Men or women who have attained the respective age of twenty or eighteen years may enter for this examination under the following conditions :—(1) That he or she has been engaged as an apprentice or assistant for a period of two years ; (2) That he or she produce a certificate of birth ; (3) That he or she pay a fee of seven [? pounds.—Ed. *P.J.*] and send in his or her application to the Secretary [? of the Board of Examiners.—Ed. *P.J.*] fifteen days before the date of examination.

ENGLISH NEWS.

At the Drug Sales this week five cases (each containing 10 × 10 lb. bottles) of potassium iodide, prepared in Japan, and guaranteed to answer to the tests of the Japanese Pharmacopœia, were offered. The crystals were of good colour and dry, and so far as appearance goes, seemed to be of excellent quality. Under the name of "Japan Wood Oil," a large quantity (415 cases) of a drying oil, having some of the properties of linseed oil, was offered by one broker, and a similar oil, from Hong Kong, to the extent of about five cwt., by another. This oil was described some years ago in this Journal [3], **15**, 636-7., by the late R. H. Davies, who investigated its properties. It is one of the most drying oils known and is largely used in China and Japan for paints and varnishes. From New Guinea a new variety of turmeric has been offered for the first time, somewhat inferior in appearance, but interesting as showing that the products of that country are already being exploited. Calumba root, which has for some time been scarce, was offered of poor quality, one lot being adulterated with a similar root with a more woody centre, and another presenting pieces cut longitudinally in slices—a very unusual form of the drug. Peruvian rhatany of good quality is again obtainable. Matico leaves appeared in two forms, in one of which the leaves are very broad, 3 to 4 inches, and apparently derived from an undescribed species growing in the United States of Columbia, but possibly extending to Peru, since the package came from Pimentel. Some small "bitter almonds" from Bombay are apparently the kernels of a species of *Prunus*, since fragments of the shell are smooth and hard like those of plums and apricots.

Westminster College of Chemistry and Pharmacy.—On Thursday evening, September 8, an interesting gathering took place in connection with this college at the Holborn Restaurant to celebrate several events, viz., the principal, Mr. G. S. V. Wills' jubilee ; the silver wedding of Mr. and Mrs. Wills; the coming of age of their son, Mr. H. S. Wills ; the completion of twenty-five years' work at the college ; and the dissolution of partnership between Mr. Wills and Mr. H. Wootton. A large number of guests, amongst whom were many past and present students of the college, were present, Mr. J. Kinsey Jones, Mayor of Llanidloes, presiding at a sumptuous dinner served in the Royal Venetian Chamber. After dinner and the usual toasts, the college prizes were distributed to successful students by the chairman. The party then adjourned to the King's Hall, where a conversazione was held, and during the evening a presentation, on behalf of the past and present, students, was made to Mr. Wills, consisting of an address accompanied by a cheque for £100.

Botanical Excursion.—On Thursday, September 7, the botanical students attending Middlesbrough High School classes, had an excursion to Hilton-in-Cleveland. The party, under the guidance of Mr. E. C. Bennison, Ph.C., drove to Middleton and walked viâ "Weary Bank" to Hilton, where tea was provided by Mr. W. J. Clarke, of Stockton. The outing was thoroughly enjoyed, and the following plants were collected :—*Conium maculatum*, *Tamus communis*, *Scabiosa arvensis*, *Senecio jacobæa*, *Lythrum salicaria*, *Potentilla tormentilla*, *Barbarea vulgaris*, *Centranthus ruber*, *Lactuca muralis*, *Lathyrus pratensis*, *Eupatorium cannabinum*, *Rumex crispus*, *Scrophularia nodosa*, *Erysimum cheiranthoides*, *Erigeron canadense*, *Anthemis arvensis*, *Hypericum perforatum*, *Convolvulus arvensis*, *Reseda lutea*, *Spiræa ulmaria*, *Dipsacus sylvestris*. *Tanacetum valgare*, *Geranium robertianum*, etc.

VISIT TO BOTANIC GARDENS.—On Saturday last, the students of the Leeds College of Pharmacy paid a visit to the Royal Botanic Gardens at Old Trafford. An inspection was made of all the plants of pharmaceutical interest, and the mechanisms of *Drosera*, *Dionica*, *Sarracenia*, and other carnivorous plants were explained. Tea was partaken of in the Grand Pavilion, after which the students remained to a concert which was being held, returning to Leeds by a late train.

PRESENTATION TO A MANCHESTER CHEMIST.—Mr. Chas. Swinn, Ph.C., of Moss Side, Manchester, has been presented with a solid silver tea and coffee service on the occasion of his silver wedding by his numerous friends, who hold him in high esteem.

DEFICIENT WEIGHTS.—At Nelson, near Burnley, on Saturday, September 9, Foggitt's Drug Stores, Limited, 3, Scotland Road, Nelson, were summoned for having for trade purposes an unjust weight and an unstamped measure. The registered offices are at 13, Neville Street, Southport, and the managing director is Mr. John Blackett Foggitt, pharmaceutical chemist.—Inspector Green stated that on August 23 he visited the shop in Scotland Road and found behind a partition six weights and a pair of scales, whilst two weights were actually in use. All the weights were deficient, but not to a great extent, the deficiency ranging from a drachm and a-half down to a few grains. The weights had been very much neglected, whilst in the shop he examined three measures, and found two were not stamped. He made a purchase, and was served with a measure not stamped.—The manager of the stores explained that he only went to Nelson about last Christmas, and thought the weights had been examined just prior to that. The measure was one which they kept for photographic chemicals.—The Bench after warning defendant not to neglect his weights and measures in future, fined him 5s. and costs for the first case and 2s. 6d. and costs in the second.

CANCEROUS MEAT.—Mr. Archibald Hodder, M.R.C.V.S., of Liverpool, writes to the *Daily Chronicle* to say that the everyday practice of his profession has brought him into close contact with the farmers and cattle of Herefordshire, Northamptonshire, Warwickshire, and Norfolk, and although he has found the British farmer second to none as an agriculturist, his knowledge of pathology and such pathological lesions as neoplasms cannot be said to be very extensive. The majority of farmers are said to be as likely to refer to any tumour on a beast as a cancer, as to call it anything else. For instance, in cases of actinomycosis in cattle, the disease is characterised by a tumefied condition of the jawbones, cheeks, and tongue. Many farmers would term those cases cancer of the tongue. Again, farmers have been heard to refer to fibrous tumours as cancer; in fact, wens, cysts, bursal enlargements, and all kinds of tumours and abnormal swellings are apt to be classified under the common name of cancer by persons unacquainted with their true nature. Then, again, it is not easy to diagnose the existence of carcinomata, apart from a microscopical examination of the affected part. For those reasons it is difficult to accept the statement that cancer is far more common amongst cattle than tuberculosis. And even did such a state of things exist, the danger of eating the meat of affected animals would probably be small, since, owing to the unsaleable appearance of diseased meat, such things as tumours are usually removed by the butcher before the carcase is offered for sale.

WIRELESS TELEGRAPHY.—The installation of wireless telegraphy, according to the *Times*, will be the most interesting scientific accomplishment at the Dover meeting of the British Association. The arrangements have been made under the personal supervision of Mr. Marconi and Professor Fleming, the latter of whom has charge of this section, as Mr. Marconi left England on September 12 for America. It is hinted that one of the objects of his voyage across the Atlantic is to consider the question of the possibility of obtaining wireless communication between America and this country. Some exceedingly interesting preliminary tests were made by Professor Fleming at the Dover Town Hall on Monday, and conducted by Mr. Kemp, who was in charge of the instruments, the tests being productive of the most successful results. The height of the pole on the Town Hall has been increased 36ft., the sprit to which the wire is now connected being 140ft. from the ground. The automatic records made on Monday by the receiving instrument were absolutely perfect as specimens of telegraphic work. A very interesting feature of the demonstrations during the meeting of the French and British Associations at Boulogne and Dover will be the exchange of wireless telegraphic communications across the English Channel. In this respect another important result has been achieved. Until the present trials it was believed that these cross-Channel communications would have to be retransmitted through the South Foreland, but direct communication has now been obtained between Boulogne and Dover, which is another scientific triumph for the new telegraphy, especially when the curvature of the earth is taken into consideration. At the south Foreland the top of the pole is about 550ft. above sea-level. In the valley at Dover it is only about 150ft. above the level of the sea, and yet with all this difference it has now been proved that the results which can be obtained are equally efficient. Such are the possibilities of wireless telegraphy that i would appear that a new development might at any time occur which would place the curvature of the earth to a great extent out of the question and permit infinitely greater distances to be traversed.

THE SOCIETY'S LONDON MUSEUM.—We are requested by the Curator to state that the Materia Medica Museum will not be ready for purposes of study until Monday, September 18, by which date it is hoped that the painting and alterations will be completed. The electric light has been installed in the part of the Museum chiefly used by students, and a new system of labelling the specimens has been adopted.

THE "PATENT MEDICINE" LICENCES issued during the year ending March 31, 1899, numbered 33,992, of which 31,323 were issued in England and Wales, and 2,669 in Scotland. The net receipt of duty derived from the licences was £8,500. The total number of licences issued in 1897 was 32,473, and in 1898 it was 33,130. A steady increase in the number of shops where proprietary medicines are sold continues therefore to be manifested.

LAUDANUM POISONING.—An inquest was held at the Town Hall, Castle Road, Scarborough, on Tuesday, September 12, with respect to the death of Mark Kinner, 43, fried fish dealer, of 55, Sandringham Street, who died the previous day from the effects of laudanum poisoning. Evidence was given to the effect that deceased had been depressed on account of losing his situation and that he had bought three ounces of laudanum at the Hull Drug Stores, stating that he was going to take about 10 drops of it for diarrhœa. He, however, took the whole of the three ounces, death resulting. A letter to his wife was read, and the jury came to the conclusion that deceased committed suicide while temporarily insane.

THE FORTY-FOURTH ANNUAL EXHIBITION of the Royal Photographic Society, which will be held at the Gallery of the Royal Society of Painters in Water Colours, 5A, Pall Mall East, is now in course of preparation, and will be opened to the public on Monday, September 25, for a period of seven weeks. On Saturday, September 23, there will be a private view for members, exhibitors, and their friends, and in the evening there will be a conversazione, when the President the Earl of Crawford, K.T., will receive the members and the other guests of the Society. The following have been elected the judges:—Pictorial Section: Harold Baker, Colonel J. Gale, A. Horsley Hinton, B. W. Leader, R.A., W. L. Wyllie, A.R.A. Technical and Scientific Section: Captain W. de W. Abney, C.B., F.R.S., T. Bolas, F.I.C., F.C.S., Chapman Jones, F.I.C., F.C.S.

THE SALE OF POISONS.—An inquest was held at Smethwick on Monday, September 11, by Mr. A. A. Betham (deputy coroner), concerning the death of Ann Foxall (55), widow, who resided in High Park Road. On Saturday, September 9, she purchased a packet of vermin-killer from Mr. Betts, chemist, Grove Lane, and about an hour later died. She told her son that she had taken poison.—The jury returned a verdict of "Suicide whilst of unsound mind," and recommended Mr. Betts in future to require an introducer with every person who asked for poison whose name he did not know.

MR. CHARLES U. IND, chemist and druggist, of Margate, has for the second time in the present year secured first place in the prize list of St. Thomas's Hospital, London, and has just been awarded the First College Prize, £15, in Midwifery and Practical Surgery.

Fire at a Wholesale Druggist's.—On Monday evening, September 11, a slight fire occurred in the wool-room in the premises of Messrs. Southall, Barclay, and Co., manufacturing chemists, Dalton Street, Birmingham. The alarm was given to the Central Fire Station, and the brigade, with the manual engine and fire-escape, under Mr. Teviotdale, attended, but a few buckets of water extinguished the flames. The origin of the fire is unknown, and the damage is slight.

SCOTTISH NEWS.

Edinburgh District Chemists' Golf Club.—The fourth competition this season for the "Gibson Handicap Medal" took place last week at the Braids, with the following result: Mr. C. F. Henry, (116—25 = 91), 1; Mr. W. C. Baker (97—5 = 92), 2; Mr. J. G. Robb (121—25 = 96), 3; Mr. James Stott (93 + 4 = 97), 4.

The Prize Competition on the Edinburgh Autumn holiday (September 18) will be held at Leven, when the "Gibson Handicap Medal," the Hon. President's, and club prizes will be played for. The train will leave Waverley Station at 8.53 a.m.

Aerated Water Legal Crusade.—Lord Stormonth Darling granted interim interdict in the Court of Session on Wednesday, at the instance of Reid Brothers, chemists, Falkirk, against James Sinclair, Bathgate, to prevent Sinclair filling bottles bearing Reid Brothers' name. His lordship said there seemed to be an epidemic of aërated water trade disputes.

Suicide at Port Glasgow.—Edward O'Brien, aged 35, belonging to Whiteinch, was on Wednesday morning found unconscious in the Birkmyne Park, Port Glasgow. Dr. Millar was early in attendance, but O'Brien only survived a few minutes. In one of the deceased's pockets was found a carbolic acid bottle, and it was evident from the condition of his mouth that he had taken a quantity of the poison.

A Game of Bowls was played on Bellahouston Green, Glasgow, on September 12, between a Wholesale and a Retail rink. The players were Messrs. J. Walker, D. C. Houston, H. Thomson, and J. Cairncross (skip) for the *Wholesale*, and Messrs. R. H. Gordon, D. Moir, M. Wallace, and Thos. Adam (skip) for *Retail*. At the 8th end, game stood Retail 13, Wholesale 2, at 20th end 17 all, finishing at 21st end Wholesale 19, Retail 17.

IRISH NEWS.

Pharmaceutical Society of Ireland.—Applications for the October Examinations must be lodged with the Registrar before eleven o'clock on the mornings of the dates mentioned:—Pharmaceutical Assistants' Examination, Monday, 25th inst.; Registered Druggist Examination, Tuesday, 26th inst.; Pharmaceutical License Examination, Wednesday, 27th inst.

Carbolic Acid Poisoning.—An inquest was held at Newry on Saturday, September 9, concerning the death of Laurence M'Shane, who was poisoned on the 6th inst. by drinking carbolic acid in mistake for whisky.—According to the evidence, deceased offered to see a man named Edward Nugent, who was under the influence of drink, safely home. On the way M'Shane took a "slug" out of a bottle that Nugent had with him, under the impression that it contained whisky. He became ill, and lay down on the road. In the meantime Nugent went into a neighbour's house, and offered the bottle to the occupier, Arthur Lenagh, who also drank of the contents and was taken ill. M'Shane was found and carried into Lenagh's house, where he died, while Lenagh still lies in a precarious state.—The jury found that the occurrence was purely through misadventure. The man Nugent was arrested, and admitted to bail so as to be present at the inquest.

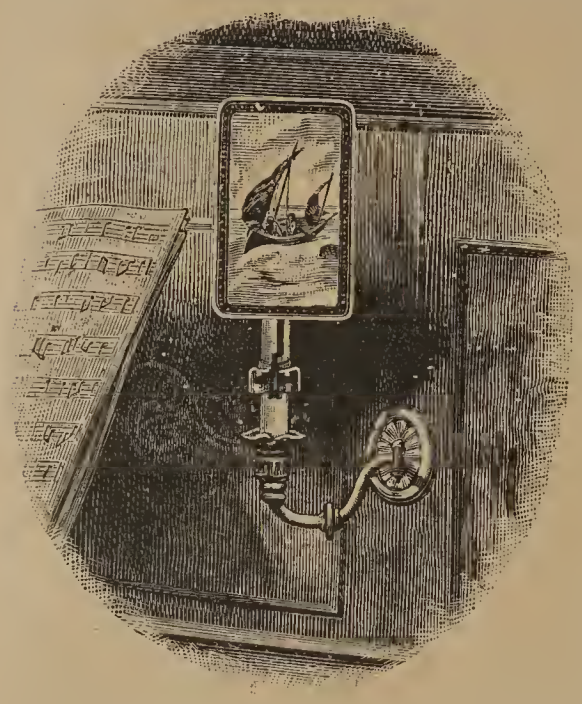
THE FREE SALE OF CARBOLIC ACID.

Chemist's Assistant Fined.—Mr. T. E. Sampson, the Liverpool city coronor, held an inquest on Thursday, September 7, respecting the death of Theresa Proctor, aged 17, who lived with her husband at 62, Hampton Street.—Robert Proctor, husband of the deceased, stated that they had been married only four weeks. He was an army reserve man, and had spoken of being called out in case of a Boer war, and the deceased said, laughingly, "If you go I shall poison myself." They had some little disagreement over money matters on the previous Friday, and witness used some sharp words to her. On the Wednesday following witness went out in the morning. His dinner was not ready when he returned, and he again spoke sharply to her. She made no reply, but prepared the dinner, afterwards going upstairs. A few minutes later he was startled by hearing cries of "Bob, Bob, Bob! I am dying." Rushing upstairs, witness found her lying on the floor with a bottle of carbolic acid by her side. He at once administered an emetic, and, calling a constable, had her removed by ambulance to the Southern Hospital.—It was ascertained that the carbolic acid was obtained in the afternoon in Windsor Street, and William Simpson, the chemist's assistant, was called as a witness. He did not appear, however, and Mr. Sampson told the jury that he had received a letter from him, excusing his attendance on the ground that he was alone in the shop. The excuse was a good one, and might have been accepted in other circumstances; still, if it were allowed, it might create a precedent. He had probably nothing further to state, but he would be fined 20s. for the disobedience.—The jury brought in a verdict of "Suicide whilst temporarily insane," and recommended that some restriction should be put upon the sale of carbolic acid.—Mr. Sampson said he heartily endorsed the verdict. The unrestricted sale of carbolic acid was a point which his brother coroners had frequently reprehended. It could be obtained as easily as milk, and was a favourite poison in cases of suicide.

Other Carbolic Acid Cases.—An inquest was held on Wednesday, September 6, on the body of Mr. Ernest Renshaw, the well-known lawn tennis player, who died at Waltham St. Lawrence, Berks.—Jane Elizabeth Dow, servant with the Renshaw family, stated that early on the previous Saturday morning she found deceased on the couch in the drawing-room. She spoke to him, but as he did not answer she called assistance. About half-past seven she went into the lavatory, and noticed that the bottle of carbolic acid, always kept in an adjoining closet, had been removed from its usual place to the basin. The cork was out, and there were one or two spots on the basin. The candlestick from his bedroom was in the lavatory, and the candle was burning. Deceased had not been very well during the last few days, but she did not know what was the matter with him; there appeared nothing serious.—Mr. G. G. Bothwell, M.B., *locum tenens* for Dr. Young, of Twyford, said he made a post-mortem examination, and found well-marked traces of carbolic acid in the stomach. This was the cause of death. The other organs were healthy, but congested, due, he thought, to the action of the carbolic acid. The deceased might have had a severe attack of vomiting, and being afterwards anxious for something to drink, taken the carbolic acid inadvertently.—The jury, after considering their verdict, came to the conclusion that deceased died from the effects of carbolic acid, but whether taken intentionally or not the evidence did not show.——The same day, September 6, at Leek, a man named Thomas Hammond, labourer, mixed a quantity of carbolic acid with some cabbage vinegar in a preserve jar, and drank it. He lingered for about six hours in great agony. He was fifty-two years of age, and had been drinking heavily.——The next day, Thursday, September 7, a gentleman, named Mr. Henry Hayes, of 45, Whingarth Avenue, Victoria, Scarborough, was sitting on the Spa at Scarborough, when he was noticed to be ill. Shortly after, a bottle, which had contained carbolic acid, was found empty by his side. Mr. Hayes died just after the attention of the attendant was called to him.——Mr. R. F. Haslewood (coroner) held an inquiry at Bridgnorth on Monday evening last touching the death of Ann Lawley, 52, the wife of a rabbit catcher.—It appears that the deceased was in the habit of drinking vinegar, and on the Saturday evening called to a neighbour, "Polly, come here. I have drunk some of this stuff (referring to a bottle of carbolic acid on the table), I thought it was vinegar." She died shortly afterwards.—The jury returned a verdict of "Death from carbolic poisoning."

TRADE NOTES.

PHOTOGRAPH CANDLE SHADE.—Messrs. W. Butcher and Son, Blackheath, S.E., submit a sample pair of their new candle shade screens, a "Primus" specialty, which they are just putting on the market. This should find a ready demand amongst amateur photographers, as they can mount their own photographs in the frames for the screens, and thereby turn them into useful ornaments. The frames can be fitted to any candle, and are made for holding paper prints, which are simply slipped in at the back and held by turning over projecting pieces. Platinotype prints are found to give the most satisfactory effects, but thin bromide paper and even silver paper may be used and produce beautiful transparent effects. No previous mounting is necessary, but the prints should be made rather darker than usual to give the most satisfactory result with transmitted light. They are made in two sizes—¼-plate or 4 by 3 inches; ½-plate or 6 by 4 inches (horizontal and vertical). Prices per pair, 1s. 6d. and 2s. respectively. Messrs. Butcher and Son also send a specimen copy of the sixth editiou of their "Primus" Lanternist's Pocket Book. It is a handy little book, being admirably adapted for its purpose. That it is appreciated by lanternists is evident from the fact that about 10,000 copies are distributed every lantern season. The firm will be pleased to supply copies free on receipt of two stamps for postage.



CHINOSOL has been awarded a prize medal at the Southampton Sanitary Congress.

THE PURITY OF FOOD AND DRUGS.

SPIRIT OF NITRE.—Herbert Hall, grocer, Cranfield, was summoned at Ampthill Police-court, on Thursday, August 31, for selling sweet spirit of nitre not of the nature, quality, and substance demanded by the purchaser.—Mr. W. E. Bottrill, solicitor, Nottingham, for the defence, stated that the article in question was made by Boots, Limited, about the end of February last, and was bought by defendant from Boots' shop in St. Mary's, Bedford, on May 3. Mr. Hall was not a chemist, and not understanding its volatile nature, had let the sun get at the spirit, so that the quality of the article deteriorated. Defendant's total sale of spirit of nitre was only about 5s. worth a year. Mr. Bottrill pointed out that the defendant was not accused of fraudulently tampering with the spirit of nitre, and asked the Bench to allow the withdrawal of the summons on payment of the costs, which amounted to about a guinea. This was agreed to, and the summons was withdrawn.——A similar case was heard at Woburn Petty Sessions on Friday, September 1, the defendant being Philip Arthur Parkins, grocer, of Evershott, who had sold six ounces of sweet spirit of nitre deficient in nitrous ether to the extent of 60 per cent.—The Chairman said that according to the report of the analyst the case was a bad one.—The defendant, however, put in a note from Mr. Philip Stoneham Canning, chemist and druggist, of Leighton Buzzard, stating that the spirit of nitre, as supplied to defendant, was "B.P., 1898," such as the inspector would require. Defendant admitted that the nitre had deteriorated by evaporation, caused by the heat, but stated that it could not be kept intact, even in capsuled bottles.—The Inspector, while admitting that the spirit would evaporate unless great care was taken, pointed out that evaporation might be allowed to go on until the nitre became absolutely useless. The case had simply been brought before the magistrates as a caution, therefore he was willing to withdraw the summons on defendant paying the costs, 19s. 6d.—Defendant paid the costs, and the charge was struck out.

SPIRIT OF NITRE.—At Settle County Petty Sessions on Tuesday, August 29, Robert Kitchen, grocer, Long Preston, was charged with selling sweet spirit of nitre deficient in nitrous ether, and containing an excess of water to the extent of 3·25 per cent.—Defendant pleaded that he had only recently taken over the business, and took the nitre along with the other goods in stock.—Fined £1 10s.

SELF-RAISING FLOUR.—On Thursday, September 7, the adjourned case against Annie Moffitt, grocer and provision dealer, of Tamworth Street, Old Trafford, for selling self-raising flour alleged to contain ingredients injurious to health (see *ante*, p. 226*d*) was resumed before the Manchester Stipendiary magistrate, Mr. Yates, Q.C., and others. Briefly, the case for the prosecution was that defendant had sold self-raising flour which, according to the analysis of one of the county analysts, contained 170 grains of alum to the pound. A portion of the same sample was analysed by Mr. William Thomson, of Manchester, who certified that it contained no alum, and this was supported by the Somerset House analysts. Application was then made to the magistrates for permission to send the residue of the sample in the possession of the county analyst to Somerset House for analysis. It was urged that in dividing the flour in the first instance the alum, being heaviest, had not been thoroughly distributed, and had all got into the sample analysed by the county analyst, while the sample sent to Somerset House was quite free. This application was refused, and Mr. Chapman, on behalf of the prosecution, now stated that in view of the Somerset House certificate he should not proceed further with the summons; he had, however, evidence in corroboration of the certificate of the county analyst.—Mr. Chorlton, for the defendant, stated that she was prepared to prove that no alum whatever had been put in the flour in question, and had in Court every person who had had anything to do with it from beginning to end. He thought it was a case in which the defendant was entitled to an absolute acquittal. The defendant had been put to great expense, and he asked for reasonable costs on her behalf.—Mr. Yates (the Stipendiary magistrate) in announcing the decision of the Bench, said that the Somerset House certificate clearly showed that a mistake had been made by the county analyst. Samples sent for analysis by the county analyst were not bound to be analysed by himself, but might be done by his assistants, under supervision, and he thought that this fact was the probable cause of the mischief, as it was impossible to give that supervision necessary to prevent a mistake being made. The summons would be dismissed, and the defendant allowed ten guineas costs.—The county analyst wished to make a personal explanation, but was not permitted to do so, as the magistrates could only take evidence on oath.

CAMPHORATED OIL.—At Wednesbury, on Tuesday, September 12, before the Stipendiary Magistrate, Messrs. Raybould. Whitehouse and Co., wholesale druggists, of Dudley, were summoned for supplying with camphorated oil a false label, describing it as "genuine B.P."—meaning that it was prepared according to the British Pharmacopœia. There was a further summons for giving a false warranty. Mr. R. A. Wilcock (Wolverhampton), who prosecuted, explained that the proceedings were taken in consequence of camphorated oil having been purchased from one Benjamin Burns, of Camp Street, Wednesbury, and which on analysis proved to contain 12 per cent. of mineral oil, and 68·76 per cent. of arachis oil, instead of olive oil, as prescribed by the British Pharmacopœa.—Evidence was given showing that the bottle from which the oil was sold was labelled "Warranted Genuine B.P."—The defence was that the oil purchased was represented to be olive oil, and receipted accounts were produced, showing purchases by the firm of olive oil.—Mr. Raybould was sworn, and stated that he himself prepared the drugs, and no adulterants were used by him. He was unable to account for the presence of the other oils, as he used what was sold to him as olive oil.—A fine of 40s. and costs was imposed in each of the two cases, the fines and costs amounting to £8 8s. 6d.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

SEPTEMBER 14, 1899.

Business has again been somewhat quiet, but with the close of the holidays and the advent of cooler weather more activity is confidently looked for in business generally. The only changes of any importance during the week have been a further slump in the speculative price of Sulphate of Quinine, an advance in price of Morphine, and a very tangible advance in makers' prices for Cocaine. Otherwise there are no alterations in values of any importance to notice. Iodides appear to be somewhat unsettled, in consequence of the appearance of 5 cases, each 100lbs., of Potassii Iodid., of Japan manufacture, in to-day's public sales, as this may mean that the Iodine Convention may take retaliatory steps by reducing the price. Prenacetine and Acetanilide remain very weak, while Sulphonal remains in the same dubious position. Opium is harder—in fact, slightly dearer. Codeine in good demand and very firm. Glycerin steadv. Cod liver oil dull and weak. Acid Carbolic firm. Bromides steady, at unchanged prices. The following are prices ruling for some articles of principal interest:—

ACETANILIDE—Continues weak in consequence of continued pressure to sell on part of the maker's agents here, quotations being 10½d. to 1s. 2d. per lb., according to quantity, etc.

ACID BORACIC—Is unchanged at prices given last week.

ACID CARBOLIC—Continues firm at 7d. per lb. for best make of 35-36° C. ice crystal in large bulk packing, other qualities being quoted in proportion. Crude 60° F., 2s. per gallon; 75° F., 2s. 6d. per gallon. Liquid 95 to 98 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. per gallon, in 40 gallon casks; ditto., 30 per cent. dark in colour, 10d. to 11d. per gallon.

ACID CITRIC—Dull and weak at 1s. 5½d. to 1s. 6½d. per lb., according to quantity and make for crystals in 5-cwt. casks.

ACID OXALIC—Is without change from last week.

ACID TARTARIC.—English is still quoted 1s. 1d. per lb., and foreign 1s. 0½d. per lb. c.i.f.

ANTIMONY.—The Regulus is unchanged at £39 10s. to £40 per ton, while the crude Japan (Black Sulphide) is rather dull at £23 10s. to £24.

AMMONIA COMPOUNDS.—Bromide firm at 2s. 2d. per lb. Carbonate 3d. to 4d. per lb., according to packing, etc. Muriate, chemically pure, small crystals, 30s. to 32s. 6d. per cwt.; ditto commercial, free from metals, 27s. 6d. per cwt. Iodide, 13s. 7d. per lb. Sal Ammoniac, firsts, 35s. per cwt.; seconds, 33s.; ditto, crushed for batteries, firsts, 37s.; seconds, 35s. per cwt. Sulphate dull and rather lower. Gray, prompt, 24 per cent., London, £12 per ton; Hull, £12; Leith, prompt, £12; Beckton, October-March, £11 15s.; Beckton terms, prompt, £12. Sulphocyanide, 1s. to 1s. 2d. per lb.

ANTIPYRINE and **PHENAZONE**—Continue in fair demand at unchanged prices.

BLEACHING POWDER (CHLORINATED LIME)—Quiet, at £6 10s. per ton for English.

BORAX—Is steady at unchanged quotations.

BROMIDES—Are unchanged from last week.

CHINCHONA BARK.—For these periodical auctions on Tuesday catalogues were more numerous, but supplies were again small, amounting to 1904 packages of all descriptions, which included 729 packages damaged, against 1736 packages last sale. There was little animation at the sales, but the bulk were disposed of, in many instances at much lower prices than the last London auctions, the average unit obtained being 1⅛d., or equal to the last Dutch sale. Ceylon: 129 bales and 17 bags offered and sold, according to analysis, Succirubra, natural stem chips and shavings, fair at 2¾d. to 3¼d., ditto mixed stem and branch at 2¼d. to 2½d.; Officinalis, stem chips at 3d.; Ledger, stem chips and shavings, at 4½d. and 6¾d. East Indian: 471 bales offered and 381 sold; Red, natural chips and shavings, fair at 3¼d. to 3¾d., fair root 3¼d., fair quill at 3½d.; Officinalis, renewed chips and shavings, fair to good at 3⅛d. to 4⅝d., branch at 2½d. to 3¾d., fair broken quill at 3½d.; hybrid, fair quill at 4¼d. Java: 148 bales offered and sold; good stem chips 5¼d., common dusty ¾d. to 1¾d. South American: 346 bales Bolivian cultivated Calisaya quills offered and 210 bales sold at 6¼d. to 7¼d.; 14 bales Red bought in. Cuprea: 50 bales offered and bought in at 2¼d. 729 packages damaged Bark also offered and sold, for account of whom it may concern, comprising 159 packages Columbian, 129 packages Pitayo, 127 packages Cuprea, and 314 bags mixed Bark, with all faults.

CLOVES.—Privately Zanzibar quiet, quotations being October-December delivery 3 1/16d., and January-March at 3¼d. At Auction no Zanzibar offered; 118 cases picked Penang were all bought in; fair to good bright at 8d. to 1s. 1d.

COCAINE.—The further advance in makers' prices, which had been predicted in these columns, was announced on Friday last, present quotations being:—For the Hydrochlorate, in 25oz. tins, for 200oz. lots, 17s. 7d. per oz.; for 100oz. lots, 17s. 9d. per oz.; and for less than 100oz., 18s. per oz.; it being even stated that the possibility of a further advance is not absolutely out of the question. Cause of the advance is stated to be the continued scarcity and dearness of the raw material, combined with the fact that price of the article had previously been unduly depressed. There are sellers from second hand at 9d. to 1s. per oz. below makers' present quotations.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 2d. per gallon; pure, 2s. Benzole has quieted down 50 per cent., being quoted prompt and September-December delivery 10½d. to 11d. per gallon; 90 per cent. prompt, 8d., September-December 8½d. per gallon. Crude naphtha, 30 per cent. at 120° C., 3¾d. per gallon. Solvent naphtha, 95 per cent. at 160° C., 1s. 5d. per gallon; 90 per cent. at 160° C., 1s. 2d. per gallon. Anthracene: A, 4d. per unit; B, 3d. Pitch, 35s. per ton, f.o.b. Tar, refined, 14s. 3d. per barrel, 3d. per gallon; crude, 14s. per barrel, 2¾d. per gallon.

COD LIVER OIL—Remains very quiet at 57s. 6d. to 62s. 6d. per barrel of 25 gallons for best new Norwegian oil, in tin-lined barrels.

CODEINE—Continues very firm and in good demand at 12s. 6d. to 12s. 9d. per oz., according to quantity for the pure, and 1s. per oz. less for the salts.

CREAM OF TARTAR—Steady at 74s. 6d. to 75s. per cwt. on the spot for first white crystals and 77s. per cwt, for powder.

GALLS.—The market is steady, but quiet. China on the spot quoted 59s., usual shape, and for arrival 58s., with plum shaped at 61s. to 62s. c. f. and i. Persian Blues have been selling in retail lots at 62s. 6d., but Greens are dull, with sellers firm. Conflicting reports come to hand of the new crop, which, however, point to scarcity. Other descriptions neglected.

GINGER.—The good supply of Cochin met a moderate demand at rather easier rates; of 111 cases, cut kinds, 62 cases sold, fair small same medium at 27s. to 29s., small and tips at 25s.; of 1,607 bags, washed rough, 462 bags sold, fair bright medium and small part wormy at 23s. to 23s. 6d., small shrivelled at 18s. 6d. to 19s., fair cuttings at 16s. Jamaica, in small supply, met slow demand, and nearly all bought in, but holders were firm; 122 barrels offered and 5 sold, middling to good, at 60s. to 66s.

GLYCERIN.—Crude remains firm, the refined article being also steady at the lately advanced quotations to 54s. per cwt. for English and 55s. to 62s. 6d. for German best white double-distilled chemically pure 1260° quality in tins and cases.

IODIDES—Are unchanged, although the offer of some Potassii Iodide of Japan manufacture in public sale to-day has made buyers rather chary, they fearing that the continuation of these imports may lead to a reduction in price on part of the Convention.

MERCURIALS are firm at the late advance to 2s. 11d. per lb. for Calomel, and 2s. 7d. per lb. for Corrosive Sublimate.

MORPHINE—Is firm at higher prices, some of the makers having advanced their price to 4s. 11d. per lb. for the Hydrochlorate powder, the crystal salt being quoted 5s. 1d. per oz.

OILS (FIXED) AND SPIRITS.—Linseed firm. London spot pipes £21 5s. per ton, barrels £21 10s. October-December £20 17s. 6d., January-April £20 10s. Hull spot naked, £21 5s.; October-December, £19 17s. 6d.; January-April and May-August, £19s. 5s. Rape steady; ordinary brown spot and October-December, £23; refined spot, £24 10s.. Ravison naked spot and October-

December, £19 5s Cotton steady. London crude spot, £16 to £16 5s.; November-April, £14 15s. Refined spot, £17 15s. to £19 10s., according to make. Hull naked, refined spot, £16 2s. 6d. November-April, £14 17s. 6d; crude spot, £15; November-April, £13 15s. Olive Mogador, £33; Spanish, £33 to £33 10s. per ton. Coconut firm; Ceylon spot, £25 per ton, landed terms; October-December, £23 to £23 5s. c.i.f. Cochin spot, £29 10s., landed; August-September, £26 5s.; October-December, £26 c.i.f. Palm again higher, Lagos being quoted £26 per ton on the spot. Lubricating oil: pale American spot is quoted 5s. 9d. to 7s. 3d.; black, 5s. 6d. to 6s.; Russian black, 5s. to 5s. 6d.; pale, 6s. to 8s. 6d. Turpentine, after opening strong, subsequently became quieter, holders showing, however, increased firmness at the close, quotations being, American spot, 34s. 6d. per cwt.; October-December, 34s. 9d.; January-April, 35s. 4½d. to 35s. 6d. Petroleum firm and again dearer at 5 7/16d. to 5½ per gallon for Russian spot, and for delivery up to end of March. American spot and to end of March, 6⅝d. to 6¾d; water white, 7⅛d. to 8d. per gallon. Petroleum spirit: American, 8d. to 8½d. per gallon; deodorised, 9d. to 9½d.

OPIUM.—The market remains firm, with a continued demand for rich manufacturing kinds, resulting in a fair business at full rates, but many parcels have since been withdrawn. In Soft Shipping descriptions few sales have occurred. Persian has met a good inquiry, but little actual business is reported.

PHENACETINE.—This article appears to be going from bad to worse. The agents for some makers quote 3s. 2d. per lb. While there are also sellers of good makes from second hands at or below this figure, buyers will do well to be careful as to the quality of the article offered at these cheap prices.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate: Crystals, 3¾d.; powder, 3⅞d. per lb., spot London. Iodide, 10s. 6d. per lb. Permanganate, 52s. 6d. and 57s. 6d. per cwt., for small and large crystals respectively in 1-cwt. kegs. Prussiate yellow: Beckton, 7¾d.; other English makes, 8d. per lb.; red, 1s. to 1s. 2d. per lb.

QUICKSILVER—Is unchanged at £8 12s. 6d. from the importer, and 1s. per bottle less from second hand.

QUININE.—The lower prices realised for Bark at Tuesday's London Bark sales have tended to further depress the market for Quinine, and it is now possible to buy the favouite brands of German Sulphate below 1s. per oz. in the speculative market. The makers of these brands have, however, so far made no alteration in their nominal price of 1s. 2d. per oz.

SODA COMPOUNDS.—Crystals are dearer, at 60s. per ton, ex ship London in barrels, and 57s. 6d. per ton in bags. Ash, £5 5s. to £6 5s. per ton, according to percentage, etc. Bicarbonate, commercial, £7 10s. to £8 10s. per ton, and 22s. 6d. to 25s. per cwt. for the fully bicarbonated quality. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic, white, 70 per cent., again rather dearer at £8 15s. per ton, the 60 per cent. costing £1 per ton less money. Hyposulphite (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate, £8 per ton on the spot.

SPICES (VARIOUS).—Black Pepper: 10 bags Tellicherry bought in at 6d., and 210 bags Penang at 5½d.; no Singapore offered. White Pepper: 24 bags Singapore partly sold, fine at 9¾d.; of 159 bags Penang 50 sold; good fair white limed at 8½d. Chillies: 70 bags Zanzibar bought in at 38s. to 40s. Capsicums: Of 95 bales Bombay 55 sold; dull red long at 22s. to 22s. 6d.; good bright cherry pods bought in at 29s. Cassia Vera: 12 bales bought in at 26s. Cinnamon: 78 bags chips and quillings bought in at 3d. to 4d. Mace: 35 cases West Indian sold, fair pale at 1s. 7d. to 1s. 8d.; ordinary to fair red at 1s. 4d. to 1s. 6d.; ordinary to good pickings 1s. 1d. to 1s. 3d. Nutmegs: 24 cases Penang bought in, 80's at 1s. 9d., 158's, part shrivelled, at 8d.; 135 packages West Indian sold; 66's at 1s. 11d.; 90's at 1s. 3d. to 1s. 4d.; 95's at 1s. 2d. to 1s. 3d.; 102's to 112's at 1s. 1d. to 10d.; 148's at 7½d. Pimento: Firmly held, of 368 bags only 40 bags sold at full rates; fair at 3¼d. to 3⅜d.

SULPHONAL.—While the two recognised makers of the article still quote 17s. per lb. for both crystals and powders, there are still offers quasi from second hand at 14s. per lb., and even cheaper. It would thus appear that either there are other makers of the article or else that the supply from second hand is inexhaustible. Intending buyers will be able to draw their own conclusions.

TURMERIC—Remains firm, and in fair demand. Bengal is quoted 21s., but no actual business is reported. About 200 bags Madras have been sold, mixed bulby to fine bright finger at 27s. to 30s. Cochin finger is offering at 20s.; split bulbs sold at 8s. 9d. to 9s. 6d., according to quality and quantity. China finger quoted 20s.

THURSDAY'S DRUG SALES.

To-day's Drug Auctions passed off very quietly, a large number of the lots offered being bought in. There are no changes in values of any importance to record.

ACONITE ROOT.—Ten bags good Japan were again taken out at 28s. per cwt.

ALOES.—130 gourds Curaçoa all sold at 30s. per cwt. for livery and 21s. per cwt. for fair ditto. Another lot of 20 boxes realised 22s. to 23s. per cwt. 55 cases Cape practically all bought in at 26s. per cwt. for good bright hard, a few lots of inferior drossy selling at 19s. 6d. to 20s. Other 27 cases part sold at 23s. 6d. for fair bright.

ASSAFOETIDA.—90 cases consisting of common sandy black stuff offered without reserve sold at 13s. to 15s. per cwt.

BALSAM COPAIBÆ.—Five casks pale were bought in at 1s. 6½d. per lb.

BALSAM PERU.—5 cases good blank were bought in at 7s. 9d. per lb.

BALSAM TOLU.—10 cases were taken out at 1s. 4d. per lb.

BITTER ALMONDS.—13 bags offered as such, but which were really apricot kernels, were bought in at 50s. per cwt.

CANELLA ALBA.—Six bales of good quality sold readily at 35s. per cwt.

CANTHARIDES.—4 casks Russian were bought in at 2s. per lb.

CARDAMOMS.—5 cases Ceylon Mysores sold at 1s. 5d. per lb. for inferior, up to 2s. 2d. to 2s. 9d. per lb. for fair to good; 37 cases all bought in up to 3s. 2d. per lb., seeds being taken out at 2s. 4d. per lb.

CASTOR OIL.—40 cases fair Calcutta firsts were taken out at 4¼d. per lb.

CINCHONA BARK.—10 packages crown and grey were bought in, 10d. per lb. being price required.

COCCULUS INDICUS.—65 bags were taken out at 9s. per cwt.

COD LIVER OIL.—69 casks not very clear Norwegian oil part sold, without reserve, at 49s. to 50s. per barrel.

COLOCYNTH.—10 cases good Turkey were bought in at 1s. 9d. per lb. 1s. 8d. per lb. would, however, have been accepted.

CALUMBA ROOT.—50 bags washed pickings were taken out at 21s. per cwt.

CROTON SEEDS.—3 robbins bought in at 65s. per cwt.

CUMMIN SEED.—17 packages new crop Morocco taken out at 30s. per cwt.

DILL SEED.—33 bags were bought in at 12s. per cwt.

DRAGON'S BLOOD.—5 cases of only fair quality were bought in at £11 per cwt., 8 cases good bright, part rather sandy, selling at £12 12s. 6d. to £12 15s. per cwt., down to £5 15s. for low inferior quality. 2 cases reeds bought in at £12 per cwt. 38 cases of inferior quality were bought in at 85s. per cwt.

EGG ALBUMIN.—12 cases were bought in at 1s. 7d. to 1s. 9d. per lb.

ELATERIUM.—1 tin English offered without reserve sold at 10d. per oz.

ERGOT OF RYE.—Good sound Russian was held for 2s. per lb., ditto, but weevily, for 1s. 9d. per lb.

ESSENTIAL OILS.—2 packages West Indian lime oil of good quality sold at 3s. per lb., another case being bought in at 3s. 6d. per lb. 1 bottle Bourbon Geranium Oil bought in at 1s. per oz., 5 cases Cinnamon at 2d. per oz., 7 cases Pimento at 9s. per lb. (a bid of 7s. per lb. being declined), 25 cases good Cajeputa at 3s. 3d. per bottle, other 50 cases being bought in at 2s. 9d. 3 cases D. & O.'s Oil Winter Green taken out at 6s. per lb., 10 cases Wayne County Oil of Peppermint at 4s. 6d. per lb. 1 case Oil of Fennel sold without reserve at 11d. per lb. Fair commercial Oil of Eucalyptus was held for 11d. to 1s. per lb.

GAMBOGE.—10 cases, offered without reserve, sold at £8 2s. 6d. to £8 5s. for fair pipe, medium ditto only realising £6 15s. per cwt.

GUAZA (HERBA CANNABIS INDICA).—76 robbins all bought in at 4d. per lb for good tops.

GUM AMMONIACUM.—26 cases, all bought in at 20s. to 35s. per cwt., according to quality.

GUM ARABIC.—5 cases grain taken out at £6 12s. 6d. per cwt. 10 serons fair Turkey sorts at 80s.

GUM BENZOIN.—45 cases Sumatra were bought in at £5 10s. to £8 5s. per cwt., according to quality, 51 cases inferior Siam at £9, 11 cases medium ditto at £12 per cwt., 10 cases good quality ditto at £18 per cwt.

GUM EUPHORBIUM.—12 serons fair pale sold without reserve at 11s. 3d. to 11s. 6d. per cwt.

GUM GUAIACUM.—29 cases bought in at 2s. for good quality, 1s. 6d. being declined for same.

GUM KINO.—2 cases rosy Cochin were taken out at 3s. per lb., 3 cases rough at 2s. per lb.

GUM MASTIC.—2 cases were bought in at 1s. 6d. per lb.

GUM MYRRH.—4 barrels dark bought in at 55s. per cwt; another lot of 8 casks and 9 bales at 80s. to 100s. for fair to good pale sorts.

GUM SANDRAC.—17 casks bought in at 52s. 6d. per cwt.

HONEY.—74 packages Jamaica chiefly bought in at 22s. per cwt., a few lots selling at 21s. 6d. to 22s. 6d. 45 barrels ditto part sold at 20s. to 23s. 6d. per cwt. 31 cases good West Indian all sold at 22s. to 24s. 20 cases Honolulu realised 25s. per cwt.

IODIDE OF POTASSIUM.—5 cases each containing ten 10-lb. bottles of Japanese manufacture all sold at 9s. 4d. per lb.

IPECACUANHA—Fair to good Rio was bought in at 15s. per lb., and picked at 16s. 1 bale Carthagena sold at 9s. 9d. per lb.; another lot of 4 bags Carthagena all sold at 9s. 9d. per lb. for 1 C.C.D. down to 9s. per lb. for 2 C.C.D.

JALAP.—12 bales fair small heavy tubes were bought in at 7d. per lb.

JAPAN WOOD OIL.—415 cases were taken out at nominally 30s. per cwt.

KAMALA.—Two cases of dark colour offered without reserve sold at 2¾d. per lb.; eleven cases of fair quality held for 6½d. per lb.

LIME JUICE.—2 packages West Indian bought in at 1s. 6d. per gallon.

MATICO LEAVES.—8 bales fair green bought in at 3½d. per lb.

NUX VOMICA.—34 bags bold Cochin part sold at 9s. 6d. per cwt.

ORANGE PEEL.—The lots offered were chiefly bought in, demand being very slow.

ORRIS ROOT.—5 bags Verona fetched 20s. per cwt.

RHATANIA ROOT.—30 bales of fair to good quality were taken out at 4d. to 5d. per lb.

RHUBARB.—25 chests all bought in at 1s. for fair round Canton and 1s. to 1s. 4d. per lb. for fair to good flat ditto. 72 cases part sold at 1s. 4d. to 1s. 6d. per lb. for fair round Shensi, flat ditto being bought in at 1s. 10d. Flat high dried was held for 9½d. to 11d. per lb., round ditto for 10d. per lb.

SARSAPARILLA.—10 bales rough Lima sold at 10d., 7 bales good ditto being held for 1s. 1d. per lb., Jamaica for 1s. to 1s. 2d. per lb. for red, and 10d. per lb. for yellow; other 5 packages part sold at 1s. 1d.; 6 serons fine Honduras were bought in at 1s. 6d. per lb.

SENNA.—128 bales Tinnevelly practically all sold at 2½d. to 6¾d. per lb., according to quality and condition. Other 71 packages also sold readily at about same prices. 19 bales Alexandria realised 2¼d. to 3¾d. for small leaf, down to 2d. for siftings.

SQUILLS.—5 bags sold at 1¼d. per lb.

TAMARINDS.—Fourteen barrels Barbadoes bought in at 10s. per cwt., a bid of 9s. 6d. being declined. Other eight barrels and three kegs sold at 8s. 6d. to 9s. per cwt.

TONQUIN BEANS.—2 barrels foxy Paras were bought in.

VANILLOES.—24 tins Seychelles part sold at 24s. 6d. to 27s. 6d. per lb., and 10s. 6d. per lb. for mouldy.

WAX.—1 package of 141bs. only, Madagascar, sold at 90s. per cwt. Fair Jamaica was bought in at £6 12s. 6d. to £6 17s. 6d. per cwt. 11 cases Italian at £6s 15s. 1 case fair Zanzibar fetched £6 5s.

Newcastle-on-Tyne Chemical Report.

September 13, 1899.

The Tyne-side Chemical Market is still very firm all round. The scarcity of Bleaching Powder is felt owing to stocks having run completely down, and those who hold the article are demanding more money. Caustic Soda and Soda Ash are the turn dearer. Quotations are: Bleaching Powder, £6 to £6 10s.; Soda Crystals, 45s. to 47s. 6d.; Caustic Soda, 70 per cent., £8 to £8 10s.; 77 per cent., £9 to £9 10s.; Soda Ash, 52 per cent., £4 10s. to £4 15s.; Alkali, 52 per cent., £5 5s.; Sulphur, £5.

Manchester Chemical Report.

September 13, 1899.

There is a rather quieter demand for heavy chemicals, but the Board of Trade returns of exports show a fairly satisfactory state of affairs. The imports of chemicals, dye stuffs, and tanning substances show an increase of 15·5 per cent., amounting to £435,478, as against £377,046 corresponding period last year. In the same way, chemicals, and chemical and medicinal preparations show an increase of 14·2 per cent., being £699,437, as against £612,241. Alkali shows an increase in quantity of 15·1, and in value of 10·5 per cent., and in Bleaching materials of 35·2 in quantity, and 23·7 in value respectively. The decline in exports to the States would now appear to have touched "bottom," Alkali showing a slight increase of 2,089 cwts., and Bleaching materials a more substantial one of 20,657 cwts. In miscellaneous chemicals in this district there is a rather better feeling. Brown Acetate appears to be in greater consumptive demand, and may be quoted half-a-crown better. Arsenic is about 5s. to 10s. per ton higher, and is quoted £18 15s. to £19 per ton, ex ship "Garston." Sulphate of Copper has taken a turn for the better, and there are buyers at £23 15s., while sellers are asking £24 to £25, according to brand delivered Manchester. Acetate of Soda varies from £13 10s. to £14. Yellow Prussiate continues to be affected by the state of affairs in the Transvaal, and is easier. Should war break out a big reduction may be looked for in this article. Chlorate of Potash unchanged, bu firm.

Liverpool Market Report.

September 13, 1899.

The general tone of the market continues steady, and, if anything, making for higher rates. Good sales of Honey, both Peruvian and Chilian, have been made at full prices, and an increased inquiry for Arabic Gum exists. Both Carnauba and Beeswaxes have been selling fairly at satisfactory figures. In Oils, higher rates will be noted in Castor, chiefly in Calcutta "seconds" and French 1st pressure, and in Olive, which has increased to at least 10s. or 20s. per tun. Chemicals have been quiet, but prices are unaltered.

AMMONIA SALTS.—Carbonate is steady at 3¼d. to 3½d. per lb. Sal ammoniac, 33s. and 35s. per cent. Sulphate is firm at £12 7s. 6d. per ton.

BEESWAX.—Ten sacks of Chilian went at £6 15s. to £7 2s. 6d. per cwt.

CANARY SEED.—A good demand exists for Turkish at 39s. 6d. to 40s. per 464 lbs.

CARNAUBA WAX.—50 bags of yellow "fair ordinary" made 65s. per cwt. Small sales of grey have been effected at 43s. 6d. per cwt.

COPPERAS—Is very firm at 37s. and 40s. per ton.

COPPER SULPHATE—Is in better inquiry and firmer, £24 per ton.

GUM ARABIC.—The demand for "sorts" is better, and 20 serons have found buyers at 62s. 6d. per cwt.

HONEY.—100 barrels of Peruvian sold for 18s. 9d. to 19s. 6d. per cwt., and 150 barrels of Pile 2 Chilian for 21s. 6d.

LINSEED.—Small quantities of Calcutta, to arrive October-December, sold at 42s. 6d. per 416 lbs. There has been no business in River Plate transacted, and a little North American has been disposed of at 41s. 6d. to 42s. per 424 lbs.

OILS (FIXED) AND SPIRITS.—Castor is improved in demand and is very steady at the following fuller rates: Calcutta, 3d. per lb.; French, 1st pressure, 2⅞d. (15 tons sold earlier in the week for 2¾d. to 2 13/16d. per lb.); 2nd pressure, French and Belgian, 2⅝d. per lb.; 2nd Sulphur, French, 2½d. per lb. Olive Oils are only offering in small amount at 10s. to 20s. per tun advance on last week's prices. Linseed is very firm at 23s. per cwt. for Liverpool makes in export casks. Cottonseed is steady for Liverpool refined oil at 18s. to 18s. 6d. per cwt. Spirits of Turpentine are now steady at 35s. per cwt., after dropping early last week to 34s. 9d.

POTASH SALTS.—Bichromate, 3¼d. to 3⅜d. per lb.; Chlorate, 3⅜d. to 3¾d. Cream of Tartar steady at 75s. to 80s. per cwt. Pearlashes, 30s. per cwt.; Potashes, 21s. to 21s. 3d. per cwt.; Saltpetre, 21s. 9d. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton; Borax, £16 to £16 10s. per ton. Caustic is very firm, 76 to 77 per cent., £8 17s. 6d. per ton; 70 per cent., £8. Crystals, £3 per ton. Nitrate is in fair demand at 7s. 6d. to 7s. 9d. per cwt.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—EDWARD PECK, East Dereham.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—HUGHES, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Greenish's Materia Medica, Squire's Companion; latest. Lowest price.—PINCHBECK, 8, St. James's St.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Books on Photography.—Woodbury, Abney, Erasmic Soap, 4d.—WEST, Chemist, Barrow, Lincs.

"Pharm. Journ. and Trans."—Odd volumes and a lot of numbers to complete a set. *Must be cheap.*—GENTIAN, 5, Serle St., London, W.C.

Advertisements.

(Received too late for Classification.)

EVENINGS; three weekly; with Doctor; qualified.—CHEMIST, 1, Willesden Lane, Kilburn.

Marriages.

Holoran—Allison.—On September 11, at St. John's Church, Lowestoft, by the Rev. E. J. M. Davies, of St. Philip's, Norwich, Frank G. Holoran, chemist and druggist, Norwich, to Emmie, youngest daughter of the late John Allison, of Retford.

Goodman—Partridge.—On August 23, at St. Lawrence's Church, Lindridge, by the Rev. R. C. Bolton, vicar of Staunton Long, assisted by the Rev. Harry Clifford, vicar of Lindridge, Frederick W. Goodman, M.P.S., of Eccleshall, Staffordshire, son of the late Thomas Goodman, of Newport Pagnell, Bucks, to Gertrude, daughter of the late C. J. Partridge, of Miles Hope, Tenbury, Worcestershire.

Deaths.

Rowlands.—On September 4, Richard David Rowlands, Chemist and Druggist, Manchester. Aged 60.

Waterall.—On September 7, George Edwards Waterall, Pharmaceutical Chemist, Nottingham. Aged 68. Mr. Waterall had been a member of the Pharmaceutical Society since 1853.

Thompson.—On September 10, John Thompson, Wholesale Druggist, Liverpool. Aged 65.

Whittaker.—On September 11, William Whittaker, Chemist and Druggist, Runcorn. Aged 81.

Partnerships Dissolved.

(From the London Gazette.)

Thomas Hudson and Philip Johnson, Surgeons and General Medical Practitioners, Ingatestone, Essex. Debts will be received and paid by Thomas Hodson.

Annie Stuart and Harriet Thomas, Proprietors of the Medical and Surgical Institute of Trained Nurses, 173, High Street, Oxford Road, Manchester. Debts will be received and paid by Harriet Thomas, who will continue the business.

George Herbert Lewis and J. M. Jones, Mineral Water Manufacturers, etc., South Quay, Worcester. Debts will be paid by George Herbert Lewis, who will continue the business in partnership with Charles L. Smith, under the style of Lewis and Smith.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Thomas Welch, Wholesale Drysalter, 15, Hill Street, Smethwick, formerly at 252, Halford Lane, Smethwick.

David Patterson, Wine and Spirit Merchant (lately trading as a Chemist), Middle Street, Consett.

Publications Received.

ON THE CINNAMOMUMS OF NEW SOUTH WALES; with a special research on the oil of *C. Oliveri*, Bail. By R. T. BAKER, F.L.S., Curator, Technological Museum, Sydney. Reprinted from the "Proceedings of the Linnean Society of New South Wales." From the Author.

PHARMACEUTISCHE PRAPARATE, DER FARBWERKE VORM. MEISTER LUCIUS AND BRUNING IN HŒCHST-AM-MAIN. Pp. 77. Frankfurt, a.M. Druck von August Osterrieth, 1899. From the Publishers.

THE GROWTH OF MONOPOLY IN ENGLISH INDUSTRY. By HENRY W. MACROSTY. Pp. 15. Price 1d. London: The Fabian Society, 276, Strand, W.C. September, 1899. From the Publishers.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY.

The annual general meeting of the members of this Society was held in the new rooms, Rutland Institute, Sheffield, on Wednesday evening, and was very well attended. The chair was occupied by the President (Mr. GEORGE SQUIRE), and among others present were Messrs. G. T. W. Newsholme, J. Austen, W. Ward, J. F. Eardley (members of the Council); J. B. Pater (Hon. Sec.), H. Antcliffe, J. W. J. Turner, C. F. Carr, E. C. Exell, F. W. Whitworth, G. H. Meadley, R. Douglas, A. Exell, and T. Cocking.

The Council, in its annual report, had pleasure in being able to announce an increase in the membership of the society, there being now 49 members and 20 associates. The last session was opened by an address by Mr. J. Rymer Young at the Masonic Hall. At the general meetings during the session papers were read by Mr. G. Squire (President) on "Company Pharmacy," and Mr. G. Ellinor on "Patent Medicine Stamp Licence"; and Mr. J. Preston opened a discussion on "The Division of the Minor Examination." There had also been held a smoking concert, a chemists' ball, and a public lecture by Mr. W. L. Howie, of London. A series of interesting papers were being arranged for the coming session. The Council were pleased to announce that they had now made arrangements with the Sheffield University College for a three years' course of instruction for the students of the Sheffield School of Pharmacy. All the classes were being conducted at the College. In consequence of those arrangements the rooms in New Surrey Street had been vacated. The materia medica specimens and the Society's microscopes had been presented to the Univesity College, but arrangements had been made to enable members and associates to continue to have the use of the same. The remaining effects of the Society had been sold. The accounts were very satisfactory, and showed the Society to be in a flourishing condition. The credit balance had increased considerably during the year, and now stood at £8 10s.

The President, in proposing the adoption of the report, said it was the most favourable they had had for some years. The profits on the School of Pharmacy last year amounted to over £4, and he hoped the interest shown by the members would be continued, and that they would have better meetings this year.

Mr. Antcliffe seconded the motion, which was supported by Mr. Ward, and carried.

Six members of the Council retired, and five of them—Messrs. J. Austen, H. E. Ibbitt, G. T. W. Newsholme, S. T. Rhoden, and G. Squire—were re-elected; Mr. C. F. Carr took the place of the other retiring member (Mr. G. Owen); other members of Council are Messrs. J. F. Eardley, A. R. Fox, C. O. Morrison, J. B. Pater, J. Preston, and W. Ward.

It was announced that the annual dinner will be held on October 19, and that Professor Hicks, the Principal of the University College, has consented to give the inaugural address to the students

A meeting of the Council, for the purpose of appointing the officers for the ensuing year, will be held next week.

ENGLISH NEWS.

'A RECORD CRUISE TO NORWAY,' on the S.Y. "Ceylon," is the title of an illustrated booklet published by the Polytechnic, 309, Regent Street, W. Apart from a realistic description of one of the Polytechnic's co-operative and educational holiday tours, the booklet is specially interesting to pharmacists, inasmuch as it has been written by a gentleman connected with the drug trade, Mr. R. C. Wren, of the firm of Messrs. Potter and Clarke, London, and also contains an article by Mr. H. A. Potter, of that firm.

FIRE.—The City Mills, High Street, Stratford, the property of Messrs. Howards and Sons, manufacturing chemists, were the scene of a disastrous fire late on Saturday night, the 16th inst. The cooperage, a building 50ft. square, burst into flames at half-past ten o'clock, and the fire rapidly spread to the stock in the open yard. The West Ham firemen were unable to cope with the mischief, and the men of the Metropolitan Brigade went to their assistance, but in the result the cooperage was entirely destroyed and other serious mischief caused.

THE FREE SALE OF CARBOLIC ACID.—In addition to the six cases of carbolic acid poisoning reported last week, particulars of five other cases are recorded this week at page 304c.

CAUSE OF THE CORONER'S ILLNESS.—Coroner A. Braxton Hicks, who was prevented from holding an inquest last week through indisposition, on resuming duty at Battersea, on Wednesday, the 13th inst., said he wished to offer advice to the public—never to use medicine which they had kept for any length of time. His illness had been caused by taking a dose of stale linctus, in which the morphine had undergone changes.

CHEMICAL LABORATORY FOR MIDDLEWICH.—Mr. F. Bettley Cooke, honorary secretary for the Victoria Technical Schools, Middlewich, has received a communication from Dr. Ludwig Mond expressing his willingness to defray the cost of providing and fitting up a chemical laboratory in connection with that institution. Dr. Mond had already given a substantial sum to the building fund of the schools. The County Council promises lectures, and a number of students are ready to join the classes.

THE EXCUSE OF THE CHEMIST, immortalised by Charles Dickens, that he had left his shop in charge of the errand boy, whose prevailing impression was that Epsom salts meant oxalic acid, has been imitated at High Wycombe. It is stated that one of the witnesses in a case of larceny tried before the High Wycombe Borough Justices on Saturday last was a chemist in the town, who, before he gave evidence, expressed the hope that he would be dealt with quickly, as he had left his shop in charge of a small boy, and he feared that in his absence someone might be poisoned.

MANCHESTER PHARMACEUTICAL ASSOCIATION.—The Council of this Association has decided to hold a dinner on the occasion of the opening meeting of the coming Session on Wednesday, October 11, 1899, at the Mosley Hotel, Manchester. It is hoped that the members of the Association and other members of the craft will join in making this a successful gathering of the chemists of the district.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.—The annual meeting of this Association was held on Tuesday, September 19, at the County Restaurant. The following officers for the coming year were elected:—President, Mr. H. G. Rogerson; Vice-Presidents, Mr. Silson and Mr. Waddington; Treasurer, Mr. Hanson; Secretary, Mr. Mitchell; Council, Messrs. Rimmington, Dunn, Mackay, Wilcock, Moulson, and Pickard.

CRICKET.—On Saturday, September 16, a match was played at Wadham Lodge, between Evans, Lescher and Webb C.C. and "Allenburys" C.C., the scoring being, for the former team: Bradford 2, Kirby 13, Rogerson 3, Young 4, Shiefflwbotham (run out) 0, Nixon 0, Osborne (run out) 7, Raffield 1, Woollard 0, Payne 8, Rose (not out) 9, extras 2; total 49. For "Allenburys": F. C. Hanbury 18, E. A. Collins 11, W. Little 2, J. Norden 15, W. Walton 1, J. Evans (not out) 10, extras 2; total (for 5 wickets) 59. Messrs. S. G. R. Coles, B. Hazel, J. F. Graves, S. Roach, and J. A. Taylor did not bat.

MR. WILLIAM EDGE WHITTAKER, chemist and druggist, whose death, at the age of 81 years, was announced in last week's Journal, was one of Runcorn's oldest and most respected townsmen. In his early days he served an apprenticeship with Mr. Peter Ward, chemist, of that town, and subsequently started in business for himself as a chemist and druggist in High Street, in the premises now occupied by Mr. J. H. Weston, chemist and druggist. Here he made a competency which enabled him to retire into private life. He, however, continued to take an active interest in the affairs of the town, having held numerous public offices from the year 1857 onwards. He was an ardent Volunteer, and a member of the Weaver Trust.

SCOTTISH NEWS.

BOTANICAL EXCURSION.—After the usual fortnightly visit to the Botanic Gardens last Saturday, the students of the West of Scotland College of Pharmacy went out Hyndland way with Mr. Barrie, and a large number of plants were collected.

EDINBURGH DISTRICT CHEMIST'S GOLF CLUB.—The annual autumn holiday prize competition was held at Leven, on Monday, in delightful weather. Ten members competed for a very handsome first prize, presented by Mr. Geo. D. MacKay, the Hon. President, and two other prizes presented by the Club. The Gibson Handicap Medal was also played for. The following were the prize winners:—1. Hon. President's Prize and Gibson Medal, Mr. T. Miller, 106—10 = 96. 2. Mr. A. W. Wilson (scratch), 99. 3. Mr. H. D. Alexander (scratch), 101, and Mr. W. C. Baker, 106—5 = 101 (a tie). Mr. Claude F. Henry had the lowest aggregate score for three competitions during the year, and is therefore the winner of the Gibson Medal and gold charm. After dinner in the Caledonian Hotel, where the prizes were presented by the Captain, the members engaged in friendly matches, while Mr. Wilson and Mr. Scott played off the final tie in the hole and hole tournament. The result was a victory for Mr. Wilson.

IRISH NEWS.

MR. S. D. O'CONNOR, Dublin, has been appointed analyst by the Omagh Guardians at £10 per annum.

MR. ROBERT BARKLIE has been elected by the Newry Union to the position of analyst, at a salary of £15. Sir Chas. Cameron and Mr. R. F. Blake were candidates for the appointment.

THE ROYAL DUBLIN SOCIETY, having proposed an Irish Solar Eclipse Expedition for next year, a committee has been formed, of which Sir Charles Cameron and Professor Tichborne are members.

MR. J. W. W. AGNEW, M.P.S.I., Clifton Street Medical Hall, has sold his branch pharmacy on the Old Park Road, including "the goodwill, stock, etc.," to Mr. Robert Andrew, L.P.S.I., late manager to Messrs. Alex Boyd and Co., Limited, The Pharmacy, Lisburn.

IS WHISKY A MEDICINE?—Properly speaking, it ought to be considered such. The Cookstown Guardians, at any rate, have refused to interfere with the doctor's discretion as to its administration. Absolute control in its prescription could only be guaranteed to medical men by having it included in the 1st Schedule.

SCHOOLS REOPEN.—At the Pharmaceutical Schools of Botany, Materia Medica, and Chemistry, 67, Lower Mount Street, Dublin, the new session begins next month. The Botany and Materia Medica School will reopen on Tuesday evening, October 3, and the Chemistry School on Wednesday evening, October 4.

CARBOLIC ACID FOR WHISKY.—Arthur Lenagh, the farmer who drank a quantity of carbolic acid out of a bottle handed him in mistake for whisky by a neighbour, named Nugent, as reported last week, has since died at his residence, Rathcarberry, county Armagh. This makes the second victim of the blunder, a farmer, named Lawrence McShame, who also partook of the contents of the bottle, having expired a few hours after the occurrence. Nugent was arrested, but is now out on bail, as the affair was a pure misadventure. He had two bottles in his pocket at the time, one containing whisky and the other the poison.

FOREIGN NEWS.

THE CITY OF PARIS, which recently opened at Berck-sur-Mer a hospital for children of the poor containing 750 beds, and which is erecting on an elevation at Angicourt, in the Oise, a consumption hospital, has just opened a sanatorium at Hendaye intended for the children of the working classes and for young Parisian employés. This last-mentioned building is situate at three kilometres from Hendaye, by the sea, at the foot of the two great rocks known as the Jumeaux, which guard the mouth of the Bidassoa, in a sort of basin, where the salubrious air of the open sea reaches the inhabitants, who are sheltered, however, from various winds. Monsieur Belonet has constructed eight blocks of buildings, four for boys and four for girls, who will be classified further according to age, and it is intended that the education of the young folk shall not be entirely neglected during their stay. The playgrounds are open to the sea. The sanatorium comprises a lazaret of twenty-six beds, where the little invalids are received and kept under medical observation for a time, and an infirmary of seventeen beds, while there are 200 beds available for the convalescents.

DREYFUS'S HEALTH.—Dr. Pozzi, the eminent physician, of 10, Place Vendôme, Paris, who saw Dreyfus daily at Rennes, says he cannot possibly live more than a few months. His condition is hopeless. Milk is the only form of nourishment his stomach can take, and during the whole of the trial he never took more than two quarts a day. The *Figaro* says it is the only point upon which the Government is likely to intervene in the case. Considering the strain which his system has been called upon to undergo it is not at all strange that he has become a wreck, irrespective of the malady from which he suffers, which latter his recent hardships have only tended to accentuate and hasten the crisis.

HORRIBLE CRIME.—The body of a man found lying in the street at Monthauban, the upper half in a sack soaked with blood, and the hands tied across the chest with a boot-lace, has been recognised as that of a pharmacien of Montech, named Veruhes, aged sixty-nine years of age. Robbery is supposed to have been the motive of the crime. The perpetrator or perpetrators of this horrible outrage are still at large.

THE FRENCH ASSOCIATION—TRIBUTE TO JENNER.—The twenty-eighth session of the Congress of the French Association for the Advancement of Science was opened on Thursday, the 14th inst., at Boulogne-sur-Mer, under the presidency of Dr. Brouardel, doyen of the Faculty of Medicine. Monsieur Aigre, Mayor of Boulogne, in welcoming the members, recalled various important dates in the history of the town. It was there that Cæsar and his lieutenants embarked in their galleys to go to the conquest of Great Britain, and the subsoil of each of their houses was the burial place of a trierarch of the *Classis Britannica*. Godefroy de Bouillon and Sainte-Ide, his mother, who personified the melancholy and sombre poetry of the Middle Ages, were born there. Boulogne had fêted Francis I. on his return from the Field of the Cloth of Gold, and Louis XIV. after the peace of Nimegna; and it was under its walls that Napoleon, while fitting out a second *Classis Britannica*, made the first distribution of the Cross of the Legion of Honour. To the list of celebrated visits made to the town the Mayor, in conclusion, added that of Thursday, made by "Science, the great power of the century, the power whose splendour illumines and dazzles everything and everybody." Dr. Brouardel thanked the townspeople of Boulogne, through their Mayor, for the welcome accorded to the Congress. Every scientific conquest (he continued) assured to the whole of the human race a larger part of material well-being, and, what was still better, it enlarged the field of their intellectual domain, it prepared for the future other discoveries, of which the coming generations would reap the benefit, as they had profited by those of their predecessors. Coming to the discussion of special science he placed hygiene in the front rank. Foremost among other names stood that of Jenner, who discovered vaccine, not as the result of a happy accident, but after observations which lasted several years. But if the date when Jenner inserted several drops of cow-pox into the arm of young James Phipps was one of the greatest of science, they might say that it was only from Pasteur that the present hygiene dated. Referring to the advance made by hygienic science and its success in the treatment of disease, Dr.

Brouardel took typhoid fever as an example. If they compared the statistics of the Minister of the Interior for two periods, 1886-90 and 1891-96, they would see that for the whole of France the mortality caused by this scourge had fallen from five to three per 10,000 inhabitants. What was the cause of this progress? In the first place the improvements effected by a certain number of municipalities in the supply of drinking water, and the fact that it was beginning to be realised by everyone that it was dangerous to drink foul water. The campaign which the hygienic commission, aided by the Press, had carried on for fifteen years, had not, therefore, been without result. They proposed now to shift the struggle to another field of battle. The new enemy, which killed in France 150,000 persons annually, was tuberculosis. Here were the proportions for Europe. If they took England as being affected on the basis of 1, Germany was on the basis of 2, France 3, and Russia 4. It was a Frenchman, one of the learned professors of Val-de-Grâce, Villemin, who in 1885 showed the contagious nature of tuberculosis, and fixed its laws. By an observance of hygienic laws tuberculosis might often be prevented. They knew that it was curable, they knew the laws of its development. France came last on the birth-list of nations. Her population did not increase; she scarcely remained stationary. Her annual mortality was greater than that of the surrounding nations. They might at least assure the life of those who were born. If they could, they must.

Pharmacien and Cycling Mishap.—It will not surprise those who are accustomed to the ways of the Parisian bicyclist to know that a day or two ago a gentleman crossing the Boulevard Sebastopol was knocked down by a bicycle and so seriously injured that, after receiving a temporary bandaging up at a pharmacy near at hand, he had to be taken to a hospital. The only redeeming feature about the accident in some people's minds will be the fact that the bicyclist himself (a chemist's assistant) had an arm broken. Once upon a time the Parisian Jehu was the terror of all pedestrians, particularly those who were not very nimble on their pins. To-day he has been taught better manners, and does not run over you as a matter of course. But he seems to have handed over his erstwhile prerogative to a percentage of bicyclists, who, if they do not frighten the pedestrians by their wild career, scare the life out of them by the awful bellow of their foghorns. It would be foolish, of course, to pretend that all bicyclists and auto-motor drivers are tarred with the same brush. There are plenty of them who recognise the right of foot passengers to cross the road. But there are others who do not, and the result of their wanton negligence is invariably pain and inconvenience to their poor victim, and no end of fee-less bother to the pharmacien who is called upon to render his best services, not that the latter is inhuman enough to decline to act the good Samaritan, but his pharmacy is made the dumping-ground for all sorts and conditions of accidents, whereas such should be conveyed to "posts-de-secour, hospitals, and surgeries," which are more abundant and better suited to such cases than are the "too convenient" pharmacies.

Claude Bernard.—A monograph of the illustrious French physiologist, which has just been issued, forms one of the "Masters of Medicine" series, and commences with the following dedication by Sir Michael Foster:—"To the Physiologists of France, both to those who had the happiness to know Claude Bernard in the flesh and to those who, like myself, never saw his face, this little sketch is dedicated in the hope that as he has been to me a father in our common science, so I may be allowed to look upon them as brethren." Bernard, the only son of a small peasant proprietor, was born in 1813 at the village of St. Julien, near to Villefranche-sur-Saône, in which town he received his early education under the Jesuits. As a youth he served in a druggist's shop in Lyons, dabbling with literature while dispensing medicines. With a drama in his pocket and a letter of introduction to Saint-Marc Girardin, he came to Paris in 1834, but the great critic recommended the young man to study medicine, and to make the Muses a secondary consideration. Bernard followed this advice, and five years later was selected to be assistant to Magendie, then the leading physiologist in France. The author devotes considerable space to the condition of physiological science at the time, and then reviews Bernard's studies and discoveries, chief of which were the action of the pancreatic juice and of glycogen, and the physiological action of sugar, especially with regard to the liver. "The discovery of glycogen was Bernard's greatest achievement; next in importance to this, and, indeed, hardly less important than it, was his discovery of the vaso-motor system"—a term, it may be explained, applied to nerves which govern the motions of the blood-vessels. With regard to Bernard's experiments Sir M. Foster states that the marvellous improvements in the treatment of diseases at the close of the present century "had their origin in Bernard's initial experiment on a living animal." Many other of Bernard's discoveries are discussed by the author, who also gives some account of Bernard's numerous works. In later years honours fell thick on the great physiologist. Louis Napoleon invited him to Court, and in 1868 he became one of the "Immortals." Up to the time of his death in 1878 he was "simply worshipped" by his pupils of all countries. Among his intimate friends were Renan, Paul Bert, and Berthelot, the chemist. He also watched with appreciation the great researches made by Pasteur. All Paris mourned his loss, and many orations were made at his public funeral in the draped cathedral of Nôtre-Dame.

Vitriol Outrage upon Englishmen.—An outrageous attack upon Englishmen—which had no connection with the Dreyfus case—was committed upon five passengers who visited Boulogne on the 12th inst., on the s.s. "Conqueror." Four men, employed at the Grosvenor Hotel, London, in company with a Ramsgate resident, named Parsons, had just left the Criterion Restaurant on the Quai Gambetta, where they had dined, when a woman of the working class rushed at them, and having emptied the contents of a can of vitriol over the whole of them ran off at a high speed. She was pursued by gendarmes and overtaken, but she violently resisted capture. Thomas Oliffe, of London, sustained the worst injuries, his face and neck being terribly burned. The five men were treated at the pharmacy of Mr. Parsons, English chemist, at Boulogne, and then returned to England.

Notification of Plague.—According to the *Apotheker Zeitung*, an order has been issued, applicable to the whole of Germany, including bubonic plague among notifiable diseases.

POISONING CASES.

Chlorodyne.—Eliza Atwood, a married woman, 27 years of age, residing with her parents at No. 29, Crown Street, Landport, was admitted to the Landport Hospital on Tuesday, September 19, suffering from the effects of chlorodyne poisoning. It appears she formerly lived at Eastney with her husband, but for some time past has been staying with her parents in Crown Street, in consequence of being in a depressed and run-down condition. She slept with a younger sister, and on going to call the two early the father found her lying on the bed unconscious and breathing heavily. Her sister was not in the room, but on calling her it was found that in consequence of her sister's moaning and groaning a great deal during the night she had gone downstairs and had slept on the sofa. She had no idea that her sister had taken poison, and probably the drug was taken after she had left the room. A doctor was at once summoned, and he promptly administered an emetic, and ordered Mrs. Atwood to be removed to the hospital. She had never threatened to take her life, but had not been in the habit of taking chlorodyne. A labelled wrapper was found in the bedroom which had evidently contained the chlorodyne, and a blue bottle, labelled "Timothy White and Co., Portsmouth, Chlorodyne, Poison," was subsequently found over the garden wall.

Carbolic Acid still keeps up its reputation of being the handiest and most popular poison with those persons who, for the moment, are desirous of escaping from the sorrows and trials of life. This week's newspapers record another crop of suicides and attempted suicides by means of carbolic acid.—At Ashton-under-Lyne, on Monday, Samuel Hall, a collier, aged 62, of Charles Street, before going to work in the morning told his wife he would not be here very long. He returned from his work at 5.30, and soon after his wife saw him raise a bottle of carbolic acid to his lips and drink the contents. He died, despite medical efforts to restore respiration, an hour later.——The day following, Tuesday, the 19th inst., a woman of 60, named Mrs. Brownhill, wife of Mr. Reuben Brownhill, market gardener, Sale, Cheshire, committed suicide by taking a dose of carbolic acid. An emetic was promptly administered, but she died almost immediately.——On the previous Wednesday, William Capon, 82, of private means, of 19, North Denes Road, Yarmouth, died from the effects of carbolic acid poisoning. An

inquest was held on Friday, the 15th inst., and from the evidence of the deceased's wife it appeared that he had been a great sufferer with a very painful bladder disease and severe attacks of general eczema. On Wednesday afternoon he went into a pantry and took a dose of carbolic acid, and although Dr. Moxon did all he could for the deceased, he died three hours later. His sufferings were terrible at times, and it was thought he took the acid to put an end to his pain.—Dr. Moxon stated that deceased probably took nearly four ounces of the acid at a gulp. An ounce of the acid would have been sufficient to cause death. He thought deceased's action was poison, but it was not a poison scheduled under the Pharmacy Act, and intentional. The doctor pointed out that the acid was a fatal anyone was allowed to sell it. So far as the bottle in question was concerned, every protection was taken in armouring the cork with metallic points, but he had seen this poison kept in a ginger-beer bottle. Mrs. Capon said she had put an ordinary cork in a bottle if the armoured cork got broken.—The jury found that deceased died from poisoning by carbolic acid during temporary insanity.—— At Wheatley on Thursday, September 14, Mr. F. E. Nicholson, District Coroner, held an inquiry at the Board School concerning the death of Caroline Warden, 30, wife of Stephen Warden, grocer's assistant, who died early the same morning from carbolic acid poisoning.—Mr. Warden, the husband, 45, Stanhope Street, Wheatley, said that on Wednesday night he and his wife went to bed at 10.50, and deceased then appeared as usual. At two o'clock he awoke, and saw his wife standing at the foot of the bed, with a cup in her hand. Immediately afterwards she fell on to the bed side and collapsed. He gave her some castor oil, which made her vomit, and he also called in several neighbours and a doctor. The doctor used the stomach-pump, but deceased expired twenty minutes after his arrival.—The doctor said that the cup contained carbolic acid, and there was a bottle of the liquid in the house. Deceased was in a consumption, and had been very much depressed.—A verdict of "Suicide whilst temporarily insane" was returned.—— A case of attempted suicide by means of carbolic acid is also recorded. On Saturday night a young man named John Holmes, residing at 3, Law-street, Hoole, returned home shortly after eight o'clock the worse for drink, and sent his son for 3d. worth of carbolic acid, telling him he wanted it for the purpose of killing bugs. The lad went to a chemist's shop, and was followed by his father. The chemist informed the lad that he did not sell less quantities of carbolic acid than 6d. worth made up in a bottle. The lad met his father and told him this, and the father gave another 3d. and sent him back for a 6d. bottle. The father got the bottle from the boy, went home, and proceeding to the backyard started to drink it. His wife seeing the bottle in his hand suspected that he meant to poison himself, and told her next-door neighbour, who knocked the bottle out of his hand before he had time to drink all the contents. Police-sergeant Farnworth received information shortly after, and taking with him a bottle of salad oil he hurried to Holmes' residence and poured the lot over Holmes' throat, and this according to the doctor, saved the man's life. Drs. Williams and Butt were called in, the stomach pump was applied. and everything possible was done for the man, who was in a state of collapse. At one time he was thought to be dead, as his pulse was not perceptible, and it was not until midnight that he showed any signs of recovery. On Tuesday last he was somewhat better, but it was thought that he would not be well enough to be brought before the magistrates for several days.

A CHEMIST'S APPRENTICE AND CHLOROFORM.—On Monday, September 18, at the Birkenhead Police Court, Albert William Jenks, an apprentice to Mr. Fore, chemist and druggist, of Market Square, was charged with attempting to commit suicide. It appears that on Sunday he went to his room and did not appear for tea or supper. Mr. Fore called him shortly after ten at night, and receiving no answer sent for the police. Detective-inspector Parker arrived, burst open the bedroom door, and discovered the prisoner in bed asleep. Under the bed was found a 2-pound bottle of chloroform, of which there was a pungent smell in the room. The bottle had been taken from the shop, and a quantity of the liquid was missing. Prisoner was unconscious, but recovered under the detective's treatment, and was subsequently conveyed to the Borough Hospital, where he thoroughly recovered without the aid of an emetic. The house surgeon was of the opinion that Jenks had merely inhaled the chloroform.—The young man told the Court he had been suffering from neuralgia, and must have become unconscious through inhaling the narcotic. He never intended to commit suicide, and he locked his door because it was customary to do so.—Mr. Fore stated that the prisoner had no friends, but he would look after him in the future. Upon this undertaking Jenks was discharged.

LAUDANUM AND OXALIC ACID mixed were the means by which Bennett Phillips, who up to a few years ago was well known in Oldham as a waterproof manufacturer, tried to kill himself last week, and as a result was brought before the Oldham magistrates on Saturday, the 16th inst., on a charge of attempted suicide.—Evidence given by Police-constable Godbold showed that the prisoner, who had a large business in Derby, and has since had a tobacco shop in Loughborough, came to Oldham on Thursday with the intention of becoming reconciled to his wife, from whom he had been separated four years. In this he did not succeed, and on Friday Godbold found him lying on the ground near his wife's shop in Manchester Street, suffering from the effects of poisoning by laudanum and oxalic acid. Three bottles which had contained the poisons were found in his pockets, and it was evident that he had had a large dose. Godbold administered an emetic, and this having taken effect removed his charge to the Infirmary.—It was stated there was a possibility of the prisoner being taken care of by friends, and the Bench decided to remand him to Strangeways for a week "to enable him to collect his thoughts a little," as the Chairman (Mr. G. B. Taylor) remarked.

THE PURITY OF FOOD AND DRUGS.

SEIDLITZ POWDERS.—Charles Callis, drysalter, Melton, was fined £1 at Melton Mowbray County Petty Sessions for selling seidlitz powders which were not composed of the proper ingredients.—Defendant pleaded that he bought the powders as genuine, and had sold them as such.

SPIRIT OF NITRE.—On Tuesday, August 29, at Swadlincote Petty Sessions, Lucy Staley, grocer, Church Gresley, was summoned for selling four ounces of sweet spirit of nitre utterly devoid of nitrous ether. Captain Sandys, the inspector, recommended retailers to insist upon receiving a warranty when purchasing from wholesale dealers.—Defendant was fined £1.

OLIVE OIL.—At Ashford (Kent), on Tuesday, September 12, William James Friar, grocer, Molash, was charged with selling olive oil, not of the nature, quality, and substance demanded by the purchaser, it being certified to be entirely devoid of olive oil, and to consist wholly of mineral oil.—For the defence, it was stated that the defendant did not keep olive oil in stock, and that the constable who made the purchase was understood to ask for "one flask of oil," which was supplied, and invoiced as such.—The magistrates were of opinion that there was a slight doubt as to what was asked for, and dismissed the case.

COPPER IN VEGETABLES.—Referring to the prosecutions instituted against vendors of preserved vegetables coloured by copper sulphate, the *British Food Journal* states that, while they have served to direct public attention to this most injurious and dangerous form of adulteration, they have had but slight effect in checking the sale of the preparations referred to. Enormous quantities of tinned and bottled peas, beans, and spinach which have been "greened" by treatment with copper salts are placed upon the market, and command a ready sale. This fact might lead to the erroneous supposition that no great harm is done by the sale of products adulterated in this way; but, remarks our contemporary, because a number of cases of violent copper-poisoning are not reported by the Press, it is not to be supposed that there is an absence of injury. Small doses of copper salts induce a variety of gastric and intestinal troubles which are liable to be put down to all sorts of causes other than the true one. The continued use of coppered vegetables must also in many cases lead to permanent injury; and it is, in fact, the slow and insidious character of "small-dose" metal-poisoning which constitutes its greatest danger. The public cannot be too strongly warned against the consumption of tinned and bottled vegetables which are offered for sale without a sufficient guarantee that they are free from compounds of copper.

Copper in Peas.—At the Spelthorne Petty Sessions, held at Staines, on Tuesday, September 12, Messrs. Petty, Wood and Co., wholesale grocers, of 41 to 57, Southwark Bridge Road, were summoned, under the 27th section of the Food and Drugs Act, for having unlawfully given to Messrs. Budgen and Co., Limited, grocers, of Staines, a label with a certain article of food, green peas, which was sold by Messrs. Budgen and Co., the said label falsely describing such article of food.—Mr. Blanchard Wontner defended. Some few weeks ago proceedings were instituted in the same Court against Messrs. Budgen for selling preserved peas which were coloured with copper sulphate to the extent of 2·4 grains per pound (see *ante*, p. 168*a*). The firm was convicted, and notice of appeal was given. The present proceedings were taken against Messrs. Petty, Wood, and Co. in consequence of the conviction of the Staines firm.—Mr. Wontner urged that proceedings had been taken under the wrong Section, and asked the Magistrates not to convict.—Inspector Tyler, who conducted the case for the prosecution, contended that the Section under which proceedings had been taken was the only Section which gave the County authority power to proceed against Messrs. Petty, Wood, and Co. If a conviction were not obtained in such a case, the real offenders would get off scot free, inasmuch as the goods in question were sealed goods, and were sold by Messrs. Budgen in exactly the same condition as received from the present defendant Company.—The Chairman (Mr. John Ashby) said that the Bench had very carefully considered the legal points, and the majority of them had come to the conclusion that the proceedings had been taken under the wrong Section, and that the case must, therefore, be dismissed.—Inspector Tyler asked the Magistrates to state a case.—The Clerk (Mr. A. Engall) said that there was no question of law involved.—The Chairman suggested that it was for the County Council to apply to a superior Court for a mandamus compelling the Magistrates to hear the case under this particular Section. He hoped that they would do so and be successful.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. T. B. Bamford, chemist and druggist, has opened the Talbot Pharmacy, Station Street, Port Talbot, South Wales, the fittings being supplied by Messrs. Ayrton and Saunders, of Liverpool.

Mr. C. E. Sage, M.P.S., 8, Fisher Street, Red Lion Square, London, W.C., who was poisoned the first week in August, when at work on a post-mortem examination, asks us to announce that he has not yet recovered his health, consequently the doctor will not allow him to return to his business, which, in the meantime, has been brought almost to a standstill.

Messrs. Fletcher, Fletcher and Co., manufacturing chemists, Holloway, London, N., have decided to register their firm as a private limited liability company. This step is only a formal one, and will not entail any change in the conduct of the business, and there will be no share capital offered for subscription.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Joseph Gibbs and Sydney Gibbs (trading as Gibbs and Son), Chemists and Druggists, Terminus Road, Eastbourne. Debts will be received and paid by Sydney Gibbs, who will continue the business under the same style.

Peter Leigh and Sarah Hutchinson (trading as Leigh and Co.), Patent Medicine Vendors, etc., 9, School Road, Sale, and 131, Northenden Road, Sale Moor, Chester.

Ernest H. Aves, Chemist and Druggist, Low Moor Road, East Kirkby, Notts.

Henry Seagrave, Photographic Artist, etc., 64, Powis Street, Woolwich, 28, Plumstead Road, Plumstead, and 21, Pier Road, Erith.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

September 21, 1899.

Business has been somewhat quiet during the past few days, while the alterations in price have not been important. Quinine, after a further slump, has taken a slight turn in an upward direction, and it would look as if a further improvement was not impossible. It is a noteworthy fact that the article as momentarily stands is at just exactly the half of about the highest price touched during the late excitement. Opium is very firm, and slightly dearer. Morphine very firm. Codeine dearer. Glycerin is also somewhat dearer. Sulphate of Ammonia slightly lower. Camphor steady, as also are Bromides, while as regards Iodine and Iodides buyers are somewhat doubtful as to the future of the market in view of the threatened Japan competition. Pilocarpine very firm. Acid Citric quiet and dull. Quicksilver and Mercurials firm. Menthol tending upwards. Bismuth Salts unchanged. Cod liver oil quiet. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE—Continues very weak, sales being pressed almost *à tout prix* down to 9½d. per lb. for larger quantity.

ACID BORACIC—Unchanged, at 25s. per cwt. for crystals and 27s. per cwt. for powder.

ACID CARBOLIC—Firm at 7d. per lb. for best make of 35-36°C. ice crystal in large bulk packing; 7½d. per lb. for 39-40°C. ice crystal, and 8½d. per lb. for the B.P. quality (39-40°C.) in detached crystals. Crude rather dearer at 2s. 1d. per gallon for the 60°F., and 2s. 7½d. per gallon for the 75°F.; liquid 95-98 per cent. of pale straw colour, 1s. 6d. to 1s. 4d. per gallon in 40-gallon casks; ditto dark, in colour, 10d. to 11d. per gallon.

ACID CITRIC—Dull and weak at 1s. 5½d. to 1s. 6d. per lb. for crystals in 5 cwt. casks.

ACID OXALIC—Is still quoted 3d. to 3¼d. per lb. nett, delivered free, London.

ACID TARTARIC.—Unchanged at 1s. 1d. per lb. for English on the spot, and 1s. 0¼d. per lb. c.i.f. for foreign.

AMMONIA COMPOUNDS.—Bromide steady and unchanged at 2s. 2d. per lb.; Carbonate, 3d. to 4d. per lb., according to make, quantity, and packing. Muriate, commercial, free from metals, 27s. 6d. per cwt.; ditto, chemically pure, small crystals, 30s. to 32s. 6d. per cwt. Iodide, 13s. 7d. per lb. Sal Ammoniac: First, 35s. per cwt.; seconds, 33s.; ditto crushed for batteries, 2s. per cwt. more. Sulphate steady at rather lower quotations—viz., gray, prompt, 24s. per cent., London, £11 17s. 6d. per ton; Hull, £11 15s.; Leith, prompt, £11 15s. to £11 16s. 3d.; Beckton, October-March, £11 12s. 6d.; Beckton, terms prompt, £11 12s. 6d. Sulphocyanide, 1s. to 1s. 2d. per lb., according to quantity, etc.

ASHES.—Pots 22s. 9d., Pearls 32s.

ANTIMONY.—Regulus is steady and unchanged at £39 to £40 per ton, and Crude Japan (black Sulphide), £24 to £24 10s. per ton.

ANTIPYRINE and **PHENAZONE**—Continue in fair demand at steady, unchanged prices.

ATROPINE—Remains firm at 15s. 6d. per oz. for the Sulphate B.P. and 17s. 10d. per oz. for the pure Alkaloid.

BISMUTH—Unchanged, at 5s. per lb. for the commercial quality of the metal, 5s. 1d. per lb. for the subnitrate, and 5s. 8d. per lb. for the subcarbonate.

BLEACHING POWDER (CHLORINATED LIME).—Steady at the late advance to £6 10s. for English makes.

BORAX—Steady and unchanged at 16s. per cwt. for crystals and 16s. 6d. per cwt. for powder.

BROMIDES—Are firm at unchanged, prices being:—Potassii Bromid. 1s. 10½d. per lb., Sodii Bromid. 2s. 1½d. per lb., Ammon.

Bromide 2s. 2d. per lb., Bromine 2s. 2d. to 2s. 3d. per lb., according to quantity, in 60lb. cases.

CAMPHOR.—Crude is unchanged at nominally very high prices, there being, however, practically no business passing. Refined is firm at English makers' prices of 1s. 8d. per lb. for Bells and Flowers, tablets being quoted in proportion, according to size.

CASCARA SAGRADA.—Old bark has been sold this week at 30s. per cwt.; while new bark is offering at 5s. per cwt. less money. This is rather a disappointment to holders, who have been keeping their bark back in anticipation of high prices.

CLOVES.—Privately Zanzibar continue very quiet, at barely steady prices. Small sales made include January-March delivery at 3 5/16d. At auction no Zanzibar were offered. Of 64 cases picked Penang only 8 cases sold, fair bright at 6¾d.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 2d. per gallon; pure, 2s. Benzole: 50 per cent., 10d. to 10½d. per gallon; 90 per cent., 8½d. to 9d. Creosote: 3½d. per gallon. Crude Naphtha: 30 per cent. at 120°C., 4d. per gallon; solvent naphtha, 95 per cent. at 160°C., 1s. 5d. per gallon; 90 per cent. at 160°C., 1s. 2d.; 90 per cent. at 190°C., 1s. 1d. per gallon. Anthracene: A., 4d. per unit; B., 3d. per unit. Pitch: 35s. per ton f.o.b. Tar: Refined, 14s. 6d. per barrel; 3d. per gallon; crude, 13s. per barrel; 2½d. per gallon.

COCAINE.—Makers are very firm at the advanced price of 18s. for the Hydrochlorate, it being more than hinted that a further advance of several shillings per oz. has been practically decided upon. From second-hand it is possible to buy in limited quantity at 17s. per lb.

CODEINE—Has been advanced to 12s. 11d. per oz. for large contracts and 13s. 4d. per oz. for smaller quantity. There is a good demand and market closes very firm.

COD LIVER OIL—Remains very quiet, price being nominally 58s. to 62s. 6d. per barrel, according to brand, for best new, non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—Quiet at 74s. 6d. for first white crystals on the spot, and 77s. per cwt. for powder.

ESERINE (PHYSOSTIGMINE)—Continues firm at the advance to 2s. 3d. per gramme for the Sulphate and Salicylate Salts.

ESSENTIAL OILS—Continue exceedingly quiet, the business passing having been practically nil, while prices remain nominally unchanged.

GALLS.—The market is steady, and unchanged. No business in China is reported. Usual shape on the spot quoted 59s., and for arrival 58s., with plum shaped at 62s. c.f. and i. Persian Blues have met a fair inquiry, with sales at full values, and small sales of Greens at 57s. 6d. No White offering; supply exhausted. Smyrna are in little request, but there is little to be had.

GINGER.—The small supplies of Cochin were mostly bought in; of 221 cases and 378 bags offered only 78 packages sold, native cut, fine bold, scraped, at 77s.; small and medium ditto at 32s.; Calicut, rough, small, and shrivelled at 21s.; small shrivelled pickings at 15s. 6d.; washed, rough, fair, bought in at 25s. Jamaica in slow demand, the 79 barrels offered being all bought in.

GLYCERIN.—Crude continues very high in price, in comparison with prices ruling for the refined article, the quality most suitable for refining purposes being quoted £36 to £39 per ton, against £26 to £27, the price ruling not so very long ago. Refined should on this basis, in order to pay the producers even the most moderate profit, be much dearer than present quotations, which are 52s. 6d. to 55s. for English and 54s. to 62s. 6d. for German best white double-distilled, chemically pure, 1,260° quality in tins and cases.

IODIDES—Continue rather unsettled, prices being, however, unchanged, but if the Japanese competition continues and becomes in any way important, it may lead to a reduction in price of Iodine and Iodine preparations on part of the syndicate which now governs the prices of same. Quotations are: Crude Iodine, 7½d. per oz.; Iodine Resublimed, 12s. per lb.; Potassii Iodid., 10s. 6d. per lb.; Sodii Iodid., 11s. 10d. per lb.; Ammon. Iodid., 13s. 10d. per lb.; Iodoform Crystals, Powder, and/or Precipitated, 13s. 10d. per lb.

IPECACUANAHA—Has been quiet this week at nominally 15s. per lb. for Rio and 10s. per lb. for Carthagena.

LITHIA SALTS—Are in good demand at 11s. to 11s. 3d. per lb. for the Carbonate and 7s. to 7s. 6d. per lb. for the Citrate.

MERCURIALS—Are firm at the late advance to 2s. 7d. per lb. for corrosive sublimate and 2s. 11d. per lb. for calomel.

MENTHOL—Is tending upwards. There are buyers of good brands at 7s. 9d. per lb, with but few sellers thereat.

MORPHINE—Is very firm at late advance to 5s. per oz. for the Hydrochlorate Powder in large quantity, the Crystals being quoted 2d. per oz. more. Demand is good, while the rising tendency of the raw drug points to the probability of even higher prices in the near future.

OILS (FIXED) AND SPIRITS.—Linseed dearer: London spot pipes £22, barrels £22 7s. 6d. Rape firm: ordinary brown on spot £23, October-December £23, refined spot £24 5s. Ravison dearer, naked spot £19 15s. Cotton firm: London crude spot £16 10s., November-April £15 5s., refined spot £17 15s. to £19, Hull naked refined spot £16 2s. 6d., crude spot £15. Olive firm: Mogador £33, Spanish £33 to £33 10s. Cocoanut firm: Ceylon on the spot £25, October-December and January-March £23 5s., c.i.f., Cochin spot £29 10s., August-September £26 5s., January-March £26 c.i.f. Palm unchanged: Lagos on the spot quoted £26. Castor Oil firm: Belgian first pressing spot £26 10s., second pressing spot £24, ex wharf; Hull manufactured, guaranteed cold drawn, pure, pharmaceutical, £29 5s. per ton in barrels, 3⅜d. per lb. in cases; pure firsts £26 15s., seconds £25 15s. per ton in barrels, firsts 3⅛d. per lb. in cases, seconds 3d., ex wharf, London. Lubricating Oil: Pale American, spot, 6s. 6d. to 8s.; black, 6s. 3d. to 7s. Russian, black, 5s. 6d.; pale, 7s. to 8s. 6d. Turpentine irregular, closing firm at a slight decline on the day: American spot 36s. 6d., October-December 36s. 6d. to 36s. 10½d., January-April 37s. 4½d. to 37s. 6d. Petroleum firm: Russian spot and to end March 5½d. to 5⅝d. per gallon, American spot and to end March 6⅜d. to 6¾d. Water white 7⅞d. to 8d. per gallon. Petroleum spirit dearer: American 9½d., deodorised 10d. per gallon.

OPIUM.—A good demand continues to prevail for manufacturing and druggists descriptions, and a fair business has been done at full rates, but higher prices are now required. In "soft shipping" only retail sales have occurred at previous rates. Persian has been dealt in to a fair extent at full to rather dearer prices.

PARAFFIN WAX.—Crude 2½d. to 3d. per lb., refined 3d. to 3¾d.

PHENACETINE—Continues weak, with pressure to sell the makes less in favour, which have even been offered as low as 3s. 2d. per lb. Buyers will do well to see that they get a really good article, even if they have to pay rather more money. At present low figure the article should be worth stocking to a moderate extent.

PERMANGANATE OF POTASH.—While some makers have advanced their price others of less repute are still pressing sales at about the late low figure, consequently buyers are confronted with the anomaly of quotations, varying from 50s. to 62s. 6d. per cwt. for small crystals in 1-cwt. kegs (large crystals costing 5s. per cwt. more money). Provided price be reasonable, buyers will find that in the long run it pays them best to only handle reliable makes of this, and, in fact, of any other article.

PILOCARPINE.—Very firm at 30s. per oz. for the Nitrate and Hydrochlorate Salt, it being reported that Jaborandi Leaves showing anything like a fair yield of Pilocarpine are exceedingly scarce and dear.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, 3¾d. and 4d. per lb. respectively for crystals and powder for London spot delivery. Iodide, 10s. 6d. per lb. Permanganate unsettled, quotations verying from 50s. to 60s. per cwt., according to make, for small crystals in the cwt. kegs, and 5s. per cwt. more for large crystals. Prussiate, yellow, Beckton, 7¾d. per lb.; other English makes, 8d. per lb.; red, 1s. to 1s. 2d. per lb., according to quantity, packing, etc.

QUICKSILVER—Firm, at £8 12s. 6d. per bottle from the importer and 6d. per bottle less from second-hand.

QUININE.—After drifting down to 10½d. per oz. sellers for B. & S. and/or Brunswick in the speculative market, things have taken a slight turn for the better, and a considerable business has been done up to 11d. per oz. for December delivery. Taking all the facts of the case into consideration, buyers can hardly do much harm by securing a fair stock at 11d., not forgetting that a few months ago there were eager buyers at more than double this figure. Makers' prices are nominally unchanged, but, of course, they are for the moment quite out of the running.

ROSIN—Steady, at 4s. 6d. per cwt. for strained, ex wharf, on the spot, and 4s. 1½d. to 4s. 2d. per cwt. for September-October and November-December shipment per sailing vessel.

SALICINE—Firm, at the late advance to 12s. 6d. per lb.

SANTONIN—Is firm at late advance to 9s. 6d. per lb. There are, however, still sellers from second-hand at somewhat below this figure.

SHELLAC—Remains very quiet at nominally unchanged prices, there being practically no business to report.

SODA COMPOUNDS.—Crystals are steady at the late advance to 60s. per ton, ex ship Thames in barrels, and 57s. 6d. per ton in bags. Ash £5 5s. to £6 10s. per ton, according to percentage, packing, etc. Bicarbonate, commercial, £7 10s. to £8 10s. per ton; ditto fully bicarbonated 22s. 6d. to 25s. per cwt. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic, white, 70 per cent., £8 15s. per ton; 60 per cent., £7 15s. Hyposulphite (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to quantity, make, and packing. Iodide, 11s. 10d. per lb. Nitrate, commercial, £8 per ton for spot delivery.

SPICES (VARIOUS).—Black Pepper: 80 bags good fair Tellicherry bought in at 6d. White Pepper: 20 bags Singapore bought in, fine, at 10d. Cassia Lignea quiet; of 15 packages China 4 bales broken sold at 28s. 6d. to 31s. 6d.; 13 bales Saigon bought in at 30s. Cassia Vera: 60 bales coarse Padang quill bought in at 33s. Mace: 31 packages Penang chiefly bought in, fair red, part wormy, at 1s. 10d.; 10 cases West Indian sold, fair to good red, at 1s. 5d. to 1s. 8d.; broken pickings at 1s. 3d. Nutmegs: 57 packages West Indian sold, 86's at 1s. 5d. to 1s. 6d.; 99's at 11½d. to 1s.; 110's to 112's at 10d. to 1s.; 118's at 11d.; 146's at 7½d.; wormy and broken at 3d. to 3½d. Pimento firm; of 305 bags offered 195 bags sold, fair to good at 3⅜d. to 3½d.

SULPHATE OF COPPER.—Quiet at £23 12s. 6d. to £24 10s. per ton, according to quantity, picking, and make.

SULPHONAL—Unchanged, as far as makers' price is concerned, at 17s. per lb. for both crystals and powder, while quasi, from second-hand, it is possible to buy at 14s. 6d. per lb.

TAR.—Stockholm 25s. 6d. to 26s., Archangel 18s. to 18s. 6d.

TURMERIC—Continues firm, and higher prices are asked, but only a restricted business has been done. Bengal quoted 24s.; Madras, fine, bright finger, 30s. to 32s. 6d.; Cochin, finger, 22s. 6d.; ditto, split bulbs, 10s.

Liverpool Market Report.

September 20, 1899.

AMMONIA SALTS.—Carbonate is very scarce at 3¼d. to 3½d. per lb. Sal ammoniac, 33s. to 35s. per cwt. Sulphate is dull at £12 2s. 6d. per ton.

CANARYSEED.—Turkish selling at 39s. 6d. to 40s. per 464 lbs.

CHILLIES.—Fine Sierra Leone fruit sold at 60s. per cwt.

COPPER SULPHATE.—Is dearer and closing very firm at £24 10s. per ton.

COPPERAS.—Is firm at 40s. and 37s. 6d. per ton.

GUM.—Arabic sorts have sold at 62s. 6d., 65s. and 70s. per cwt.

LINSEED.—Continues very firm, North American has been sold at 40s. 9d. per 424 lbs. for October-November shipment.

OILS (FIXED) AND SPIRITS.—Castor Oil is selling well with steady inquiry: Calcutta at 3d. per lb., French, 1st pressure, at 2⅞d. per lb., 2nd pressure, French and Belgium, at 2⅝d. Olive Oil is only offering in small amount at very full prices, inquiry is good. Linseed Oil of Liverpool make continues firm at 23s. to 23s. 6d. per cwt. Cottonseed Oil: Liverpool refined is steady at 18s. to 18s. 6d. per cwt. Spirits of Turpentine is dearer and now brings 37s. per cwt.

POTASH SALTS.—Bichromate, 3¼d. to 3½d. per lb.; Chlorate, 3½d. to 3¾d. per lb. Cream of Tartar is in limited demand at recent rates. Prussiate is firm at 8¼d. to 8½d. per lb. Saltpetre, 21s. 9d. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton; Borax, £16 to £16 10s.; Caustic, 76 to 77 per cent., £9 5s. to £9 7s. 6d.; 70 per cent., £8 10s. per ton; Crystals, £3 2s. 6d. to £3 5s. per ton; Nitrate, 7s. 6d. to 7s. 9d. per cwt.

Newcastle-on-Tyne Chemical Report.

September 20, 1899.

Good steady business is still experienced on this market at the advanced prices. Bleaching Powder keeps in demand, and as stocks are low quotations forward are firmly made. Soda Crystals for home markets are a better movement. Soda Ash and Caustic Soda are well sought after. Quotations are:—Bleaching Powder, £6 to £6 10s. per ton; Soda Crystals, 45s. to 47s. 6d.; Soda Ash, 52 per cent., £5; Alkali, 52 per cent., £5 5s.; Caustic Soda, 70 per cent., £8 10s.; Sulphur £4 15s. to £5.

Manchester Chemical Report.

September 20, 1899.

It is rarely that the upward trend of the movement in heavy chemicals has been so well maintained. Prices of principal articles may be quoted as follow:—White Caustic Soda, 77 to 78 per cent., £9 15s. to £10; 74 per cent., £9 5s. to £9 10s.; 70 per cent., £8 10s. to £8 15s.; 60 per cent., £7 10s. to £7 15s. Soda Ash, 48 per cent., £4 2s. 6d. to £5. Ammonia Alkali, 58 per cent., £4 2s. 6d. Soda Crystals, £3 per ton, bags, and £3 7s. 6d. per ton, casks, and Bleaching Powder, £5 5s. per ton, soft wood casks, all on rails at works. Crude Glycerin is rather higher. Chlorates of Potash and Soda are firmer, but unchanged in price. Sulphate of Copper has advanced about 10s. per ton on the week—£24 10s. to £25 per ton, best brands, delivered Manchester. Brown Acetate of Lime is steady at £4 17s. 6d. to £5 per ton, Welsh and American, delivered Manchester. White Sugar of Lead dull at £21 10s. to £21 15s. per ton, c.i.f., and Nitrate of Lead, £22. White Powdered Arsenic is rather higher at £18 15s. to £19 per ton, ex ship, Garston. Green Copperas in fair request for Lancashire make at unchanged prices. Yellow Prussiate is scarce at 8d. to 8¼d. per lb., Lancashire make. Tin Salts firm at the advanced prices.

TERMS OF SUBSCRIPTIONS.

The Pharmaceutical Journal circulates amongst Pharmacists in Great Britain and Ireland, France, Germany, Austria, Italy, Russia, Canada, the United States, South America, India, Australasia, South Africa, etc., etc., and the average number of copies circulated weekly exceeds seven thousand.

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Subscriptions, which are payable in advance, and Advertisements should be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Postal Orders should be made payable at Lincoln's Inn, W.C., to Street Brothers. Cheques should be crossed "London Joint Stock Bank."

Magnesium Flashlights.—A possibly useful addition to the data governing the composition of these mixtures may be found in a paper recently read before the Paris Academy of Sciences by M. H. le Chatelier, who finds a greater certainty of combustion in mixtures of the nitrate of ammonia class by making a special crystal from a solution containing potassium chlorate and ammonium nitrate. By modifying the temperature of the solution and the proportions of the ingredients, he was able to produce a crystal of definite and constant proportions; it contained 5 per cent. of the chlorate.—*Brit. Journ. Photo.*

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Splendid New English Honey, 12-lbs. for 7/- cash.—Brampton, Sudbury, Suffolk.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—EDWARD PECK, East Dereham.

Skeleton, half, disarticulated, in very good condition: Dental Chair, good condition, wood in metal cylinder, rotates, elevates, inclines, ball and socket head-rest. — C. W., Bank Buildings, Ventnor.

50,000 Choicest Microscopical Objects, bargains. Catalogue free. New and second-hand Microscopes, Cabinets, Mounting Materials, etc. Microscopes and collections purchased.—Richard Suter, 10, Highweek Rd., South Tottenham, Middlesex.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—HUGHES, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Daisies; 7/-. Good Vanilla Pods. Tetlow's Swandown Powder.—Eastman, Forest Lane, Stratford.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. ROWSELL, 9, Derwent Grove, East Dulwich, London, S.E.

Books. Crabbe's "Synonyms," Faraday's "Chemical Manipulation," Mohr and Redwood's "Practical Pharmacy," C. and D. Diary, 1898. State lowest price. Student, 5, Serle St., London, W.C.

Latest Editions: Greenish's "Materia Medica," Squire's "Companion," C. and D. "Art of dispensing," Lucas's "Pharmacy," Southall's "Materia Medica." State lowest prices and condition to Ashkanazy, Dartford.

Marriages.

Brawn—Hewitt.—On Thursday, September 14, at St. Mary's Church, Stone, by the Rev. Canon Murray, Harry S. Brawn, chemist and druggist, of Bedford, to Lilian Agnes Hewitt, niece of Mr. J. J. Hewitt, of Stone Court, Greenhithe, Kent.

Hope—Fairer.—On the 9th ult., at St. Mary's Parish Church, Windermere, by the Rev. Canon Crewdson, M.A. (Vicar), Richard Hope, M.P.S., pharmaceutical chemist (formerly of Westhoughton), to Margaret Fairer (formerly of Kirkby Stephen). No cards. Home address, Sunnyside, Kendal.

Watts—Hardwick.—On the 14th inst., at Christ Church, Attercliffe, by the Rev. A. Payling, Herbert Watts, M.P.S., of Darnall, to Sarah Ann, the youngest daughter of the late Thomas Hardwick, of Attercliffe.

Henderson—Carver.—On September 9, at the Parish Church, Lowestoft, by the Rev. Canon Lawrence, Henry John Henderson, Ph.C., only son of Captain H. J. Henderson, Harbour Master, Lowestoft, to Lois Carver, only daughter of Henry Charles Carver, of Lowestoft.

Deaths.

Shove.—On August 26, Bertha Shove, Pharmaceutical Chemist, Lewisham. Miss Shove had been a member of the Pharmaceutical Society since 1892. She was for some time engaged on some minor investigations in the Pharmaceutical Society's Chemical Research Laboratory.

Lewington.—On September 10, Alexander Belamy Lewington, Chemist and Druggist, Cleveland Street, London, W. Aged 64. Mr. Lewington had been a member of the Pharmaceutical Society since 1873.

Devereux.—On September 11, Frederic Edward Devereux, Chemist and Druggist, late of Walthamstow. Aged 56.

Lester.—On September 11, Theodore Christopher Lester, Chemist and Druggist, Hull. Aged 77.

Rayner.—On September 11, William Rayner, Pharmaceutical Chemist, Sheerness. Aged 66.

Publications Received.

CONSUMPTION CHART AND CASE PAPERS. Bristol: J. Wright and Co., 1899. From the Publishers.

KING'S COLLEGE HOSPITAL REPORTS. Edited by Nestor Tirard, M.D., F.R.C.P., W. Watson Cheyne, F.R.C.S., F.R.S., John Phillips, M.A., M.D., F.R.C.P., W. D. Halliburton, M.D., F.R.S. Vol. iv. (Oct. 1, 1896—September 30, 1897), pp. xxii. + 358. Price 7s. 6d. London: Adlard and Son. 1898. From the Publishers.

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

The forty-fourth Annual Exhibition of the Royal Photographic Society is now open to the public at the Gallery of the Royal Society of Painters in Water Colours, 5A, Pall Mall East, and will remain open daily until Saturday, November 11. The Exhibition will also be open on Monday, Wednesday, and Saturday evenings. There will be a lantern lecture on each evening. The private view of the Exhibition, which was held on the afternoon of Saturday last, was well attended by members and friends, and the soirée, which marks the commencement of the Society's winter season of work, as well as the opening of the Exhibition, was quite as largely attended as usual. In the absence of the President of the Society, the Earl of Crawford, K.T., F.R.S., who was prevented from attending by illness, the members and guests were received by the officers and most of the Council.

The general aspect of the Exhibition is decidedly pleasing. The pictures and their frames are characterised by the same sombreness of tone which the work of the past few years has rendered us familiar with, but the hangings of the gallery have been somewhat altered. The covering of the walls is of a lighter tone and brighter colour than before, and the dark draperies which divided the walls into sections have not been used. As to the merit of the works shown generally, but one opinion has been expressed: The Exhibition is distinctly in advance of any of its predecessors. We understand that this year the Society departed from its usual system of appointing a large committee, which included the judges, to select the pictures, and entrusted this duty entirely to the small committee who have the arranging of the frames on the wall. This departure has been the subject of a considerable amount of acrimonious writing in the photographic press, but the Exhibition itself bears testimony to the wisdom of the change. The most exacting critic could find hardly a weak spot. Glancing through the list of exhibitors, one cannot help noticing the large number of unfamiliar names; but, considering the general high standard of the work, this is a sign of promise. On the other hand, we do not miss many of the regular contributors. Mr. H. P. Robinson once more sends a work to the scene of his ancient triumphs, and although the list of his contemporaries who are exhibiting at this year's show is not a long one, there are as many as one might expect to find.

The judges of the pictorial work—Mr. Harold Baker, Col. J. Gale, and Messrs. A. Horsley Hinton, B. W. Leader, R.A., and W. L. Wyllie, A.R.A.—awarded eight medals, and the fact that they have been able to place the distinguishing mark of conspicuous merit upon so unusually large a number of pictures is a confirmation of general opinion of the Exhibition.

Comparing this year's Exhibition with those of, say, the last three years, one is first struck with the distinct decline of the "fuzzygraph." The extreme out-of-focus method of treatment is hardly represented at this year's show. The few examples that there are, which have more than the most moderate amount of diffusion of focus, certainly show, too, a greater intelligence in restricting this style of treatment to subjects for which it is suitable. There is much less of the dreary swamp kind of picture, but perhaps this naturally follows, and altogether a greater variety in the subjects chosen. If one might venture to say what is the favourite subject for the year we should say it was sheep, but woodland scenery also comes in for a considerable share of attention. The portraits are very fine, and most of the single figure studies are quite free from the posed appearance which has been too common in photographs of the kind in the past. That class of subject which is generally termed "genre" is but barely represented, and, as an honest chronicler, we must say it is not in advance of what was shown ten or more years ago in the same gallery. The architectural pictures are perhaps not so numerous. In this branch of photography much greater perfection of technical work than that we have been accustomed to can hardly be expected, but there is certainly apparent a desire to infuse more feeling into the bare stones. As this branch of photography is quite as popular as ever it may be that the selection has been more rigid.

The decisions of the judges will probably raise an unusual amount of adverse criticism. This we strongly deprecate. The choice of the judges is entirely at the voice of the members of the Society. There is no standard in art, and all that can be asked of any board of judges is to give their collective opinion. Having given their opinion it should be respected as such.

Referring to the medalled pictures—and the limited space we can devote to this review will prevent us from noticing much else—Dudley Hoyt (of New York) will undoubtedly win golden opinions for his "Head of an Old Man." Here we have a photograph which might almost serve an optician as a specimen of lens definition, but which, nevertheless, possesses a breadth which is seldom attained under similar conditions. It is due entirely to skilful lighting, or, if any adventitious aid has been employed to subdue what was unnecessary, the means are not apparent. J. H. Gash's "Summer Shades" is good, but it is marred by a gritty sharpness which is exceedingly unpleasant. In "The Miller's Workshop" W. J. Greatbach has one of those happy little bits which seem so easy but which really are so difficult. There is not much of the miller's workshop, for a considerable portion of the picture is made up of the view through the open door. The difficulties of the subject have been very skilfully overcome. "After Rain," by Chas. F. Inston, is strikingly reminiscent of his last year's picture. The subject is almost the same, and the style of treatment the same. "In Wirksworth Church," by W. R. Bland, is noticeable for the effect of sunlight through the windows. "Sunny Pastures," by Ernest G. Boon, is not altogether a pleasing work; the general idea is good, but there is a spottiness about it which is very distressing. Much of this might be avoided. J. M. Whitehead's "Roses" is quite as commendable as a specimen of perfect technical photography as for its pictorial qualities, if not more so. However, it is a charming little picture. "A Vignette in Two Colours," by Alfred Stieglitz, is described as being a platinum print, developed locally with various solutions. The subject is the head of a female, with bare shoulders. The head is turned away, so that very little of the face appears. The hair is black, and the flesh is of its natural tint. The effect is charming.

The technical section, which includes photographs of scientific interest or illustrative of photographic methods and also apparatus, strikes us as being more representative than has been the case for the past few years; but, considering the enormous number of the applications of photography to the work of the printing press, examples of photo-mechanical processes seem strangely absent. The judges of the section, Capt. W. de W. Abney, C.B., F.R.S., and Messrs. J. Boles, F.I.C., F.C.S., and Chapman Jones, F.I.C., F.C.S., awarded three medals. One of these was awarded to J. Hort Player for a series of reproductions of engravings, lithographs, ordinary photographic prints, etc., produced by a process now fairly well known as "Playertype." The negatives are obtained by placing a piece of bromide paper with its sensitive surface in contact with the face of the print to be copied. Yellow or green light is then allowed to fall on the back of the bromide paper for a sufficient time, and it is then developed, etc., the result being a paper negative, from which the final prints are made in the usual way. This may seem an incomprehensible method, but nevertheless, the admirable results shown prove the process to be practical and valuable. W. Andrews' photographs of rainbows are interesting, and the Autotype Co.'s illustrations from the supplement to "Electric Movement in Air and Water," by Lord Armstrong, C.B., are admirable. The Kodak Company have a number of enlargements, showing the characteristic effect of enlarging through bolting cloth, which will be studied to advantage by pictorial workers, etc. We must not omit to mention the three examples of interference colour photographs by the Lippman method, the work of Harold Senior.

The apparatus exhibits are necessarily always limited in number, owing to the condition that each exhibit must be novel or show some point of novelty. Two medals have been awarded. One of these is received by J. E. Johnson and Co., of Leicester, for an engraved screen plate for half-tone work. The lines in this are 200 to the inch, and the size of the plate is 13 in. by 16 in. The exhibit includes other plates up to 22 in. by 18 in. in size, the rulings varying from 133 to 200 to the inch. It may be interesting to note that according to the prices given the four plates exhibited are valued at over £274. The second medal is given to E. Sanger Shepherd for a set of 2 in. square trichromatic light filters for natural colour photography. Other exhibitors of apparatus are Messrs. Watson and Son, Messrs. J. H. Dallmeyer, Limited, Messrs. Spratt Brothers, Messrs. G. Houghton and Sons, Messrs. Marion and Co., and Mr. Jas. Cadett.

The catalogue is adorned with twenty-four full-page half-tone reproductions of the pictures besides a large number of outline sketches in the text. It is well worth the price, sixpence, even to those who are not able to visit the Exhibition.

ENGLISH NEWS.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION (Junior Section).—A meeting of this section was held on Tuesday, September 26th. Mr. C. J. Park (member of the Pharmaceutical Council) in the chair. Mr. A. J. Rider (head master of the Devonport High School), in the course of an interesting address, advised the students to conduct their studies in a most thorough and systematic manner, and in regard to practical chemistry, it was most necessary that they should be orderly, methodical and cleanly in their work, and everything should be thoroughly examined and proved; that was one of the faults of the old alchemists, they based too much upon supposition, without at times having the least particle of proof. Pharmaceutical students, he said, are engaged in a work that does not present such advantages perhaps to their eyes as other callings, because of the limited time placed at their disposal for recreation, the bulk of which they were supposed to spend in study, but he was sure the junior members of the Association were possessed of the right professional spirit. Theirs was a work that stood very high in public estimation, and it gave him the greatest pleasure to be amongst them on the present occasion, as he saw around him several old friends whom he had the honour of instructing in chemistry many years ago. Mr. Rider then distributed the prizes to the successful students at the classes during the last sessions, as follow:—Materia medica (Teacher, Mr. Hooper, Ph.C., R.N.): 1st, J. Bryan; 2nd, W. Pickard. Chemistry (Organic and Pharmaceutical) (Teacher, Mr. H. M. Morgan, Ph.C.): 1st, W. W. Hellyer; 2nd, H. Vibert. Pharmacy (Teacher, Mr. Oswald A. Reade, F.L.S., Ph.C.): 1st, H. J. Reynolds; 2nd, J. Bryan. On the motion of Mr. Barge, seconded by Mr. Weary, Mr. Rider was heartily thanked. Mr. Park, in supporting, remarked that they had secured a capital teacher in pharmacy in Mr. H. M. Morgan, who, at great self-sacrifice of his spare time, had consented to instruct the students for the coming session. He urged all the students to avail themselves of those classes in order to show their gratitude to Mr. Morgan. Mr. Rider, in responding, said he would do everything in his power to promote the welfare of the Chemists' Association in the Three Towns. He should be glad if they would allow him to give a prize annually to the student who was most successful in practical chemistry.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY.—A meeting of the Council of this Society was held on Tuesday night, for the purpose of electing officers and making arrangements for the ensuing winter session. Mr. G. Squire was re-elected President. Mr. J. B. Pater retired from the office of Hon. Secretary, and was made a Vice-President, along with Mr. J. Austen, the Secretaryship being undertaken by Mr. H. Antcliffe, Union Offices, Westbar, Sheffield. The other officers are as follow:—Treasurer, Mr. J. Preston; Hon. School Secretary, Mr. S. T. Rhoden; Council (in addition to the above officers), Messrs. J. F. Eardley, A. R. Fox, G. T. W. Newsholme, G. Owen, W. Ward, and C. O. Morrison; Auditors, Mr. J. P. Hewitt and Mr. H. E. Ibbitt; Librarian, Mr. C. F. Carr. Mr. Ibbitt has resigned his membership of the Council, and the meeting elected Mr. Antcliffe in his place. The Session will be opened with the annual dinner and inaugural address to the students by Professor Hicks on October 19, and after that it is intended to have monthly gatherings. The syllabus has not yet been fully drawn up, but there has been arranged a smoking concert on November 16; a paper by Mr. J. W. J. Turner on "Fruits, Rare and Interesting," with lantern illustrations, on December 13th; a students' night on January 10th; a paper by the President on February 14th; an open night, conducted by the members, on March 13th; and an excursion into the country in June. Tickets for the annual dinner, which will be held at the Wharncliffe Hotel, at 7.45 p.m., may be obtained from the Hon. Secretary, price 4s. 6d. each.

PUBLIC ANALYSTS AND THEIR ASSISTANTS.—An interesting case is reported in the *Daily Telegraph*, in which the public analyst's responsibilities were prominently brought forward. The report states that at Southwark, before Mr. Slade, Pantaleoni Manzi, an ice-cream merchant, of Bermondsey Street, was summoned by the St. Olave's District Board of Works for selling ice-cream containing injurious organisms.—Mr. Hawker, solicitor to the District Board of Works, appeared in support of the summons, and Mr. H. N. Philcox defended.—Thomas Ashdown, sanitary inspector, stated that he purchased some ice-cream from one of the defendant's men, who was selling it from a barrow in Maze Pond, Bermondsey. The sample was sent to Dr. Stevenson, the public analyst appointed by the District Board of Works, and a certificate had been received signed by that gentleman stating that the ice-cream contained twenty millions of microbe organisms per one cubic centimètre.—Dr. Stevenson, in the course of his evidence, said that the cream had been made from decomposed milk, or the stuff had not been properly frozen. In cross-examination he admitted that the analysis had not been made by him personally, but by his bacteriological assistant.—Mr. Philcox submitted that, after that admission, the summons must fail. The Act distinctly said that the analysis "shall be made" by the public analyst. Dr. Stevenson was the public analyst appointed by this board, and approved by the Local Government Board, and, according to the Act, the public analyst must do the work himself.—Mr. Hawker: I submit that what is done by his assistant is done by him for the purposes of the Act. It is quite impossible for a public analyst—some of whom hold many appointments—to analyse every sample themselves.—Mr. Philcox: A public analyst should not take more appointments than he is able himself to carry out.—Mr. Hawker: I believe it is almost the invariable practice for analysts to have assistance.—Mr. Philcox: But they have no power under the Act to deputise the work.—Dr. Stevenson said that after the results had been arrived at he checked them.—Mr. Philcox: But you did not go over any of the working?—Dr. Stevenson: No; but my assistant is very competent. I looked at the results and signed the certificate.—Mr. Slade: Unless the question had been asked I should have assumed that the analysis was made by Dr. Stevenson.—Mr. Philcox: That is just my point, and a deputy can only be appointed by the Vestry or Board of Works, and sanctioned by the Local Government Board.—Mr. Slade said he would have accepted the certificate without suspicion as the result of an analysis made by Dr. Stevenson himself but for the doctor's admission. He agreed with Mr. Philcox's contention, and dismissed the summons, but without costs.—Mr. Hawker: If I wish later to take the case on that point you will allow me to do so?—Mr. Slade: Certainly.

AN UNFORTUNATE MISTAKE.—An inquest was held at Ryde on Saturday, September 16, relative to the death of Mrs. Alice Reed, aged eighteen. From the evidence it appeared that Mrs. Reed was confined on August 31. She did well until the fifth day, when she was taken worse. Dr. Preston was sent for, and he ordered medicine to be sent from Mr. William Smith, chemist and druggist, Ryde. On Tuesday, September 12, Dr. Preston, who had called almost every day, found her not quite so well, and sent to Mr. Smith's for more medicine. When he called the next day, Wednesday, he was surprised to find his patient much worse. He saw a bottle of medicine on the table, and said, "What have you got there?" and on being told that it was Mrs. Reed's medicine, said, "That is not what I ordered. I am not surprised at her going back now." He wrote out another prescription, which was taken to Mr. Pollard, chemist and druggist, to be made up. Mrs. Reed took two doses of the new medicine, but got worse, and eventually died on Thursday evening, the 14th inst. Earlier in the day Dr. Preston had gone away for his holiday, and left the case in the care of his partner, Mr. Kenneth Ingleby-Mackenzie, surgeon, of Ryde, who gave a certificate attributing death to milk fever and asthenia, but the Registrar refused to act upon it.—In the course of his evidence Mr. Mackenzie stated that two medicines appeared to have been prescribed by Dr. Preston, the first for reducing fever, and the other as a tonic. In repeating the mixture, from some cause or other, which no doubt Mr. Smith would be able to explain, the fever mixture was sent instead of the tonic.—Mr. Wm. Smith, chemist and druggist, High Street, Ryde, stated that on September 5 a prescription was sent to him to be dispensed for Mrs. Reed, Cross Street, Oakfield. A boy waited in the shop and paid for it. The next order he had for Mrs. Reed, of Cross Street, was on September 11, which was "Repeat mixture." That was in Dr. Preston's writing. It was dispensed and sent to the address. On September 8 he had an order from Dr. Preston for Mrs. Reed, of Eastfield. He now thought the two Mrs. Reeds were the same person. When the order was given to him to repeat the medicine it was for Cross Street, Oakfield, and he repeated that for Mrs. Reed, Cross Street, Oakfield. Had the order been given for Mrs. Reed, Eastfield, the right medicine would have been sent.—P.S. Sharpe said Eastfield was Cross Street. Some people also called it High Street.—After further evidence Inspector Coleman said he understood that the

whole dispute was as to who made the mistake as to Cross Street and Eastfield—the dispenser or the doctor. That seemed to be the whole bone of contention.—The Coroner said the misfortune was that there were supposed to be two Mrs. Reeds. Mr. Smith having had the prescription on the 5th repeated it on the 11th, ignoring that of the 8th altogether. The mistake evidently arose from there being two names to the same street, and that not in the knowledge of Mr. Smith, so far as he could make out.—In reply to a question by a juryman, Mr. Smith said he did not know where Eastfield was. He thought it was in Simeon Street.—The jury found that death took place from milk fever, probably accelerated by the mistake in the medicine.

The Free Sale of Carbolic Acid.—Another coroner's jury has expressed the opinion that carbolic acid should be placed on the Schedule of the Pharmacy Act. See page 324*d*.

Presentation.—On Saturday, the 23rd inst., the employees of Messrs. Jewsbury and Brown, of Manchester, presented Mr. Stones (the senior partner), and Mrs. Stones with a silver rose bowl and pedestal, upon the celebration of their silver wedding. The presentation was made by Mr. Abraham Wood, who has been associated with the firm for about sixty-four years. No less than nine of those who took part in the presentation have been on the staff over a quarter of a century. Mr. John Bardsley (the manager), presided over the proceedings, which were also taken part in by Mr. Robert Bardsley and Mr. T. Hayes.

SCOTTISH NEWS.

Death from Drinking Laudanum.—The death is reported of a miner named Patrick Ferrie, aged 28, residing at Chapehall. It appears he was in the habit of drinking laudanum for cramp, and on this occasion he swallowed twopennyworth with fatal effect.

Poisoning by Carbolic Lotion.—Mr. M. D. Martin, who had for some fifteen years acted as Burgh Surveyor of Burntisland, died on Sunday last from the effects of drinking carbolic lotion.

Glasgow Chemists' and Druggists', Assistants', and Apprentices' Association.—A general meeting of this Association will take place in the Masonic Chambers, 100, West Regent Street, on Friday evening, October 6, at 9.15 o'clock, Mr. J. P. Gilmour, President, in the chair. The chief business discussed will be the Association's programme and matters touching the mutual interests of assistants. All assistants and apprentices will be cordially welcomed.

IRISH NEWS.

The Third Annual Dinner of the Pharmaceutical Society of Ireland will be held on Tuesday evening next, October 3, at the Gresham Hotel, Dublin. The President, Mr. R. J. Downes, will act as Chairman.

Candidates for the Council.—Messrs. William Jamison, associate druggist, Belfast, and P. N. White, J.P., M.P.S.I., Castle Street, Sligo, are candidates for election to the Council of the Pharmaceutical Society of Ireland, *vice* Mr. R. Spence, registered druggist, Castleblaney, who does not seek re-election. The former is proposed by Mr. W. Doig, associate druggist, seconded by Mr. W. J. Hardy, M.P.S.I., and the latter is put forward by Mr. Henry Rogers, M.P.S.I., and seconded by Mr. R. J. Downes, President P.S.I. The contest is expected to be keen.

Mr. Patrick Kelly, M.C.P.S.I., intends to propose at the annual meeting, on Monday next, of the Pharmaceutical Society o Ireland, "That it is desirable that a library on a practical basis be established, available to members, associate druggists, and students of schools of botany, materia medica and chemistry, and that books considered necessary for reference be added to the present stock and a printed catalogue of same be provided."

FOREIGN NEWS.

The British Association's Visit to Boulogne.—The following is a full account of the visit of the president and leading members of the British Association to Boulogne last week. The English *savants* and lady associates, who numbered about 400, left Dover at nine o'clock on Thursday morning, from the Admiralty Pier, on board the steamer "Empress," one of the largest and fastest of the Channel service. They were cordially received at the harbour by the President and principal members of the French Association. Under this friendly guidance the British visitors walked along the Esplanade to the Casino, where *déjeuner* was served. The route was guarded by two lines of gendarmes, but they had no difficulty in preserving order, as the only desire of the crowd of spectators was to greet their guests with ringing cheers. After breakfast the visitors were conveyed in the municipal electric tramcars to the ancient Town Hall, in the upper part of the town, where the Mayor of Boulogne and his civic colleagues formally welcomed the strangers. Sir Michael Foster, in briefly responding, said that many of his countrymen visited Boulogne, and they did so for different reasons. But he was sure none of them had ever visited it with more pleasure than those who were now enjoying its graceful hospitality. The reception over, the English scientists paid a visit to several of the sections of the French Association which were in session. In many respects its constitution resembles that of its British prototype, except that instead of ten, there are no fewer than seventeen sections, and also two sub-sections, including navigation, archæology, and medical science, which find no place in the programme of the other body.

The French Association for the Advancement of Science was founded in 1872, just after the Franco-German War. The motive animating its originators was that the disasters of the campaign were in some measure due to neglect of science, which it was accordingly determined to cultivate in a more systematic and organised fashion as one of the patriotic means of restoring the position of the country. The Association, which numbers 4,000 members, is to meet next year in Paris. After their visit to the sections, the British party returned to the Casino, where in the handsome ballroom they were entertained to a banquet provided by the local municipality. The Mayor of Boulogne presided, and the company numbered about 600. The Mayor wore for the first time the decoration of the Legion of Honour, which had that morning been conferred upon him by the President of the Republic. He first proposed the toast of "The Chief Magistrate of France and the Queen of England." The band struck up "God save the Queen," the whole assemblage, French and English, standing, and then, at the call of some of the English visitors, the "Marseillaise" was played and similarly honoured. Monsieur Bayet, the Ministerial delegate, responded in French on behalf of the President of the Republic, to whose qualities he paid an eloquent tribute. Referring to the Queen of England, he said that whenever her Majesty came to France she was received, not only with the respect due to her exalted rank, but also with the sympathy due to her person. He felt, as a director of primary education, that the work of teaching generally, even in elementary schools, was greatly helped by the good work of two such great associations as now fraternised at Boulogne. In the course of some local allusions, he remarked that all present, French and English alike, would recognise how well-deserved was the distinction which the President of the Republic had that day conferred upon the Mayor of Boulogne. Although it had been truly said that science, or, at least, the laws of science, had no country, that did not apply to men of science. Both England and France had reason to be proud of their men of science, many of the most illustrious of whom were so happily assembled together.

The Mayor of Boulogne, speaking in French, heartily welcomed the two great scientific associations, and said that he felt proud that at the dawn of the Twentieth Century the scientific representatives of France and England should honour Boulogne with their presence. Such a reunion of Anglo-Celt and Gaul for the advancement of science must tend in some measure to promote the welfare, moral and material, of all mankind. Sir Michael Foster, in response, said that one characteristic of the English people was the power they had to conceal their feelings. During the visit of the French delegates to Dover on Saturday they tried to keep up that national trait; but they failed, and their feelings got the better of them. Flat as his words might appear to be, they might be

accepted as sincerely expressing gratitude and appreciation for that memorable reception. He expressed the hope that this was not a matter merely between Dover and Boulogne, but also between the French and English peoples. It was noteworthy that Boulogne, which had twice attempted to invade England, should now be invading the world with a new idea of international reunion. It was a common saying that Britannia ruled the waves. Well, Britannia wished the waves to be smooth and quiet on Saturday and Wednesday for the crossing of the French delegation, but the waves refused. France desired the waves to be calm that day for the crossing of the British Association, and they were still, which might perhaps be regarded as a symptom that the empire of the sea had passed to France.

MONSIEUR BROUARDEL, Doyen of the Faculty of Medicine, Paris, speaking in French, said Sir Michael Foster and himself, as the Presidents of the two Associations, were now officially dying, and men who were dying were generally supposed to speak the truth. But Sir Michael had not told the whole truth, inasmuch as he had told them nothing about that section of the British Association which cultivated amiability. After paying a tribute to Lord Lister's antiseptic discoveries, which, he said, had saved thousands of lives, M. Brouardel presented to Sir Michael Foster and to the Mayor of Boulogne a commemorative medal expressly cast as souvenirs of the occasion. After the banquet the company returned by trams to the upper part of the town, where M. Brouardel unveiled a monument erected by subscription to the memory of Ducheune, a native of Boulogne, who was remarkable for his discoveries in the application of electricity to the cure of disease and especially to the restoration of paralysed nerves. Later in the afternoon the Mayor of Boulogne unveiled a *plaque* commemorative of the English poet Campbell. It is a tablet of black marble placed in front of the house in which the poet spent the last year of his life, and bears the following inscription:—

To the celebrated English poet, Thomas Campbell, LL.D., who died in this house, June 15th, 1844.

Dr. Léon Murel, who has recently published a volume in French upon the life and poetical works of James Thompson, author of the "Seasons," delivered, at the request of the Mayor, a eulogium in English of Campbell. He referred to the prominent part which Campbell had taken in founding the London University. A large proportion of the visitors returned to Dover in the evening.

IT IS ANNOUNCED that the French Medical Mission which went to Lisbon for the purpose of demonstrating the efficacy of Dr. Yersin's anti-plague serum, has been completely successful, none of the persons inoculated having succumbed.

POROUS-GLASS has been introduced into Paris. It admits air by fine holes which do not cause a draught and is quite transparent to light, so that its hygienic advantage over ordinary glass is considerable. A French doctor has also brought out a double pane by which the fresh air entering from below passes up between the two sheets of glass and out at the top into the room near the ceiling.

POISONING CASES.

STRYCHNINE.—An extraordinary case of poisoning is reported from Eastbourne. It appears that Dr. John Dick, a medical practitioner, on the 15th inst., supplied a Mrs. Greer with a bottle of medicine. She took a teaspoonful of the medicine, but became so ill after taking it that she sent a message to the doctor stating the fact. He called to see her, and was angry that it should be suggested that the medicine was the cause of the illness. To prove that it was harmless he drank twice of the contents of the bottle of medicine, and shortly afterwards went away. On arriving at his own house he fell against the street door, and on his sister opening the door, exclaimed, "My God, I believe I have been poisoned." He exhibited symptoms of strychnine poisoning, and in spite of every effort to counteract the effects of the poison he died on Sunday the 24th inst.—At the subsequent inquest, Henry Charles Browne, chemist and druggist, gave evidence to the effect that he had analysed a bottle of medicine given him by Dr. Colgate, and found that to each teaspoonful there was three-quarters of a grain of strychnine.—Dr. Henry Colgate stated that he was of opinion that deceased must have mistaken a bottle in his surgery containing a solution of strychnine for an almost identical bottle containing chloroform water. The quantity of strychnine removed from the bottle was sufficient to kill twelve persons.—The jury returned a verdict of "Death from misadventure." It was pointed out that the strychnine bottle did not bear a poison label, and was hardly distinguishable from the chloroform water bottle.

SPIRIT OF SALT.—On Friday, September 15, Ernest Ellis Heath, aged 8, of 13, Thorpe Road, East Ham, went into some new buildings which are in course of erection, and drank a quantity of spirit of salt from a bottle which he thought contained kola. He was carried as quickly as possible to the surgery of Dr. McKetterick, and for some time a fatal result was feared, but eventually the child recovered.

OPIUM.—The danger attending amateur dispensing was fatally illustrated by an inquest held at Matlock Bank on Friday, September 22, respecting the death of the infant son of Harry Dunn, of Chesterfield Road.—The evidence showed that the child had been given a home-made gripe mixture, which contained laudanum, and that when Dr. Marie Goodwin was called in it was insensible, and clearly suffering from opium poisoning. By strenuous efforts the child was partially restored, but notwithstanding the efforts of two doctors it died.—The jury returned a verdict of "Death from misadventure," and hoped it would be a warning.

MORE CARBOLIC ACID CASES.—At Liverpool, on Saturday September 23, Mr. E. A. Gibson, Deputy City Coroner, held an inquest on the body of Charles Samuel Watts (65), a ship's watchman, of Mere Lane.—Evidence was given to the effect that on the previous day he was found lying dead on the floor of his bedroom with a bottle containing a quantity of carbolic acid beside him. It was stated that he was usually of a cheerful disposition, but had lately suffered from pains, which were specially bad in the early part of the week. He had never threatened to commit suicide. It was also shown that in the early part of the day he purchased a quantity of carbolic acid, which he stated was wanted for disinfectant purposes. He was informed that it was a dangerous poison, and he answered that he had had it before, and knew perfectly well what its nature was.—The jury returned a verdict to the effect that the deceased committed suicide whilst suffering from temporary mental derangement.——The same day, at King's Heath, Birmingham, an inquest was held by Mr. E. Docker (Coroner for North Worcestershire), concerning the death of Fanny Marsh (44), the wife of Robert Marsh, jeweller's manager, of Roxbourne, Clarence Road, King's Heath. It appeared that during the last twelve months or more, deceased had been a victim to mental depression. Everything had been done for her that medical aid could advise, and she had recently returned from the seaside apparently very much better, and well on the way to recovery. On Friday, the 22nd inst., she got up at about 2.30, and went for a walk, returning about 5 o'clock, a great deal better than when she left home. A little while afterwards she asked her daughter to go downstairs to fetch her coat, but the daughter smelling carbolic acid on a handkerchief refused to leave her. In a fit of anger deceased drank a quantity of carbolic acid from a bottle she had concealed.—A chemist's assistant stated that he sold deceased two bottles of carbolic acid, which she said she wanted for a friend. Replying to a question by the foreman of the jury, witness said it was not necessary to have a witness to sign for the purchase of carbolic acid, which, though a poison, was not scheduled under the Act.—Dr. H. S. Ware stated that deceased died about 9.15, all attempts to save her being fruitless. From the results of the post-mortem examination he was of the opinion that death had resulted from corrosive poison, and from the smell he should say carbolic acid.—Dr. S. E. Johnson deposed to having attended deceased for mental depression.—The jury returned a verdict of "Suicide whilst temporarily insane." They also expressed their sense of sympathy with the husband, and added that in their opinion, which was endorsed by Dr. Johnson, carbolic acid should be scheduled along with other poisons.——A case of carbolic acid poisoning, which has greatly shocked the inhabitants of Huddersfield, occurred on Monday last. According to newspaper reports, Mr. W. Hirst, the popular honorary secretary of the Huddersfield Cricket and Athletic Club, had not been in very good health for some time, and had been in the habit of taking medicine in the early morning. On Monday he rose apparently for this purpose, but soon afterwards he was found to be suffering from severe pains in the stomach, and though Dr. John Irving and his assistant speedily attended, he died some time later. It subsequently transpired that he had drunk a quantity of carbolic acid.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

Business has been somewhat quiet during past week, partly, no doubt, owing to the close proximity of the end of the month and of the quarter. The general tone in the Drug and Chemical Trade has nevertheless been fairly good, and there appears to be a general expectation that we shall see good business doing during the coming autumn. As regards prices ruling, there are practically no changes to report, and we refer our readers to the following list of prices actually ruling for some of the articles of chief interest. Bank rate remains unchanged at 3½ per cent.

ACETANILIDE—Continues dull and weak at 9½d. to 1s. per lb., according to make and quantity.

ACID CARBOLIC.—Quiet, but very steady at 7d. to 7¼d. per lb., according to make, for the 35-36° ice crystal in large bulk packing, other qualities and packing being quoted in proportion. In Crude a large business has been done, fully 30,000 gallons having been sold, 60° F. at 2s. 1d. per gallon for delivery up to end of June next; 75° F. is quoted 2s. 6½d. to 2s. 7d. per gallon for September delivery. Liquid 95-98 per cent., of pale straw colour, 1s. 3d. per gallon; ditto, dark, 30 per cent., 9d.-10d. per gallon in 40-gallon casks.

ACID CITRIC—Quiet at 1s. 5½d. to 1s. 6½d. per lb. for Crystals in 5 cwt. casks.

ACID OXALIC—Is unchanged.

ACID TARTARIC—Quiet and unchanged.

AMMONIA COMPOUNDS—Are steady at unchanged prices, with the exception of the Sulphate, which is slightly lower and continues somewhat weak.

ASAFETIDA.—A few lots have been cleared this week at full prices, and stock now consists mainly of low qualities.

BROMIDES—Are unchanged.

CAMPHOR—There is a modcrate inquiry for Crude on the spot, and a few hundred piculs China have been sold, closing buyers at 122s. 6d. Japan quoted 132s. Refined is steady at unchanged price, viz., 1s. 7d. per lb. for English Bells and Flowers in ton lots.

CLOVES.—Privately the market for Zanzibar is quiet, but steady, the limited business including October-December delivery at 3 5-32d., and January-March at 3 3/16d. At auction 369 bales Zanzibar offered, of which 267 bales sold, chiefly without reserve, ordinary to good fair at 3d. to 3⅜d. 16 cases Penang bought in at 7½d.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 4d. per gallon; pure, 2s. Benzole: Quiet; 50 per cent., prompt, 10½d. to 11d. per gallon; September-December, 11d.; 90 per cent., prompt, 8½d. to 9d.; October, 9d. Crude Naphtha: Higher. 30 per cent. at 120°C., 5d. per gallon; solvent naphtha, 95 per cent. at 160°C., 1s. 5d. per gallon; 90 per cent. at 160°C., 1s. 3d. per gallon; 90 per cent. at 190°C., 1s. 2d. per gallon. Anthracene: A, 3¾d.; B, 2¾d. per unit. Pitch: 35s. per ton f.o.b. Tar: Crude or refined, 15s. per barrel; 3d. per gallon.

COCAINE.—Market is very firm, the second-hand being no longer free sellers, while makers' prices remain nominally 17s. 7d. per oz. for the Hydrochlorate in 200 oz. lots. They are, however, expected to again advance their price shortly.

CODEINE—Very firm at 13s. to 13s. 6d. per oz. for the pure.

COD LIVER OIL—Is dull at nominally unchanged price.

CREAM OF TARTAR.—There is no change in value to report.

GALLS.—The demand for China continues slow and no business is reported; usual shape on the spot still quoted 59s., and for arrival 57s. c. f. and i. Persian have met more inquiry, and sales of fair extent have been effected at full rates, including Blues at 62s. 6d. to 65s., and Greens at 55s. to 57s. 6d.; Whites, little offering, 52s. 6d. being the quotation. Both Smyrna and Morea meet little demand, and sales are unimportant.

GINGER.—Excessive supplies of Cochin were offered and met only moderate demand. Holders being firm, only small quantities were disposed of. Of 2,340 packages only 74 cases and 257 bags sold, good plump cut tips, heavily limed, at 24s. to 25s.; good cuttings, 17s.; mouldy ditto, 15s. 6d. Bold A cut bought in at 78s. to 78s. 6d., B at 58s. to 60s., medium and small at 40s. to 42s., and small at 33s. 6d. to 35s. Calicut, rough (in cases), fine, bold, and medium, 29s.; ditto (in bags), rather lean at 26s.; medium and small at 21s. to 22s. Jamaica in small supply. Of 22 barrels offered 7 sold, middling to good, at 62s. to 70s. Bengal firm; 87 bags fair bought in at 21s.

GLYCERIN.—Refined is firm at prices given last week, and in view of the continued firmness of the crude, a further advance in price of the refined is considered very probable.

IODIDES.—No change in prices to report.

MERCURIALS—Are firm and without change in price.

MENTHOL—Is dearer, and 8s. 3d. is now the price for good dry white crystals.

MORPHINE—Is firm at 5s. to 5s. 3d. per oz. for the hydrochlorate powder, this being the maker's price.

OILS (FIXED) AND SPIRITS.—Linseed easier. London spot pipes are quoted £21 17s. 6d. per ton; barrels, £22 to £22 2s. 6d.; November-December, £21 10s.; January-April, £21. Hull spot naked, £20 15s.; October-December, £20 2s. 6d.; January-April and May-August, £19 15s. Rape very firm. Ordinary brown spot, £23 10s.; October-December, £23 15s.; January-April, £24 10s. Refined spot, £24 15s. Ravison naked spot and October-December, £20 5s.; January-February, £20 10s. Cotton firm in London, and 12s. 6d. per ton dearer in Hull. London crude spot, £16 10s. to £16 15s.; November-April, £15 15s. per ton. Refined spot, £18 5s. to £19 10s. per ton, according to make. Hull naked refined spot, £16 10s.; November-April, £15 17s. 6d. paid, and £16 now asked. Crude spot, £15 10s.; November-April, £14 12s. 6d. paid. Olive Mogador, £33; Spanish, £33 to £33 10s. Coconut firm. Ceylon spot £25 per ton, landed terms; October-December and January-March, £23 10s. c.i.f. Cochin spot, £29 10s. landed; August-September, £26 10s.; September-November, £26 5s.; JanuaryMarch, £26 per ton c.i.f. Palm Oil: Lagos is still quoted £26 per ton on the spot. Castor Oil quiet. Belgian 1st pressing spot, £26 10s.; 2nd pressing spot, £24 per ton, ex. wharf. Hull manufactured: Guaranteed Cold Drawn Pure Pharmaceutical, £29 per ton in barrels; 3⅜d. per lb. in cases. Pure firsts, £26 10s.; seconds, £25 10s. per ton in barrels; rfists, 3⅛d. per lb. in cases; seconds, 3d., ex. wharf London. Lubricating Oil: Pale American spot, 7s. to 9s.; black, 6s. 3d. to 8s.; Russian black, 5s. 6d.; pale, 7s. to 8s. 6d. Turpentine: The market has been rampant, closing strong at a further advance for all positions. Quotations are: American spot, 37s. 9d. per cwt.; October-December, 37s. 10½d.; January-April (1900), 38s. 4½d.; July-December (1900), 31s. Petroleum Oil very firm. Russian spot quoted 5 11-16d. to 5¾d., and to end of March. American spot, 6 15-16d. to 7d., and to end of March. Water White, 8⅛d. to 8¼d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. per gallon.

OPIUM.—A fair demand has prevailed, chiefly for Salonica descriptions, both for shipping and manufacturing, and a good business has been effected at firm to rather dearer prices. Retail sales of Tokat have been made at full rates, also "druggists'" kinds at previous prices. Persian remains firm at 12s. 6d., but no business has transpired.

PHENACETIN.—Quiet, but fairly steady at the low prices ruling, say 3s. 4½d. to 3s. 6d. per lb. for reliable brands in quantity, for both crystals and powder.

POTASH COMPOUNDS—Are unchanged.

QUICKSILVER—Is unchanged at £8 12s. 6d. per bottle from first hand.

QUININE.—Makers reduced their price to 1s. 1d. per oz. for the favourite German brands (B. and S. and Brunswick) of Sulphate for 1,000-oz. lots in 100-oz. tins, while in the speculative market about 30,000oz. have changed hands at 10⅝d. spot and 10¾d. for December delivery. It is possible that the result of to-day's Bark Sales in Amsterdam, which are not known here at time of going to press, may have some decided influence on the course of the market for Quinine.

SENNA (Alexandrian).—An active demand set in at the end of last week, and good sales have been made of broken leaf and siftings at dearer prices. The former realised 4d. lb., and the latter up to 3d. lb. Fine leaf sold at 8d. lb. and now 9d. is asked. Tinnevelly: a fair demand from second hands has been experienced this week, and some sales have been made at full rates.

SHELLAC—The market remains very quiet, with only a limited business passing, including Second Orange, ex the auctions, at some improvement on the prices established there. Futures continue neglected, and prices nominal. At auction to-day supplies of good extent were catalogued. Second Orange met a fair demand, and fully two-thirds were disposed of, but at a decline of 1s. to 2s. on previous sales' rates, fair TN now being quoted 62s. Garnet was not represented, and Buttons were withdrawn above valuations. A total of 1,064 cases offered, and 479 cases sold. Second Orange: Of 738 cases, 473 cases sold, partly without reserve, fine bright part blocky at 63s., good bright curly free at 61s. to 62s., strong flat reddish at 61s., fair curly reddish at 60s., broken reddish at 59s. to 60s., flat livery slightly matted at 59s., ordinary broken flat liver at 56s. to 57s.; worked, fair to good bright shivered, at 61s. to 62s. 6d. Garnet: 8 cases blocky Rangoon bought in at 60s. Button: 318 cases offered, and 22 cases sold, fair tongue at 75s., fair thirds at 60s., ordinary dark at 44s. to 50s.

SODA COMPOUNDS.—There are no alterations to record.

SPICES (VARIOUS).—Black Pepper: Singapore bought in at 5⅝d. to 5¾d., and Penang at 5⅞d. to 5½d.; 1 bag Ceylon sold at 5¼d. White Pepper: 20 bags Singapore sold at 10½d., and 3 bags Ceylon at 8¼d. to 8¾d.; Penang bought in at 8½d. Chillies: 308 bags Japan bought in, good bright, at 43s., and fair dark red at 37s.; 25 bales Zanzibar sold, fair to good bright, at 33s. 6d. to 38s. Capsicums: 66 packages Bombay sold, fair bright cherries, at 31s., dark red ditto at 28s., fair bright long at 28s. 6d., mixed ditto 26s. Cassia Vera: 59 bags Japan bought in at 26s. Cassia Lignea: Of 349 cases China only 11 sold, without reserve, new selected, at 35s. Cinnamon: Of 213 packages 71 sold, quillings at 5¼d., cuttings at 4d., chips at 2¼d., and bark at 2⅝d. Mace: 9 cases Penang bought in, good bold pale, at 2s. 6d.; 3 cases Bombay sold, thin curly reddish, at 1s. 6d.; 65 packages West Indian sold, fair to good pale, at 1s. 7d. to 1s. 10d.; fair red at 1s. 5d. to 1s. 6d. Nutmegs dull; about 200 packages sold, 62's at 2s. 3d.; 73's at 1s. 10d.; 78's at 1s. 7d.; 81's to 88's at 1s. 5d. to 1s. 6d.; 92's at 1s. 3d. to 1s. 4d.; 97's to 112's at 11d. to 1s. 1d. Pimento: 379 bags offered and 61 sold, ordinary to fair, at 3⅜d. to 3½d., with good small at 3⅝d.

SULPHONAL.—There are still sellers from secondhand at 14s. 6d. per lb. for both powder and crystals. Makers' price remains at 17s. per lb.

THURSDAY'S DRUG SALES.

To-day's drug auctions passed off quietly, and without any very special feature, one of the matters of interest being the brisk demand for Tinnevelly senna, prices realised showing an advance of 2d. per lb. on the better qualities, and of 1d. per lb. on the lower qualities, otherwise many of the lots catalogued were bought in. The following are some of the particulars as far as it has been possible to give same up to time of going to press:—

ACONITE ROOT.—10 bags Japan sold at 28s. per cwt.

ALOES.—7 cases very dark liquid Zanzibar were bought in at 25s. per cwt. 40 kegs good Socotrine held for 75s. Of another lot of 10 kegs good ditto, 5 kegs sold at 75s. 65 cases Cape were chiefly bought in at 26s. 6d. to 27s. per cwt. for good hard bright, not quite so good quality realising 24s. 6d. and inferior soft and part drossy 21s. to 23s. per cwt. 150 boxes Curoçoa sold at 26s. 6d. down to 14s. per cwt. for low quality. 70 boxes fair dark brown livery Barbadoes bought in at 27s. down to 21s. per cwt. for inferior. 8 cases East Indian part sold at 50s. to 52s. 6d. per cwt.

AMBERGRIS.—3 tins part sold at 50s. per oz.

ANISEED.—137 bags of good Spanish were taken out at 27s. 6d. per cwt. 20 bags fair Rupssian, part sold at 20s. per cwt.

ANNATTO SEEDS.—32 bags of rather dull appearance were bought in at 2½d. to 3d. per lb.

ANTIMONY.—Crude Japan was bought in at £24 per ton.

ARECA NUTS.—84 bags, part slightly wormy, were bought in without mention of price.

ARGOL.—7 bags Cape sold at 40s. to 42s. per cwt.

ASPHALT.—78 cases Syrian were taken out at 31s. 6d. per cwt.

BALSAM COPAIBAE.—6 casks thin taken out at 1s. 6d. per lb.

BALSAM PERU.—9 cases part sold at 7s. 6d. per lb.; rest bought in at 7s. 9d.

BIRD LIME.—1 case good Japanese bought in at 1s. 9d. per lb.

BITTER ALMONDS.—13 bags (? Peach Stone Kernels) bought in at 50s. per cwt.

BUCHU LEAVES.—Fair green rounds sold at 7d. to 8d. per lb.; yellow ditto were taken out at 5d. per lb.

CARDAMOMS.—Fair Mysores sold at 3s. 1d. per lb. down to 1s. 6d. per lb. for lower qualities. Fine bold Mysores realised up to 3s. 6d. per lb.

CASTOR OIL.—30 cases good Calcutta firsts, part sold at 3⅝d. per lb., balance taken out at 3⅞d.; seconds realised 3⅛d. per lb.

CHINA SOY.—50 cases bought in at 1s. 5d. per gallon.

CINCHONA BARK.—44 serons crown bark sold at 10d. per lb. for sound down to 7d. per lb. for damaged. 15 bales flat Calisaya part sold at 5¾d. per lb. for 2CCD.

CIVET.—3 horns of good quality taken out at 10s. per oz.

COCA LEAVES.—6 bales Huanoco held for 1s. 6d. per lb.

COCCULUS INDICUS.—65 bags were bought in at 9s. per cwt.

COLOMBO ROOT.—49 bags, rough sorts, sold at 19s. 6d. to 20s. per cwt., the country damaged and second-class sea damaged realising 16s. and 11s. per cwt. respectively.

COLOCYNTH.—Of 7 cases medium Turkey apple, 2 cases had been sold previously at 1s. 6d. per lb, rest being now held for same figure.

CROTON SEEDS.—36 bags dull to rather brighter were held for 40s. to 60s. per cwt.

CUBEBS.—30 bags very dusty sold at 19s. to 19s. 6d. per cwt.

CUTTLE FISH BONE.—20 mats of good quality, but somewhat broken, sold at 3d. per lb.

DRAGON'S BLOOD.—3 cases picked fine bright were bought in at £22 per cwt.

ERGOT OF RYE.—19 bags weevily held for 2s. per lb.

ESSENTIAL OILS.—10 cases China star aniseed were taken out at 5s. 10½d. per lb., other 5 cases of fair quality being held for a higher price, nominally 6s. 4d. per lb. 3 drums citronelle bought in at 1s. 1d. per lb. 5 cases West Indian oil of limes held for 3s. 10d. per lb. 20 cases Japan dementholised oil of peppermint, Kobayashi brand, each case containing 12 × 5lb. tins, were taken out at 3s. 7½d. per lb. 5 cases H.G. Hotckiss held for 5s. 6d. per lb 2 cases Wayne County sold without reserve at 2s. 6d. per lb. 6 cases Oil Lemon, brand Pasquales Cedar, held for 4s. per lb. 1 case Ylang Ylang for 6s. per oz. 1 box Bay oil sold at 6s. 3d. per lb. 13 cases Cinnamon Leaf taken out at 3d. per oz. 17 cases Eucalyptus all bought in at 1s. to 2s. per lb.

GAMBOGE.—Good bright pipe sold at £8 15s. per cwt.; common to fair pickings at £6 12s. 6d. to £6; good ditto at £6 10s. to £6 15s.; Saigon pipe at £5 5s. 6d.

GENTIAN ROOT.—4 bags good dry cut root were held for 15s. per cwt.

GUM AMMONIACUM.—4 cases fair block taken out at 30s. per cwt.

GUAZA.—78 robbins, consisting chiefly of brownish tops, were all bought in at 4d. per lb.

GUM ARABIC.—27 bales held for 75s. per cwt. for fair Turkey sorts, and 60s. per cwt. for hard ditto. 5 cases Australian red gum were bought in at 35s. per cwt. 83 packages part sold at £6 12s. 6d. per cwt. for grains, and 80s. per cwt. for good sorts.

GUM ASAFETIDA.—38 packages were all bought in at 50s. per cwt. for pale sandy broken block and small strong and softish pinky block, and at 60s. per cwt. for heavy block with some loose almondy.

GUM BENJAMIN.—Very medium seconds Sumatra sold at £6 5s. per cwt., fair to good ditto selling at £8 5s. to £9 12s. 6d. 14 cases fair Palembang sold at 62s. 6d. per cwt.

GUM GALBANUM.—15 packages were all bought in, 1s. 1d. per lb. being the price mentioned.

GUM KINO.—3 boxes red Ceylon bought in at 3s. 6d. per lb., and 2 cases black Cochin at 3s.

GUM MASTIC.—19 cases taken out at 1s. 7d. per lb. for fair pale and 1s. 6d. per lb. for not quite so good quality.

GUM MYRRH.—7 bales pea siftings, mixed pale and dark, were held for 40s. per cwt. Other 23 cases, part sold at 18s. for fair pickings and 20s. for dark siftings. Dark sorts were taken out at 45s. per cwt.

GUM SANDRAC.—10 casks bought in at 52s. per cwt.

GUM TRAGACANTH.—Of 8 packages part had been sold previously; rest bought in at £14 15s. per cwt. for fair pale quality.

HONEY.—19 packages fair Jamaica sold at 25s. per cwt., down to 23s. for not so good quality. 70 cases Honolulu bought in at 26s. per cwt., and 5 cases Australian at 30s.

IPECACUANHA.—9 bags fair Carthagena taken out, 11s. per lb. being price required. Of 16 packages Rio, 1 bale sold at 14s. per lb., remainder taken out at 14s. 6d.

KOLA NUTS.—5 bags held for 3d. per lb.

KAMALA.—4 cases of fair quality sold without reserve at 6d. per lb.

LIME JUICE.—5 packages W.I. bought in at 1s. 6d. to 1s. 7d. per gallon; 5 hogsheads concentrated ditto at £14.

LIQUORICE ROOT.—71 bags fair natural cut were held for 15s. per cwt.; 1 bale rough decorticated taken out at 35s. per cwt.

LOOFAHS.—1 bale sold without reserve at ¼d. Of other 13 bales, part had been sold previously and part were held for ⅞d.

MORPHINE.—500 oz. of Smith's and 500 oz. of Wink's hydrochlorate in powder, packed in 100 oz. tins, sold readily at 4s. 7d. per oz. net, one tin fetching 4s. 8d. per oz.; and a single tin only 4s. 6d.

MUSK.—Of 13 tins Tonquin, 2 tins sold at 45s. per oz. for thin skin grey unsightly. Rest bought in at 65s. for thin skin blue, part browned, fairly dry.

NUTMEG PASTE.—2 cases taken out at 3d. per lb.

NUX VOMICA.—17 bags good bright bold were taken out at 8s. 6d. per cwt.

OPIUM.—2 cases Turkey were taken out, a bid of 6s. (!) per lb. not being entertained.

ORANGE PEEL.—17 packages bought in, 5d. to 8d. per lb. being price required for thin cut, and 8d. per lb. for thick cut.

OTTO OF ROSES.—3 vases bought in at 16s. per Turkish oz.

PATCHOULI LEAVES.—5 packages bought in at 3¼d. to 5d. per lb.

QUINCE SEEDS.—1 bag from the Cape, rather wormy, sold at 1s. 2d. per lb.

RHUBARB.—98 cases sold at 7¾d. to 8½d. per lb. for medium to fair high dried. 25 cases Canton were practically all bought in at 9d. to 1s. 1d. per lb., the lower price being the figure which was required for good pickings. Of other 66 cases very poor flat sold at 7¾d. to 8d. per lb., fair round being bought in at 1s. 2d. per lb. Flat Shensi was taken out at 1s. 2d. to 1s. 10d. per lb. nominally, and round ditto at 1s. 4d. per lb.

RHATANIA ROOT.—75 bales were held for 4½d. per lb.

SARSAPARILLA.—6 bales Jamaica sold at 1s. 5d. to 1s. 6d. per lb. for 1CCD. 6 bales Lima sold at 11½d. to 1s. per lb.

SOUTH AMERICAN BARK.—13 bags sold at 2½d. to 3d. per lb.

SCAMMONY ROOTS.—165 bales taken out at 18s. 6d. per cwt.

SCAMMONY.—15 cases all bought in at nominally 12s. 6d. to 22s. 6d. per lb., according to quality.

SENNA.—74 packages Alexandria part sold previously, rest being held for 6d. to 9d. per lb., according to quality, the latter figure being price required for fine green small leaf and bold green leaf; good sorts realised 4d. per lb., and old stalky ditto 2¾d. 1 bale poor Mecca pods sold at 5¼d. per lb. 54 bales Tinnevelly, all consisting of good green leaf, sold at 3½d. to 6d. per lb., according to size.

SQUILLS.—48 bags held for 2½d. to 3d. per lb.

STROPHANTHUS SEBDS.—25 bags Kombé bought in at 4s.; fluffy ditto at 3s. per lb.

TAMARINDS.—50 casks black East Indian part sold at 12s. per cwt.

TONQUIN BEANS.—2 cases low Para held for 7½d. per lb.

VANILLOES.—12 tins Seychelles part sold at 23s. per lb. for 6″ × 7″.

WAX.—Fair Zanzibar sold at £6 7s. 6d. per cwt. Fair Madagascar was bought in at £6 10s. Only medium Jamaica sold at £6 12s. 6d. 7 cases Japan sold cheaply without reserve at 28s. to 28s. 6d. per cwt.

WHITE CAMPHOR OIL.—10 cases Japan bought in at 25s. per cwt.

Manchester Chemical Report.

September 27, 1899.

There is at present no check to be noted in the upward movement in the chemical trade. Heavy chemicals are unchanged, but in one or two miscellaneous articles there are certain advances to record. Copper Sulphate ranges from £25 15s. to £26 10s. per ton, best brands, delivered Manchester. Benzols are unchanged, but Carbolic is firm at 2s. 1d. for 60's. Naphthas are showing signs of increased demand, but there is no change in price. Pitch is going fairly well at 31s. to 32s. per ton, f.a.s. Manchester. A fair amount of business is being done for next year's delivery, and prices tend higher. Yellow Prussiate is very scarce, and varies from 8¼d. to 8½d., with an upward tendency. In Oils there is a great revival on the Ship Canal, and lubricating oils are also showing a tendency for higher prices.

Liverpool Market Report.

September 27, 1899.

AMMONIA SALTS.—Carbonate scarce, 3¼d. to 3½d. per lb. Sal ammoniac is firm, 33s. and 35s. per cwt. Sulphate, £12 per ton.

BEESWAX.—64 bales of Gambia sold at £6 10s. to £6 11s. 3d. per cwt.

CANARY SEED—Is steady with more inquiry. Of Turkish, 25 bags sold for 40s. per 464 lbs., and about 600 bags at 39s. 6d.

CARNAUBA WAX.—25 bags of fair to good grey made 43s. to 45s. per cwt.

CREAM OF TARTAR—Is easier, 74s. to 80s. per cwt. Some good business has been done in Portuguese cream on private terms.

COPPERAS—Is very firm at 40s. per ton for Lancashire, and 37s. 6d. for Welsh.

COPPER SULPHATE.—Spring, £26 to £26 10s. per ton; spot, £25 12s. 6d.

LINSEED.—Calcutta is firm, to arrive, 44s. 6d. per 416 lbs.; North American to arrive is 40s. 6d. per 424 lbs.

OILS (FIXED) AND SPIRITS.—Castor oil is steady with fair business passing: Calcutta 3d. per lb., 600 cases sold at 2$\frac{15}{16}$d., and 50 cases at 3d. French, first pressure, 2⅞d. per lb.; second pressure, 2⅝d.; second sulphur, 2½d.; Madras, 2¾d. Olive oil is very strong in tone, and is offering sparingly at £34 to £35 per tun. Linseed oil of Liverpool pressure is firmly held at 23s. 3d. to 23s. 6d. per cwt. Cotton-seed oil, Liverpool refined, is steady at 18s. 3d. to 18s. 9d. per cwt. Spirits of Turpentine are in fair demand at 37s. 6d. per cwt.

QUILLAYA BARK.—Chilian has been selling at £13 5s. per ton.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Jasper L. Hall, chemist and druggist, has purchased the old-established chemist's business at High Street, Solihull, lately carried on by Mr. Herbert Pegg, M.P.S., pharmaceutical chemist, who has retired.

Mr. A. Hunter, chemist and druggist, is shortly opening a business at No. 35, London Road, Brighton.

Mr. John Elliot, chemist and druggist, Berwick-upon-Tweed, who has entered his 85th year, and is recognised as one of the oldest practising chemists in this country, has this year celebrated his golden wedding. For over sixty years he has been established in business in the town, and during that time has built up a reputation not only in pharmacy, but as an agricultural chemist. Despite his years, Mr. Elliot gives daily attendance to his business.

Mr. J. F. Eardley, M.P.S., pharmaceutical chemist, of Glossop Road, Sheffield, who has for several years carried on a successful mineral water manufacturing business in the city, is at present erecting a new factory in Eccleshall Road. It will be lighted by electricity, and equipped with the most up-to-date machinery and appliances, and its capacity for production will be a very great increase on that of Mr. Eardley's present premises.

Marriage.

Woodruff—Peberdy.—On September 19, at St. Mark's Church, Tollington Park, London, N., by the Rev. E. Robinson Lees, Thomas Woodruff, pharmaceutical chemist, Withington, eldest son of the late Thomas Woodruff, of Stalybridge, to Ada Mary, youngest daughter of the late W. Peberdy, of Tollington Park.

Death.

Walker.—On August 26, John Walker, Chemist and Druggist, late of Conduit Street, London, W. Aged 64.

Publication Received.

Weeds and Flowers (Poems). By William Luther Longstaff, M.P.S. (author of 'Passion and Reflection'). Pp. viii. + 152, price 2s. 6d. net. London: Greening and Co., 20, Cecil Court, Charing Cross Road, W.C. From the Author.

Advertisements.

(Received too late for Classification.)

WEST END. Wanted a Qualified ASSISTANT, accustomed to first-class Dispensing business. Apply by letter, stating full particulars, to DISPENSER, 7/12, Aldersgate St., E.C.

Partnerships Dissolved.

(From the London Gazette.)

Joseph Gibbs and Sydney Gibbs (trading as Gibbs and Son), Chemists and Druggists, Terminus Road, Eastbourne. Debts will be received and paid by Sydney Gibbs, who will continue the business under the same style.

*** By a clerical slip in copying, this notice was inadvertently printed last week under the heading "Receiving Orders in Bankruptcy." The error was obviously apparent, but we desire, nevertheless, to express the most sincere regret at the unfortunate occurrence, and to apologise to Messrs. J. and S. Gibbs for any annoyance it may have caused them.—ED. *Ph. J.*

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Splendid New English Honey, 12-lbs. for 7/- cash.—Brampton, Sudbury, Suffolk.

Maisch's Materia Medica, Proctor's Pharmacy, Green's Botany, offers. Dell, 18, Clipstone Street.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Three Oculists' Trial-cases, containing 30 pairs each convex and concave spherical lenses, 18 pairs each convex and concave cylindrical, 2 prisms, double trial-frame graduated for astigmatism, black and stenopaic discs; all spherical lenses mounted in gilt and silvered rings; marked in dioptrics; second-hand but in perfect condiion; 5 guineas, cash with order each. F. Davidson, 140, Great Portland Street, London, W.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Books. Faraday's "Chemical Manipulation," Mohr and Redwood's "Practical Pharmacy." State lowest price. Student, 5, Serle St., London, W.C.

Calendar for the Week.

Sunday, Oct. 1. 18th after Trinity. Sun rises 6.2., sets 5.37.

Monday, Oct. 2. Sun rises 6.3., sets 5.35.
PHARMACEUTICAL SOCIETY, 17, Bloomsbury Square, W.C., at 3 p.m.—Re-opening of the School of Pharmacy; and Presentation of the Hanbury Medal.

Tuesday, Oct. 3. Sun rises 6.5, sets 5.33.
GRESHAM COLLEGE, Basinghall Street, E.C., at 6 p.m.—Lecture by Prof. E. Symes Thompson, on "Earth and Disease."

Wednesday, Oct. 4. ●7.14A. Sun rises 6.6, sets 5.30.
GRESHAM COLLEGE, Basinghall Street, E.C., at 6 p.m.—Prof. Thompson on "Air in Relation to Disease."
PHARMACEUTICAL SOCIETY, 17, Bloomsbury Square, W.C., at 11 a.m.—Meeting of the Council.

Thursday, Oct. 5. Sun rises, 6.8; sets, 5.28.
GRESHAM COLLEGE, Basinghall Street, E.C., at 6 p.m.—Prof. Thompson on "Water-Borne Disease."

Friday, Oct. 6. Sun rises, 6.10; sets, 5.26.
GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—General Meeting.
GRESHAM COLLEGE, Basinghall Street, E.C., at 6 p.m.—Prof. Thompson on "Insects as Distributors of Disease."

Saturday, Oct. 7. Sun rises, 6.12; sets, 5.23.

ENGLISH NEWS.

A Radiograph of an Injected Full-Term Fœtus, which has been taken by Mr. F. H. Glew, chemist and druggist, Clapham, is a remarkable example of the valuable results that can now be obtained by the use of the Röntgen rays. The fœtus was injected by Mr. Charles Ind, of St. Thomas's Hospital, with mercury, the fluid being, introduced by means of a hypodermic needle, connected by stout rubber tubing to a funnel capable of holding two fluid ounces and elevated above the level of the needle, in a suitable holder. The radiograph was taken directly the injection was finished, so as to prevent the mercury gravitating to the lowest level. The subject was arranged on a piece of thin cardboard over a Thomas A1 plate, and the focus tube fixed over the middle of the plate, with the radiant point twenty-four inches distant. An exposure of twenty minutes was given, with a current of three Amperes through a ten-inch Apps' coil. In the radiograph the aorta, left side of the heart, kidneys and spleen are readily recognisable, and the vessels of the neck and extremities are especially clear.

The Midland Chemists' Association.—At a committee meeting of this Association, held on Wednesday, September 27, to elect a new president in place of Mr. W. F. Cox, resigned, Mr. F. A. Spear was unanimously elected.

Manchester Pharmaceutical Association.—The syllabus of this Association for the coming session is as follows:—October 11, Annual Dinner; November 8, "Local Associations and their Federation," by Mr. J. Smith, Liverpool; December 6, "The Way Plants Protect Themselves," by Prof. F. E. Weiss; January 10, "The P.A.T.A. and its Defence Fund," by Mr. W. S. Glyn-Jones; February 14, "The Outlook in Pharmacy," by Mr. J. Taylor, Bolton; March 14, "Pharmacy Notes," by Mr. J. H. Hoseason; April 11, Annual General Meeting. It is also proposed to hold a ball about the end of January. Applications for dinner tickets should be sent not later than 7th inst. to the Hon. Secretary, J. W. Walton, 427, Higher Broughton, Manchester.

Chemists' Assistants' Association (London).—The following is the programme of this Association for the half session, October to December, 1899:—October 12, Inaugural Address by the President; October 19, Musical and Social Evening at 73, Newman Street, W.; October 26, Paper, "Ethics, as Applied to the Practice of Pharmacy," by J. C. Hyslop; November 2, Annual Reunion in the Throne Room, Holborn Restaurant; November 9, Impromptu Discussion; November 16, Short Papers; November 23, Paper, "The Relation of the Wholesale to the Retail Trade," by F. Curry; November 30, Paper, by H. Hymans; December 7, Cinderella Dance at the Portman Rooms; December 14, Musical and Social Evening.

Alleged Fatal Pills.—On Saturday, September 30, Mr. G. E. Hilleary, the West Ham Coroner, held an inquiry with respect to the death of Elizabeth Alma Ward, aged thirteen years. The evidence showed that on Monday last the deceased was not very well, and took two pills, which she purchased at a general shop in the neighbourhood. The pills were known as "Carter's Head and Stomach Pills." The deceased was subsequently seized with severe diarrhœa and vomiting. She became unconscious, and died on the following day. Dr. Galley, of Ford's-market, who made the post-mortem examination, expressed the opinion that death was due to collapse following diarrhœa, which had been set up by some irritant. Mr. John Carter, of 13, Cross-street, Woolwich, a chemist, said the pills were specially manufactured for him and he retailed them. He handed a list of the ingredients of the pills to the coroner. Dr. Galley, having examined them, expressed the opinion that they were quite sufficient to set up the irritation. They might not injure an adult, but they were certainly not fit to give to young children. The jury returned a verdict of "Death from misadventure," and requested the coroner to call the attention of the Pharmaceutical Society to the manner in which these pills were sold.

Chemists' Assistants' Union.—We understand that the C.A.U. intends opening the session about the end of this month with a smoking concert at the Horse Shoe Hotel, Tottenham Court Road, London. Several well-known professional and amateur artistes have volunteered their services.

Drawback on Spirituous Preparations.—We have been favoured by Mr. Thomas Tyrer, of the Stirling Chemical Works, with a copy of a letter received by him from the Board of Inland Revenue, referring to certain modifications in the regulations applicable to the exportation on drawback of tinctures, essences, etc. It is stated that the Board has issued instructions to its officers to the effect that a uniform allowance of three per cent. for waste is to be made upon all preparations packed for exportation on and after October 1, 1899, under the regulations applicable to the exportation of tinctures or medicinal spirits, flavouring essences and perfumes, "including those preparations not at present entitled to any allowance for waste," except spirits of wine and spirits to which any ingredient is added under the regulations in the presence of the Board's officer. It is further intimated that the margin of difference for error in the statement of the strengths of the preparations as made by the exporters and that found upon examination of the samples at the Government laboratory will also be increased from two to three degrees.

The Place of Technical Education.—Sir Andrew Noble, who is associated, at the great Armstrong works, with the management of some thirty thousand highly skilled workers, has formally outlined his views on technical education at the City and Guilds Institute, in delivering the inaugural address of the new session at the Central Technical College. While Sir Andrew is impressed with the importance of technical education, he would not have it commence early in life. The age for seriously taking up professional studies is, he maintains, seventeen or eighteen. Up till then, the ordinary public school curriculum affords the most useful groundwork and the best discipline. Incidentally, Sir Andrew proclaimed himself opposed to the substitution of classical by modern languages; and in this connection he quoted Sir William Harcourt's recent pronouncement only to disagree with it. A German merchant, the great shipbuilder and gun-maker opined, would sooner receive letters in good English than bad German. From the time serious work begins at seventeen or eighteen, the matter of greatest moment is that practice should be surely based on theory. There was a greater understanding on the subject in Germany. It is worthy of note, by-the-bye, that Sir Andrew regards the marking of goods with the place of origin as a piece of unwisdom. What was intended to operate as a reproach is likely, he thinks, to serve as an advertisement. He mentioned the case of a magnificent ironclad, on whose bows was sarcastically displayed, as she entered an English harbour, the accurate legend, "Made in Germany." "And, do you know," said the lecturer, "when we require an original or a special piece of apparatus we are often compelled to go to Germany for it."

Pharmaceutical Education in Sheffield.—The newly-issued prospectus of classes of the Art and Science Department, University College, Sheffield, provides evidence of the thoroughness of the arrangements which have been made for pharmaceutical students. A three years' course of instruction for students preparing for the Minor Examination of the Pharmaceutical Society will be held in the evenings during the winter session, the course beginning on October 11 and ending about the last week in March. During the first year students attend a course of twenty lectures on Elementary Physics and Inorganic Chemistry (illustrated by experiments), and also work in the Chemical Laboratory at Practical Chemistry. The lectures are delivered on Wednesday evenings, between six and nine o'clock, and the fee for the course is £1 10s. During the second year there will be a course of twenty lectures on Inorganic and Organic Chemistry, as well as instruction in Practical Chemistry as before. The first and second year's lectures on Chemistry are given in alternate years, and it is the second course that is to be given in the session 1899-1900. The lecture hours and fees are the same as those of the first year. In Botany the first course will consist of twenty lectures, each followed by a practical class on Thursday evenings; fee, £1 10s. During the third year the programme will be as follows:—Practical Chemistry: Hour, Wednesday evenings, 6 to 9; fee, £1 10s. Botany—Second Course: Twenty lectures each, followed by a practical class; hour, Thursday evenings, lectures 6.30, laboratory 7.30 to 9.30; fee, £1 10s. Materia Medica: A course of twenty lectures on Materia Medica; hour to be settled later; fee, 10s. 6d. A class in Materia Medica will be conducted by Mr. John Austen, as formerly. It is trusted that all chemists' apprentices in Sheffield will take advantage of the opportunities afforded by these classes, and that their employers will facilitate matters as much as lies in their power.

EDUCATIONAL.—Professor J. B. Coleman, head of the chemistry department of the South-Western Polytechnic, Manresa Road, Chelsea, sends a prospectus of the evening classes held in connection with that institution. The classes for chemistry and botany appear to be suited to both "Minor" and "Major" students. We understand that last session twenty-six joined the chemistry classes and ten the botany classes, about 25 per cent. being "Major" students. The courses are specially adapted to pharmaceutical students, and are held independently of the ordinary chemistry and botany classes. ——The Secretary of the Birkbeck Literary and Scientific Institution, Bream's Buildings, Chancery Lane, E.C., also sends the calendar of that institution for the session 1899-1900. Classes are held in botany and chemistry, and other subjects, taken by pharmaceutical students. The list of the successful candidates at the University of London and other scientific examinations held during the session 1898-9 includes the names of several pharmaceutical chemists, past students in the Pharmaceutical Society's School of Pharmacy, who have continued their studies under the guidance of the teachers and professors at "The Birkbeck."

POISONING CASES.

CARBOLIC ACID.—On Thursday, September 28, the Westminster Coroner held an inquest with respect to the death of Florence Martin (54), widow of Captain Martin, of 66, St. George's Square.—Mrs. J. Kennedy, a sister-in-law, said that the deceased had committed suicide on the previous day by drinking carbolic acid. She had nursed her mother through a long illness in the recent hot weather, and this and continued anxiety about her mother had made her low-spirited. She seemed no worse on Wednesday morning.—Dr. Austen said the deceased had drunk nearly three ounces of the acid.—The jury returned a verdict of "Suicide whilst temporarily insane." —— In the course of an inquest held at Withington, on Wednesday, September 27, concerning the death of Elizabeth Crawford (31), wife of a shipping merchant of Malvern Grove, Withington, it was stated that she had not been in the best of health since April last, and had been staying at Buxton for some time, only returning home on September 25. She appeared to be much better, but about four o'clock the next afternoon she left the house, saying she was going to see her mother-in-law. She did not return, and on the mother-in-law's house being searched she was found in the front bedroom, lying on the floor. Two medical men were summoned to the house, and she was found to be suffering from carbolic acid poisoning, death taking place the same evening.—A verdict of "Suicide whilst temporary insane" was returned.

HYDROFLUORIC ACID.—An inquest was held on Saturday, September 30, on the body of Joseph Wilson Hollyer, sign-writer and glass embosser, living at Canterbury Road, New Cross, who had poisoned himself with hydrofluoric acid.—The evidence did not favour the presumption of suicide; but rather indicated that Hollyer drank the poison in a foolish display of bravado. He was well acquainted with its properties, as he had to use the acid in his trade. It appeared that Hollyer was at the bar of the Prince of Wales's Hotel, opposite Wimbledon Railway Station, with a friend. Producing an indiarubber bottle and remarking to the barmaid that it contained glycerin, he poured about a wineglassful of the contents into a tumbler. He put a lighted match into the liquid, added some water, and, holding up the tumbler, said to the barmaid, "This is as harmless as the liquor you sell." Then he tasted it, said it was too strong, and added more water.—He died from the effects of the poison a few hours later in hospital.—The jury found a verdict of "Death from misadventure." It was stated during the inquiry that this was the first recorded case of hydrofluoric acid poisoning.

ŒTHOL.—Under this name, cetylic alcohol, derived from spermaceti, has been introduced for use in dermatology. When rubbed on the skin, it becomes unctuous, but does not occasion a greasy stain, and may replace many ointment bases, but, at present, the price is too high for general use.—*Journ. Pharm. d'Anvers*, **55**, 350, after *Pharm. Central.*

FOOD AND DRUGS ACT PROSECUTIONS.

SEIDLITZ POWDERS.—A case showing the necessity for dealing direct with the manufacturer or a responsible wholesale house when purchasing drugs for retailing was heard at Market Harborough on Tuesday, September 12. Elizabeth Fox, grocer, Market Harborough, was summoned for selling seidlitz powders which did not conform with the requirements of the B.P., they being certified to contain only 9 grains of potassium tartarate instead of 120 grains, and 127 grains of sodium bicarbonate instead of 40 grains.—Defendant pleaded that she had purchased the seidlitz powders from a well-known firm, and sold them in precisely the same condition as she received them. The firm from whom she bought the powders obtained them from a London firm of high standing in the same condition as sold to the inspector. She did not challenge the analysis, but pleaded guilty to a technical offence.—The Magistrates' Clerk, after pointing out the seriousness of selling drugs which do not conform with the recognised standard, said that the law rendered the person selling the powders in question responsible, but he had no doubt that if defendant dealt with a *bonâ-fide* wholesale house, and was supplied therefrom with the powders, she could recover the amount of the penalty.—The Chairman intimated that if Mr. Simpson, the solicitor for the defence, was prepared to remove any responsibility from defendant by advising them as to the firm from whom the powders were obtained, the Bench would, if the powders came from a really respectable, responsible firm, take that into consideration. —Mr. Simpson said it was a delicate matter, for although the powders were supplied by a respectable, responsible firm, that firm got them from another firm in London, consequently he was not prepared to fix the responsibility upon the firm who actually supplied defendant with the powders.—A fine of £3, including costs, was imposed.

MAGNESIA.—John Youth, grocer, was charged at the Wootton Bassett Police-court on September 9 with selling magnesium carbonate as magnesia, and was fined 12s., including costs.——Frank Kempster was also fined the same amount for a similar offence.

CAMPHORATED OIL.—At Brierly Hill Petty Sessions, on Friday, September 15, Mrs. Morgan, who appeared for the defendant, Alexander Morgan, shopkeeper, Brettel Lane, charged with selling camphorated oil deficient in camphor to the extent of 33 per cent., and compounded with mineral oil and cotton-seed oil instead of olive oil, pleaded that she had the oil in question twelve months ago, and was not supposed to know what it contained.—The Magistrate pointed out that retailers of drugs were supposed to know of what they were composed.—It was also stated that there was a label on the bottle warranting the contents to be camphorated oil.—Defendant was fined £2, including costs.

MAGNESIA.—At Pontefract on Saturday, September 23, Walter E. Milburn, chemist and druggist, Castleford, was summoned for having sold adulterated magnesia. Defendant pleaded guilty, but stated that a mistake had been made, heavy carbonate being supplied instead of heavy magnesia. The bench accepted defendant's explanation, and inflicted a fine of the costs only—£1 11s.

SEIDLITZ POWDERS AND CAMPHORATED OIL.—On Monday, September 25, Messrs. Bell, Son, and Co., wholesale druggists, Liverpool, were summoned at New Swindon police-court for applying a false trade description to seidlitz powders supplied to James Lord, grocer, Wootton Bassett, and also to camphorated oil supplied in 1896 to Joseph Maylott, grocer, Oriel Street, New Swindon.—With regard to the first case, the analyst stated that the alkaline portion of the powders was correct, but the tartaric acid portion contained 20 per cent. of alum, whereas it should have consisted of pure tartaric acid.—Defendants pleaded that the tartaric acid in question was sold in exactly the same condition as supplied to them.—In respect to the camphorated oil, it consiste of 14 per cent. of camphor, 4 per cent. of mineral oil, and 82 per cent. of fatty oil. The analyst admitted that up to 1898 camphorated oil was not mentioned in the British Pharmacopœia.—For the defence it was stated that when the oil was sold there was no prescription for camphorated oil in the B.P. It was also stated that there had been an evaporation of camphor.—A fine of £10

was inflicted in the first case and £1 in the second, the costs to be taxed.——Mr. Maylott was also summoned for selling adulterated camphorated oil, and as the magistrates thought he had been more sinned against than sinning, he was fined 1s., the costs being remitted.

Camphorated Oil.—On Monday, September 25, at the County Petty Sessions, Jane Nicholson, grocer, Cokerton, was summoned for selling camphorated oil deficient in camphor to the extent of 54 per cent. For the defence it was stated that the oil in question was purchased with a warranty that it was of the "finest quality B.P.," from Messrs. Trowsdale, Shipley and Co., London, who obtained it from Messrs. George Wilton and Co. (Limited), Doncaster. Fined £1, including costs.——John H. Proud, grocer, Darlington, was summoned at the same Court for selling camphorated oil 60 per cent. deficient in camphor.—It was stated that the oil was manufactured last year by Messrs. Holmes and Richmond, Darlington, who on finding that it was not compounded in accordance with the B.P., 1898, requested their customers to return it. The defendant, however, had not done this, but the firm had taken the responsibility.—Fined £1, including costs.

Seidlitz Powders.—At Houghton-le-Spring Petty Sessions, on Thursday, September 21, a charge against Thomas Reay, general dealer, of selling seidlitz powders not of the nature, quality, and substance demanded by the purchaser, was adjourned for a month in order that a fresh analysis of the samples held by the defendant and the Inspector might be made.—The defendant objected to the method of dividing samples of seidlitz powders adopted by the Inspector, who had bought six packets, two packets being sent to the analyst, two sealed and left with the defendant, and two retained by the Inspector. Defendant contended that one packet only should have been divided.—The magistrates agreed with this, and adjourned the case.

Milk of Sulphur.—On Friday, September 30, Joseph Clarkson, manager of the Clayton West branch of the Scissett Co-operative Society, was charged before the Barnsley magistrates with selling milk of sulphur, which Mr. A. H. Allen, public analyst, certified to consist of sulphur 44 per. cent., hydrated calcium sulphur 56 per cent.—Mr. Bedford, president of the society, who represented defendant, said the preparation had been in stock a long time; very little of it was sold, and they did not know it was otherwise than a proper preparation.—A fine of 5s. and costs was imposed.

TRADE NOTES.

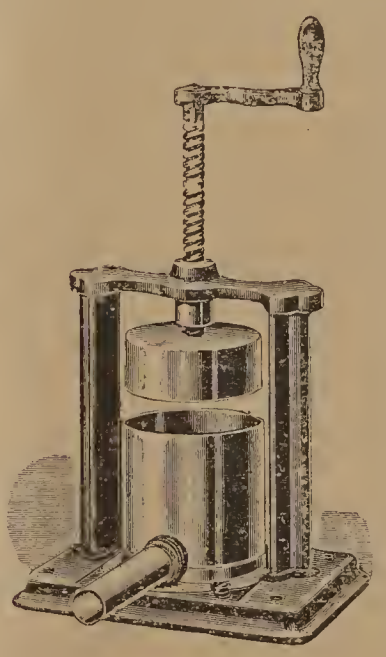
Martindale's Urine Test Case.—Mr. W. Martindale, 10, New Cavendish Street, London, W., submits a specimen of a urine test case which he has recently introduced to the medical profession. It is a compact mahogany cabinet, 6-in. × 2½-in. × 4-in., containing the apparatus and reagents requisite for the qualitative and quantitative examination of urine for albumin, glucose, and urea. It has been designed by W. Harrison Martindale, Ph.D., especially to meet the requirements of the busy medical practitioner, to carry in the bag

and conduct an analysis at the patient's bedside. For this purpose it should prove extremely useful as the processes, fully described, are simple; the calculations are readily made by reference to prepared tables; the apparatus is cheap, and above all, portable. The case contains:—Esbach's albuminometer, graduated tube for glucose determination, ureometer for urea determination, urinometer for reading off specific gravity, metal spirit lamp with brass screw top, three test tubes, test tube stand, test tube brush, four stoppered bottles of reagents fitted with patent safety stopper bands, funnel, graduated pipette, litmus papers, filter papers, cloth, calculation tables, and book of directions and charts. The nett price is 17s. 6d. Another article recently introduced by Mr. Martindale is a

neat pocket case of polished wood, to carry one dozen nitroglycerin tablets. The price of the case with its full complement of tablets is 1s. A similar portable and elegant case, to contain three amyl

nitrite capsules, is made of cream-coloured celluloid, with the words "Martindale's Amyl Nitrite Capsules" embossed in gilt letters. Filled with capsules the case is sold at 2s.

Collapsible Tubes.—Messrs. Thomas Christy and Co., 25, Lime Street, London, E.C., submit a set of samples, showing the various colours in which they can supply collapsible tubes. These colours, to which attention was directed in these columns a few months ago, are of three different types, viz., enamel colours, of an excellent quality, smooth and pleasant to the touch, and transparant and dull colours of superior quality. The tubes are artistically printed, the type, both large and small, showing up very distinctly. An illustration is given herewith of a machine introduced by the firm for filling the tubes. This machine is a very useful and compact piece of apparatus, and appears to be well adapted to the purpose for which it is intended. Chemists requiring a machine for filling their own tubes should write for particulars as to price, etc., to Messrs. Thomas Christy and Co., at the above-mentioned address.



The "Gutenberg" Temperature and Pulse Respiration Chart is published by Mr. James F. Wilkinson. The Gutenberg Works, Pendleton, Manchester, and can be used to record two, three, or four observations in the twenty-four hours, *i.e.*, as a 12, 8, or 6 hour chart. The chart is issued both singly and made up in pads.

"Primus" Lanternist's Pocket-Book.—Messrs. W. Butcher and Son, Blackheath, write to correct an error they made when writing us a few weeks ago giving particulars of their Lanternist's Pocket-Book which they distribute free (see *ante*, p. 284*d*). It was mentioned that the present edition consisted of 10,000—this should have read 5,000.

MEDICINAL CAPSULES.—The Liverpool Medicinal Capsules Company, 4, Colquitt Street, Liverpool, submits samples of flexible gelatin capsules, containing castor oil, apiol, sandal oil, quinine, Easton's, cascara, guaiacol, copaiba, Blaud pill, antisepticine, and cod liver oil. They are well made and accurately filled, and chemists will find the goods worthy of attention.

SHOP FITTINGS, ETC.—Messrs. Evans, Sons, and Co., 56, Hanover Street, Liverpool, send a copy of their illustrated catalogue of shop fittings, shop bottles, etc. The first part comprises some twenty-five large, full-page photographs, showing specimens of shop fronts and interiors erected by the firm; various departments in the shop-fitting factory; timber-laden ships, and stocks of seasoned and unseasoned timber. The latter part of the catalogue consists of illustrations and descriptions of the class of fittings usually desired by the trade, but they, of course, only represent a small portion of what the firm manufacture, new designs being introduced to meet particular requirements. The catalogue is exceedingly well printed, and so far as we know there is nothing of the sort brought out by any other firm. Liverpool being the principal timber port in the United Kingdom, the firm is able to purchase suitable wood of the highest quality on the best terms. Messrs. Evans, Sons, and Co. state that they do only first-class work, employing the best hands in the trade.

SCOTTISH NEWS.

STRATHPEFFER *v.* BAD NAUHEIM.—A correspondent writing to the *Times*, under the heading "Bad Nauheim and its British Rivals," states that for three consecutive years he has gone to Bad Nauheim for health, and has gone through four courses of its baths and heart treatment, but this year was unable to go for want of time. Hence, acting under advice, he went to Strathpeffer, one of the British substitutes to Bad Nauheim. After giving a glowing account of the Highland scenery and its invigorating air, he contrasts the two health resorts, and sums up his conclusions thus:—"For those who can spare the time, Nauheim, the natural source of the heart-healing waters, is still the best, in spite of its distance by land and sea. For those who have only a limited time at their disposal, and who prefer their own language, with British food and lodging and recreation, to what is to be found in that way in Germany, coupled with the keen health-giving air of the Highlands, and all their picturesque beauty, I would recommend Strathpeffer. . . But the authorities at Strathpeffer must set their baths in order, and make them as comfortable as those of Nauheim, and the doctors must contrive to give more individual attention to their heart patients, if they are really in earnest in their rivalry."

MR. ARTHUR MCKELLAR, M.P.S, pharmaceutical chemist, successor to the late Mr. Alexander Kinninmont, announces that his establishment at Ibrox is now open, and that former customers of Mr. Kinninmont at South Portland Street will find their requirements as carefully attended to at the new premises, the business being under his personal supervision aided by a certificated assistant.

THE PHARMACY GOLF CLUB, Edinburgh, decided the competition for possession of the "Dick" monthly challenge medal last week. The result was a win for J. P. Gibb, with J. Aikman second.

POISON FOR MEDICINE.—On Thursday, September 21, a labourer named John Stevenson, 55, of 90, Parliamentary Road, Glasgow, was admitted to the Royal Infirmary in an unconscious condition, through having swallowed a quantity of poisonous lotion in mistake. It appears that the man has been suffering from asthma, and during the early hours of the morning he rose to take some medicine which had been prescribed for his complaint, but the doctor's bottle being placed on a table beside the lotion, he drank the latter in the dark.

WEST OF SCOTLAND COLLEGE OF PHARMACY, GLASGOW.—Mr. Thomas Maben, F.C.S., one of the principals of this College, delivered the opening address, on Monday evening last. Mr. W. L. Currie presided, and introduced Mr. Maben to a Glasgow audience. Mr. Maben, having referred to the cordial welcome he had received from Glasgow pharmacists, proceeded to deal with pharmaceutical education and examination. Discussing the new Preliminary, he said pharmacists would incur grave responsibility who took apprentices who had not obtained the necessary certificate before leaving school. The question of a curriculum had he said settled itself, and students all realised that it was necessary. He threw out the suggestion that some kind of recognition by the Society of schools and colleges whose curricula were satisfactory would prove an immense value in the development of pharmaceutical education. Referring to the examinations, he spoke of the candidates whom he had often found to be utterly unprepared, and who seemed to take failure as a matter of course. This was a condition of affairs that should not be, and it was their duty to create an atmosphere where its existence would be impossible. Of the examiners, he said that it was much more gratifying to them to give a high mark than a low one, and well-prepared candidates always found them to be perfect gentlemen, while the subjective experiences of candidates ill-prepared were hardly such as fitted them to pass an opinion. He thought a division of the examination would be welcomed both by teacher and student, and he also considered that every student having paid his fee for a complete examination was entitled to be examined in every subject without being stopped midway. He knew of no examining Board in the country which refused to examine a candidate in all the subjects for which he had entered, and he thought the present system might well be altered. He concluded with a few words regarding the West of Scotland College of Pharmacy, the aim of which was to make excellent pharmacists of its students, and, thereafter, legal qualification would follow as a matter of course.

FOREIGN NEWS.

THE PROPOSED MONUMENT PELLETIER-CAVENTOU is not attracting much attention in England, despite the reference to the matter at a meeting of the Council of the Pharmaceutical Society of Great Britain, some two years ago (*vide P. J.*, October 9, 1897, p. 326). It was then announced by Mr. Walter Hills that the Secretary of the Society would be very pleased to receive and forward subscriptions, and readers may be reminded that the subscription list is still open, whilst Mr. Bremridge is doubtless as ready as formerly to transmit any amounts that may be committed to his care. It may be remarked that a representative list of subscribers is desired rather than large subscriptions.

X-RAYS AS A DEPILATORY.—People will do well to fight shy of the X-Rays as a depilatory. A lady was placed opposite a tube for twenty minutes, four days in succession, and she came to the conclusion that the result of the experiment was just nothing at all. But after a week had elapsed she found that the rays had removed not only the superfluous hair of which she desired to be rid, but the skin also.

A FRENCH PHYSICIAN mentions a curious apparent cause of left-handedness. One child in a certain family was left-handed, and the second appeared to be so at the age of one year. It was then learned that the mother always carried her children on her left arm. She was advised to change; and, held on her other arm, the infant, having its right hand free to grasp objects, became right-handed.

THE TREATMENT OF TETANUS, or lock-jaw, in animals by seropathy, or inoculation with serum, has been a great success. During the last two years Monsieur Nocard has distributed 7,000 flasks of the antitetanic serum for injection into horses, mules, bulls, goats, calves, and pigs to prevent lock-jaw after operations. Of 2,300 animals thus treated, not one suffered from lock-jaw. Of 400 beasts injected after accidental injuries, none died of lock-jaw. In fact, the serum appears to be of an absolute efficacy.

STRANGE POISONING FATALITY.—Two employees of the front railway station of Lèmorteau, on the line Montmédy to Virton, tapped a small cask which they supposed to contain brandy, and drank of its contents. Both were seen to fall dead. It was prussic acid. It is hard, however, to imagine from the report how prussic acid came to be shipped in such quantity and in a cask. The odour would scarcely be likely to have acted as a warning, and thus have deterred them from drinking, although it did not turn out to be brandy, as they anticipated, for kirsch, a common liqueur in France, has a strong cherry laurel odour.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

October 5, 1899.

Business has not been very brisk during the past few days, the uncertainty as to course of affairs in South Africa, combined with the absence of orders from that quarter, not having tended to help matters. At time of going to press it looks as if the uncertainty was over, and that war was absolutely inevitable, if not already begun. It is probable that war will have the tendency to cause an advance in price of several articles of interest to our readers, and they will perhaps do well to look to their stocks betimes, and before such probable advance has taken place. Quicksilver is very firm, as also are mercurials. An advance in price of refined Camphor is thought not improbable. Quininc is cheaper from the makers, but a shade firmer is the speculative market. Opium, Morphine, and Codeine, very firm. Glycerine decidedly dearer. Cocaine is very firm, and a further advance in maker's price is fully expected. It is reported that a corner has been brought about in Cascara Sagrada in San Francisco. Hyphophosphites have been reduced in price. Sulphate of Ammonia is weak, and lower. Acid Carbolic steady. Bank rate has been twice advanced, and now stands at five per cent. The following are prices actually ruling for some articles of principal interest:—

ACETANILIDE—Still dull and weak, with continued pressure to sell on part of makers and their agents at prices varying from 9½d. to 1s. per lb., according to make, quantity, and packing.

ACID BORACIC—Steady and unchanged at 25s. per cwt. for crystals and 27s. per cwt. for powder.

ACID CARBOLIC.—Quiet at 6¾d. to 7d. per lb., according to quantity and make, for 35-36° C., ice crystal in large bulk, 7½d. per lb. for the 39-40° C. ice crystal, and 8d. to 8¼d. per lb. for the 39-40° C. B.P. quality in detached crystals. Crude, 60° F., 2s. 1d. per gallon; 75° F., 2s. 7d. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. per gallon in 40-gallon casks; ditto 30 per cent. of dark-colour, 10d. to 11d. per gallon.

ACID CITRIC—Is fairly steady at 1s. 5d. to 1s. 6d. per lb., according to quantity and make, for crystals in 5cwt. casks.

ACID TARTARIC—Steady at 1s. 1d. per lb. for English on the spot, and 1s. 0¾d. per lb. c.i.f. for foreign.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, 3d. to 4d. per lb., according to make, packing, and quantity. Muriate, chemically pure, small crystals, 30s. to 32s. 6d. per cwt.; ditto, commercial, free from metals, 27s. 6d. per cwt. Iodide, 13s. 7d. per lb. Sal Ammoniac: Firsts, 35s. per cwt.; seconds, 33s.; ditto crushed for batteries, 2s. per cwt. more. Sulphate weak. Grey, prompt, 24 per cent., London, £11 8s. 9d. to £11 10s. per ton; Hull, £11 8s. 9d.; Leith, prompt, £11 7s 6d. to £11 10s.; Beckton, prompt, £11 7s. 6d.; Beckton, terms prompt, £11 5s. per ton.

ANTIMONY.—Regulus is unchanged at £39 to £40 per ton, and crude Japan (black sulphide) £24 to £24 10s. per ton, according to brand.

ANTIPYRINE AND PHENAZONE—Are steady at unchanged prices.

ASAFETIDA—Is in active demand, and good quality is very scarce. About 60 cases have been sold this week at from 40s. to 60s. per cwt., according to quality. Stock: 654 packages, against 307 packages same time last year.

ASHES.—Pots, 22s. 9d.; Pearls, 32s.

ATROPINE is firm at maker's prices of 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure alcaloid.

BISMUTH—Unchanged at 5s. per lb. for the commercial quality of the metal; 5s. 1d. per lb. for the subnitrate; and 5s. 8d. per lb. for the subcarbonate.

BLEACHING POWDER (CHLORIDE OF LIME)—Is quiet at £6 10s. per ton for English.

BORAX—Is still quoted 16s. per cwt. for crystals, and 16s. 6d. per cwt. for powder.

BROMIDES—Firm at 1s. 10½d. for Potassii Bromid., 2s. 1½d. per lb. for Sodii Bromid., and 2s .2d. per lb. for Ammon. Bromid. Bromine, 2s. 2d. to 2s. 3d. per lb., in 60 lb. cases.

CAMPHOR.—The market for crude is decidedly firm, with a fair inquiry on the spot at dearer rates. A moderate bu iness has been done in China at 127s. 6d., and in Japan at 137s. 6d. per cwt. on the spot, with further buyers thereat. For arrival the quotations are 131s. and 135s. per cwt. respectively, c.i.f. Refined is very firm at unchanged prices, the English makers still quoting 1s. 7d. per lb. for Bells and Flowers in ton lots. It is stated, however, than an advance in makers' prices for refined camphor is not improbable.

CASCARA SAGRADA.—There is a rumour that the market has been cornered in San Francisco. To-day there are many inquiries for the article here in London, with, however, but few sellers. A few small lots have changed hands at 25s. 6d. to 27s. 6d. per cwt. for old bark. More money is, however, now asked by the few holders who are willing to sell.

CASTOR OIL—Firm. Belgian, first pressing, spot, £26 10s.; January to June, 1900, £25 10s. f.o.b.; Antwerp, second pressing, spot, £25 per ton, ex wharf. Hull manufactured guaranteed cold drawn pure pharmaceutical oil, £29 per ton in barrels; 3⅜d. per lb. in cases. Pure firsts, £26 10s.; seconds, £25 10s. per ton in barrels; Firsts, 3⅛d. per lb. in cases; seconds, 3d. per lb., ex wharf, London.

CINCHONA BARK.—At last week's Bark Sales in Amsterdam prices showed a decline of about 20 per cent., a result which had been practically already discounted in the speculative market for Quinine.

CLOVES.—Privately Zanzibar steady on spot at 3⅛d., but rather dull for delivery; October-December quoted 3 3-32d., and January-March 3 5-32d. At auction 200 bales Zanzibar sold without reserve, fair at 3⅛d.; 34 cases picked Penang bought in at 7d. to 7½d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial 1s. 3d. per gallon, pure 2s. Benzole, 50 per cent. 10½d. per gallon, 90 per cent., 9d. Creosote 3¼d. per gallon. Crude naphtha, 50 per cent. at 120° C., 4½d. per gallon. Solvent naphtha, 95 per cent. at 160° C., 1s. 5d. per gallon. 90 per cent. at 160° C., 1s. 2d. per gallon. 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene A, 3¾d. per unit; B, 2¾d. Pitch, 35s. per ton f.o.b. Tar, refined and crude, 15s. per barrel, 3d. per gallon.

COCAINE.—Market is very firm, makers' price being, however, still unchanged at 18s. per oz. In view, however, of the continued scarcity and dearness of the crude article a further advance in makers' prices for the refined article is confidently expected. From second hand there are still a few sellers at somewhat below makers' present prices.

COD LIVER OIL—Is quiet at 60s. to 62s. 6d. per barrel for best new non-congealing Norwegian oil in tin lined barrels of 25 gallons each.

CODEINE—Remains very firm at 12s. 11d. to 13s. 4d. per oz., according to quantity for the pure, and 1s. per oz. less for the sulphate, muriate, and phosphate salts.

CREAM OF TARTAR—Quiet at 74s. per cwt. for first white crystals on the spot, and 75s. per cwt. for powder.

CREOSOTE FROM BEECHWOOD TAR.—German makers advanced their prices 3d. per lb. to 2s. 6d. to 2s. 9d. per lb., according to quantity and make.

ESERINE PHYSOSTIGMINE—Makers are firm at 2s. 3d. per gramme for the Sulphate and Salicylate.

GALLS.—Market for China remains quiet, with slow demand, usual shape being quoted 59s. per cwt. on spot and 57s. for arrival. Plum shaped are rather easier, with offers at 58s. 6d. per cwt. c.i.f. Japan slow of sale, with offers, to arrive, at 56s. per cwt. c.i.f. Persian very quiet, with only small sales. Holders are, however, firm at 65s. for blues. Reports point to a short crop next season. Stock of Smyrna is nearly exhausted. Demand is, however, very slow.

GINGER.—Only 151 packages Cochin were offered at auction, and met little demand. 13 cases Calicut rough, small, and medium, slightly mouldy, sold at 25s. 6d.; the remainder bought in, small native cut at 36s.

GLYCERIN.—Market for refined has taken a decided step in an upward direction, the best white, double di tilled, chemically pure, 1260° quality, being quoted 57s. 6d. to 65s. per cwt., accord-

ing to make, for German brands in tins and cases (2 or 4 × 56 lb. tins in a case), while the same quality of English manufacture is obtainable at rather less money. Crude continues very firm at £37 to £39 per ton for the quality most suitable for refining purposes.

GUM KINO.—The deliveries have been good this month, and the late large stock has been greatly reduced. For Cochin 2s. per lb. is asked, and no less will be taken for the African kind.

HYPOPHOSPHITES.—The makers reduced their price last week 3d. per lb., present quotations being 3s. per lb. for Lime Soda and Potash Hypophosphite.

IODIDES—Somewhat unsettled in consequence of offers at prices below those fixed by the Convention, which latter are unchanged as follows:—Potassi Iodid., 10s. 6d. per lb.; Sodii Iodid., 11s. 10d. per lb.; Ammon. Iodid., 13s. 10d. per lb. Iodoform crystals, powder, and precipitated, 13s. 10d. per lb.; Iodine, commercial, 7½d. per oz.; ditto, resublimed, 12s. per lb.

IPECACUANHA.—A fair qantity of Rio has been sold since the auctions at 14s. per lb., and a few bales more could probably be obtained from same holder at that price, but another importer holds firmly for 14s. 6d. per lb. For Carthagena 11s. to 11s. 6d. per lb. is asked.

LITHIA SALTS are in good demand at 11s. to 11s. 3d. per lb. for the carbonate, and 7s. and 7s. 6d. per lb. for the crystal and powder respectively.

MERCURIALS—Are very firm at unchanged prices. Makers quote Calomel 2s. 11d. per lb. and Corrosive Sublimate 2s. 7d. per lb., the other mercurial preparations being quoted at proportionate prices.

MORPHINE.—The market is very firm at 4s. 10d. to 5s. per oz., according to quantity, for the hydrochlorate powder, and 2d. per oz. more for crystals. It is thought that we shall see higher prices for this article.

OILS (FIXED) AND SPIRITS.—Linseed strong at dearer rates. On spot, pipes, London, £22 2s. 6d. to £22 5s.; barrels, £22 10s. to £22 12s. 6d. Hull, spot, naked, £20 15s. Rape firm; ordinary brown on spot, £23 10s.; November-December, £23 10s.; January-April, £24; Refined, spot, £24 15s. to £25. Ravison, naked, spot, £20 10s.; January-February, £20 15s. to £21. Cotton dearer; London crude, spot, £17 15s.; November-April, £17 10s.; Refined, spot, £19 10s. to £20 10s. Hull, naked, refined, spot, £18; crude, spot, £16 15s. Olive firm; Mogador, £33; Spanish, £33 to £33 10s. Cocoanut firm; Ceylon, on spot, £25; October-December and January-March, £23 12s. 6d. to £23 15s. c.i.f.; Cochin, spot, £29 10s. Palm: Lagos, on the spot, quoted, £26 10s. Turpentine firm; American, spot, 37s. 3d.; November-December, 37s. 4½d.; January-April, 37s. 10½d. to 38s. Petroleum Oil quiet; Russian, spot, 5 9/16d. to 5⅝d.; American, spot, 6⅞d. to 7d.; water white, 8½d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Lubricating Oil: pale American, spot, 7s. to 9s.; black, 6s. 3d. to 8s.

OPIUM.—The market has been very quiet, and only small sales of manufacturing and soft shipping at fully previous rates, holders being very firm. Persian kinds have been dealt in to a fair extent at 12s. to 12s. 3d. per lb. for fine quality, but holders now ask 12s. 6d. per lb.

OXALIC ACID—Is still quoted 3d. to 3¼d. per lb. nett, free delivered London.

PARAFFIN WAX—Is still quoted 2½d. to 3d. per lb. for crude, and 3d. to 3¾d. per lb. for refined.

PHENACETINE—Continues dull and weak. Prices at which some makers are pressing sales—viz., 3s. 2d. to 3s. 3d. per lb.—can hardly leave them a profit, and also hardly speaks in favour of the quality of their article, bearing in mind the old proverb of "cheap and nasty."

PILOCARPINE—Makers are firm at 30s. per oz. for the Nitrate and Hydochtorate Salts.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, powder, 4d. per lb.; crystals, 3¾d., free London for prompt delivery. Iodide, 10s. 6d. per lb. Permanganate is still quoted at widely varying prices, one maker asking 62s. 6d. per cwt. for small crystals in one cwt. kegs, while other makes are still offering at 52s. 6d. per cwt, large crystals being charged 5s. per cwt. more money. Prussiate, yellow, Beckton make, 7¾d. per lb.; other English makes, 8d. to 8½d. per lb.; red, 1s. to 1s. 2d. per lb., according to quantity.

QUICKSILVER—Is very firm at £8 12s. 6d. per bottle from the importer, and 6d. per bottle less from second hand. It is stated that an advance in price is not altogether improbable.

QUININE.—After touching 10⅛d. per oz. last week the speculative market again hardened, and there are now buyers of B. & s. or Brunswick at 11d. per oz. for December delivery, with but few sellers thereat. The makers of these brands reduced their price to 11½d. per oz. after the result of last week's Bark sales in Amsterdam became known. It would appear not unlikely that we may now see a gradual improvement in price of Quinine.

ROSIN—Firm at 4s. 6d. per cwt., ex wharf, for strained, and 4s. 1½d. to 4s. 2d. per cwt. for October-December and January-March shipment, per sailing vessel.

SANTONINE.—Early this week the price was again advanced to 11s. 3d. per lb. for 2-cwt. lots, up to 11s. 9d. per lb. for smaller lots. This advance was already foretold in these columns. From second hand there are offers at about 6d. per lb. below above figures.

SALICINE—Remains firm at the lately advanced price of 12s. 6d. per lb.

SENNA.—A few lots of very common quality. Tinnevelly in second hands have been brought out by the high prices paid last week, but the ideas of holders are quite beyond even the present high values. Stock on 1st inst.: 689 packages, against 1,388 packages last year. Alexandrian qualities are much wanted, and a fair business has been done in old leaf at 3½d. to 4d. per lb.; good half leaf at 6½d. per lb.; whilst whole leaf of good quality, which is in very small supply, is held at 9d. per lb. Reports from Egypt point to a small crop.

SHELLAC.—There is a steady, although not very active, demand prevailing on the spot, with moderate sales at previous rates, say 61s. to 62s. per cwt. for TN. Orange basis fair. The market for futures continues quiet, and without change.

SODA COMPOUNDS.—Crystals: Barrels are quoted 60s. per ton and bags 57s. 6d., ex ship Thames. Ash, £5 5s. to £7 per ton, according to percentage, etc. Bicarbonate: Commercial, £7 10s. to £8 10s. per ton; while 22s. 6d. to 25s. per cwt. is asked for the fully bicarbonated. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic: White, 70 per cent., £9 per ton; 60 per cent., £8 per ton. Hyposulphite (Antichlor.), 6s. 6d. to 8s. 6d. per cwt., according to make, quantity, and packing. Iodide, 11s. 10d. per lb. Nitrate: Ordinary, £7 13s. 9d.; refined, £7 17s. 6d. per ton.

SPICES (VARIOUS.—Black Pepper: 180 bags Penang bought in at 5½d. No Singapore offered. White Pepper: 10 bags Singapore sold, fine at 10¼d.; 52 bags fair Penang bought in at 8½d. Chillies: 20 bags Japan bought in, fair bright at 36s. Capsicums: 55 bales Bombay bought in, fair bright cherries at 35s. Cinnamon: 64 bales Ceylon sold, without reserve, fair palish, part wormy, at 1s. 6d. to 1s. 7d.; 5 cases West Indian sold, fair to good pale at 1s. 7d. to 1s. 9d., fair red 1s. 5d., broken 1s. 3d. Nutmegs: 65 cases Penang bought in, 80's at 1s. 9d., 90's at 1s. 6d., 101's at 1s. 4d., 109's at 1s. 2d.; 34 boxes Singapore bought in, 79's at 1s. 9d.; 14 packages West Indian sold, 90's at 1s. 4d., 104's at 1s., 114's at 11d. to 11½d. Pimento: Of 425 bags only 77 sold, common at 3¼d.; the remainder bought in, fair to good at 3½d. to 3¾d.

SULPHATE OF COPPER—Is firmer at £23 15s. to £25, according to quantity and make for spot delivery.

SULPHONAL.—The makers still quote 17s. per lb. for crystals and powder, while it is still possible to buy limited quantities from second hand at 14s. 6d. to 15s. per lb.

TAR.—Stockholm, 25s. 6d. to 26s.; Archangel, 18s. to 18s. 6d.

TURMERIC.—Business has been but small in all descriptions, but market remains firm at 26s. per cwt. for fair. Bengal, 32s. 6d. to 35s. for fair bulby to good bright Madras; 11s. for Cochin split bulbs, and 25s. per cwt. for China finger.

Newcastle-on-Tyne Chemical Report.

OCTOBER 4, 1899.

This Chemical Market keeps strong all round. Most of the makes of heavy goods are still scarce, particularly Bleaching Powder and Soda Crystals. Quotations are: Bleaching Powder, £6 5s. to £6 10s. Caustic Soda, 70 per cent., £8 10s. to £9. Soda Crystals, 50s. Soda Ash, 52 per cent., £4 10s. to £4 15s. Alkali, 52 per cent., £5 10s., nominal. Sulphur, £4 15s. to £5 per ton.

Manchester Chemical Report.

October 4, 1899.

There is an excellent tone prevailing, and more disposition on the part of consumers to purchase forward. The period for contracting over next year has now set in, and Bleaching Powder has been freely sold, both prompt and forward, at £5 5s. per ton, soft wood casks, on rails. Soda Crystals are unchanged, and a fair business is being done at 55s. per ton, bags, on rails, and £3 to £3 5s. casks. Green Copperas is unchanged and firm for best Lancashire make. Yellow Prussiate is scarce at 8¼d. to 8½d., and the production in this district has greatly diminished. Arsenic is rather higher at £19 per ton, ex ship, Garston. Brown Acetate has advanced to £3 5s. per ton, Welsh and American, delivered Manchester. Sulphate of Copper ranges from £26 10s. to £27 per ton, best brands, delivered Manchester. There is a good demand for Spring shipment. Carbolic Acid is firm. Almost the only articles which show any symptoms of weakness are Aniline Oil and Salt, which are quoted 4½d. and 4d., respectively. Pitch tends upwards, and as there has been an advance in the price of fuel locally, it may be followed by a corresponding movement in the manufactured material. The oil season on the Ship Canal has now set in, and three vessels have arrived, one with the largest cargo sent to this country.

Liverpool Market Report.

October 4, 1899.

Business continues steady, the chief alterations in quotations being better prices in oils. In seeds there has been but little done, Linseed being at such prices that buyers hold off, whilst Canary-seed is only in small demand. A fair amount of attention has been bestowed on Gum Arabic, of which some 20 serons are reported at good prices. In chemicals the tone is very firm for Caustic Soda, whilst Ammonia Sulphate and Copper Sulphate are easier.

AMMONIA SALTS.—Carbonate, 3¼d. to 3½d. per lb.; Sal ammoniac, 33s. to 35s. per cent.; Sulphate, £11 17s. 6d. to £12 per ton.

CANARYSEED.—Turkish is in quiet demand at 39s. to 40s. per 464 lbs., and 50 bags have been sold at 39s.

COPPERAS—Is very firm, 40s. per ton for Lancashire and 37s. 6d. for Welsh.

COPPER SULPHATE.—In consequence of an easier demand the price is now quoted at £25 7s. 6d. to £25 10s. per ton on the spot and £25 12s. 6d. to £25 15s. per ton forward.

GUM.—A better demand for "sorts" has resulted in the disposal of about 20 serons at 62s. 6d. to 75s. per cwt. according to quality.

LINSEED.—There has been no Calcutta offering either on the spot or forward. North American has sold well for shipment early in the week at 39s. 6d. to 41s. 3d. per 424 lbs., but the price has now risen to 41s. 6d. c.i.f.

OILS (FIXED) AND SPIRITS.—Castor Oil is steady and quiet with a small amount selling at 3d. per lb. for good seconds Calcutta (though 75 cases early in the week went for 2 15/16d. per lb.), 2⅝d. for French 1st pressure, 2⅝d. 2nd pressure, and 2½d. for 2nd Sulphur, Madras, 2¾d., at which price five tuns were sold. Olive Oil is extremely firm at even higher rates than last week, viz., £34 10s. to £39 per tun; Gallipoli being the dearest. Linseed Oil is firmly held for 23s. to 23s. 6d. per cwt. for Liverpool makes. Cottonseed Oil is very strong in tone at 19s. to 19s. 6d. per cwt. for Liverpool refined oil. Spirits of Turpentine, after rising to 39s. per cwt. early in the week, the price has now gone down 3d., and at present is firm at 38s. 9d. per cwt.

POTASH SALTS.—Bichromate is firm at 3¼d. to 3½d. per lb. Chlorate is steady at 3½d. to 3¾d. per lb. Cream of Tartar is unaltered both in price and demand. Pearlashes, 30s. cwt. Potashes, 21s. cwt. Prussiate is firm, 8¼d. to 8½d. per lb.

SODA SALTS.—Bicarbonate is firm, £6 5s. to £6 15s. per ton. Borax Crystals, 16s. cwt., Powder, 16s. 10d. per cwt. Caustic Soda is very firm, 76 to 77 per cent., £9 7s. 6d. per ton, 70 per cent., £8 10s. per ton. Crystals, £3 2s. 6d. to £3 5s. per ton. Hyposulphite is scarce at £6 10s. per ton. Nitrate is steady, with better demand for forward delivery, 7s. 6d. to 7s. 7½d. per cwt.

Marriages.

Brackenbury—Throop.—On September 19, at St. Laurence's Church, Bardney, by the Rev. C. E. Laing, Walter Robert Brackenbury, M.P.S., 219, Newport Road, Middlesborough, to Annie Mary Stovin, daughter of the late Chas. Stovin Throop, of Withern, Lincolnshire.

Timms—Allan.—On the 22nd ult., at 9, Irving Street, Dumfries, by the Rev. Alexander Chapman, M.A., of St. Mary's, assisted by the Rev. Duncan Cameron, B.D., George Herbert Timms, St. Loes, Amberley, Stroud, Gloucester, to Annie Birrell Carruthers, youngest daughter of William Allan, pharmaceutical chemist, Dumfries.

Deaths.

Maule.—On September 24, William Pratt Maule, Chemist and Druggist, Poplar. Aged 50.

Watson.—On September 27, Horace Watson, Chemist and Druggist, Laceby. Aged 86. Mr. Watson was a member of the Pharmaceutical Society from 1852 to 1891.

Greenish.—On September 28, Thomas Greenish, Pharmaceutical Chemist, Dorset Square, London, N.W. Aged 81. Mr. Greenish had been a member of the Pharmaceutical Society since 1847.

Bremridge.—On October 1, Anna Louise Bremridge, wife of Mr. Richard Bremridge, Secretary and Registrar of the Pharmaceutical Society, 17, Bloomsbury Square, London, W.C. Aged 60.

Partnerships Dissolved.

(From the London Gazette.)

Thomas McClure and Roger Kerr Hamilton, Physicians and Surgeons, Whittington Moor and Hasland, near Chesterfield. Debts will be received and paid by Thomas McClure,

George William Collins and Frank Collins, Surgeons, Physicians, Accouchcurs, and General Medical Practitioners, Wanstead, Essex.

Robert Thomson Forbes and Harry Graham Smith, Surgeons and Physicians, Breaston and Sandiacre, in the county of Derby. Debts will be received and paid by Robert Thomson Forbes, by whom the practice will in future be carried on under the style of Forbes and Scott.

Calendar for the Week.

Sunday, Oct. 8. 19th after Trinity. Sun rises 6.13., sets 5.21.

Monday, Oct. 9. Sun rises 6.15., sets 5.19.

Tuesday, Oct. 10. Sun rises 6.16, sets 5.17

Royal Photographic Society, 5A, Pall Mall East, London, W., at 8 p.m.—President's Annual Address; and presentation of medals awarded at the Exhibition.

Wednesday, Oct. 11. Sun rises 6.18, sets 5.15.

Manchester Pharmaceutical Association.—Annual Dinner.

Newcastle-on-Tyne and District Chemists' Association Hotel Metropole, at 8.15 p.m.—Third Annual Meeting.

Thursday, Oct. 12. ☽ 6.10M. Sun rises, 6.20; sets, 5.12.

Chemists' Assistants' Association, 73, Newman Street, London, W., at 9 p.m. Inaugural Address by the President.

Liverpool Chemists' Association, Royal Institution at 7 p.m.—General Meeting. Election of President. Paper by Mr. John Smith on "The Federation of Local Associations and the Pharmaceutical Society."

Friday, Oct. 13. Sun rises, 6.22; sets, 5.10.

Saturday, Oct. 14. Sun rises, 6.23; sets, 5.8.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. —Edward Peck, East Dereham.

What Offers? Remington's Pharmacy, (new) Art of Dispensing, Stirling's Dispensing Notes, 50 C.c. Burette, glass stopcock, ʒxii. glass stoppered Separator.—M., 388, Markhouse Road, Walthamstow.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Pharmaceutical Journal, current year. Also recent yearbooks.—Hunter, 23, Whitehead Street, Paisley.

Chemistry and Physics Books, cheap list sent.—Johnson, 155, Lea Rd., Wolverhampton.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

QUALIFIED ASSISTANT wanted, of good experience and address, about 22 to 25 years of age, for first-class Dispensing business at Tunbridge Wells, where 3 are employed. — Apply to Mr. R. A. ROBINSON, 195, Brompton Road, London, S.W.

LONDON, S.E.—JUNIOR (indoors) required at once, of good address and appearance, for first-class Dispensing and Retail. Apply, giving full particulars, to H. G. WILDMAN, 88, Norwood Rd., S.E.

GRANTHAM.—JOHN FILLINGHAM, Pharmaceutical Chemist, will shortly be requiring a good Junior ASSISTANT, accustomed to country business (outdoors); hours short.—Apply, with usual particulars, to the above address.

MANUFACTURING.—An exceptionally well-trained Pharmaceutical Chemist, with considerable experience in the manufacture of preparations and some knowledge of drug grinding. Must be businesslike, accurate and resourceful.—State age, experience and salary to FIDES, c/o Mather & Crowther, Limited, 10 to 12, New Bridge St., E.C.

PHARMACEUTICAL Chemist (24), Square Medallist, with good business experience, desires SENIOR or MANAGERSHIP in good-class business; good references.—BUSINESS, 5, Serle Street, W.C.

AS JUNIOR. Qualified, 22, 5 ft. 10 in., abstainer, disengaged. —A., 46, Turnham Green Terrace, Chiswick.

Publications Received.

A HANDBOOK OF PHYSICS AND CHEMISTRY. By H. E. CORBIN, B.Sc., and A. M. STEWART, B.Sc. Pp. 424, with 120 illustrations. Price 6s. 6d. London: J. and A. Churchill. 1899. From the Publishers.

MEDEDEELINGEN UIT 'SLANDS PLANTENTUIN. XXXI. Nadere Resultaten van het door Dr. W. G. BOORSMA, verrichte Onderzoek naar de Plantenstoffen van Nederlandsch-Indie. Pp. iii. + 145. Batavia: G. Kolff and Co. 1899. From the Publishers.

SHALL PHARMACISTS BECOME TRADESMEN? By George J. Seabury. Pp. 235. Price 30 cents. New York: G. J. Seabury, 59-61, Maiden Lane. 1899. From the Publisher.

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CALENDAR OF THE UNIVERSITY COLLEGE, BRISTOL, FOR THE SESSION 1899-1900. Pp. 286. Bristol: J. W. Arrowsmith, Printer, Quay Street. London: Whittaker and Co., 2, White Hart Street Paternoster Square. 1899. From the Secretary of the College.

ENGLISH NEWS.

Manchester Pharmaceutical Association.—The report of the annual dinner of this Association, which was held at the Mosley Hotel on Wednesday last, arrived too late for insertion in full in this week's issue. The following is a brief summary of the proceedings. There were about 100 gentlemen present, Mr. G. S. Woolley, President, in the chair. In proposing the toast of "The Pharmaceutical Society," the chairman advocated that an effort should be made to elect a representative of the Society to a seat in Parliament. Mr. G. T. W. Newsholme and Dr. C. Symes replied to the toast. The former, referring to the Benevolent Fund of the Society, stated that during the past year £2,215 was given to forty-six annuitants, and in addition a sum of £700 in casual grants. He touched upon the question of a compulsory curriculum, and referred to the position of the Council with regard to company pharmacy. Dr. Symes also mentioned the question of company pharmacy, and expressed the opinion that some means should be found whereby a person who fails to pass the qualifying examination should be prevented from forming a limited liability company to carry on the business of a chemist. Mr. J. Smith proposed "The Manchester Pharmaceutical Association and other Associations." He urged the formation of a greater number of local associations in smaller districts because he believed they could exert a great influence, especially at Parliamentary elections. Alderman Gibson responded, and advocated that local societies should unite and act together. Mr. Harry Kemp proposed "The Medical Profession," Dr. T. Harris responding. The concluding toast, "The President," was proposed by Mr. J. Rymer Young. Music and songs were rendered during the evening.

The Death is Announced of Lord Farrer, who was a member of the Select Committee of the House of Lords on the Companies Bill. He was formerly associated with the Board of Trade.

Loyalty to the Craft is not particularly manifest in the procedure of registered chemists who encourage and assist unregistered persons to sell drugs, but its absence is indicated to an extreme degree in a circular which has been sent to us by a correspondent. This document appears to have been sent out to shopkeepers by a firm of chemists, and reads as follows:—"Dear Sir or Madam,—Several shopkeepers have been fined for selling carbonate of magnesia as magnesia, and magistrates have decided that calcined should be given. We thought it desirable to caution you that what has been generally put in penny boxes is the carbonate. We are, from this date, sending out nothing but *calcined* magnesia. If you have any of our packed magnesia by you, please return it to us." As our correspondent remarks, one might smile at the sublime simplicity of the writer and his unquestioning confidence in our great unpaid, which the first paragraph evinces, and then admire his disinterested concern for "Dear Sir or Madam," and the heights of heroic resolution to which he rises in the second paragraph, if it were not that he is a chemist. If he had been an unqualified man trading as "Wholesale Druggist," nobody need have been troubled. Continuing, our correspondent says he would be very willing to support any attempt to better the position of chemists by legislation, but where is the good of it when chemists are doing this sort of thing? He firmly believes that loyalty to the calling and to one another would be a greater benefit to chemists, even under existing conditions, than would any changes likely to be obtained whilst the present attitude of mutual antagonism and disregard of common interests prevails. With this view of the matter we cordially agree.

The Jenner Institute of Preventive Medicine originated in the desire to have an establishment in London similar in character and purpose to the Pasteur Institute, Paris, and the Hygienic Institute, Berlin. It was founded in 1891, as the British Institute of Preventive Medicine, in order to study the means of preventing and curing infective diseases; to prepare any protective or curative materials found to be of value; to provide instruction in preventive medicine; and to carry out investigations in all branches of bacteriology. As pointed out by Dr. MacFadyen, the Director of the Institute, in an introductory address delivered on Monday last, no provision then existed in this country for the promotion of those objects on a scale at all commensurate with their importance, but a public appeal for funds, and the response made, showed that the idea of a national institution for the study of bacteriology met with wide approval. Work was begun in temporary premises in Bloomsbury, and ultimately transferred to the present and permanent home of the Institute at Chelsea. An event of far-reaching importance was the public announcement of Lord Iveagh's intention to devote a quarter of a million of money to the promotion of the objects for which the Institute was founded, and the new articles of association, a condition of the gift, have just been confirmed by the Court. The Jenner Memorial Committee having decided to transfer the funds in its possession to the Institute, steps were taken to perpetuate the memory of Jenner and his work by adopting the present title for the Institute. With regard to the work of the Institute, two volumes of transactions embodying work carried out in its laboratories have been published, and the anti-toxin department is engaged in preparing various therapeutic serums, notably the anti-diphtheritic serum, as well as in research in this important field of work. The primary object of the Institute is research, but facilities are afforded for post-graduate instruction in preventive medicine and bacteriology. The students attending the Institute have come from all parts of the world, and a considerable amount of original work has been done by those trained in the laboratories. Investigations are at present being made at the Institute with reference to the possible cure of typhoid fever, tuberculosis, and other diseases. The diagnosis of infectious diseases is constantly being carried out for the main parishes of London, as well as the investigation of questions affecting the public health on behalf of sanitary authorities. The chemical and state medicine laboratories will find much to do in connection with water, sewage, food, poisons, etc. A notable addition has been made to the resources of the Institute, in the Hansen Laboratory for the study of the practical application of bacteriology to industrial and technical processes, and the most important results are anticipated in the future from this branch of investigation.

Proprietary Articles Trade Association.—At a meeting of the Council of this Association, held on October 5, the report of the Executive Committee was considered and proposals submitted by the Grocery Committee were agreed to. Owing to inability to obtain the co-operation of the wholesale grocery houses, it has been decided that it would not be feasible to enforce the principle of combined stoppage of supplies in the case of grocery proprietary articles. The funds of the grocery section are to be kept distinct from those of the drug section.—The Memorandum of Association in reference to the Defence Fund was submitted and passed. The first two clauses of the Memorandum are as follow:—(1) To protect the members of the company against prosecution under any Acts of Parliament particularly affecting chemists and druggists or dealers in proprietary articles, and to defend members in any such prosecution. (2) To carry on in England and elsewhere the business of an Accident and Guarantee Insurance Company and insurance in all its branches (except life insurance), and in particular to grant or effect assurances against or upon the contingency of injury, damage, or loss by reason of accident of any description to human beings, and to grant or effect assurances against or upon the contingency of injury, damage, or loss by reason of accidents of any description to real or personal property of any kind.—Other matters discussed were the alleged insufficient profit on "Mother Seigel's Syrup," the scheme of Messrs. A. J. White, Ltd., being not approved of, and the cutting of the wholesale prices of homœopathic medicines.

Poor-Law Dispensing.—At a meeting of the Exeter Corporation of the Poor, held on Tuesday afternoon last, Mr. Governor Munro presiding, the Finance Committee reported that they had considered the application of Mr. Lemmon, dispenser, for an increase of salary, referred by the Court, and resolved to recommend that his salary be increased from £50 to £55, as from Michaelmas last. The report was adopted.

Exeter School of Pharmacy.—For the first time since the Exeter School of Pharmacy has been established in connection with the Exeter Technical and University Extension College at the Albert Memorial Museum, two students have entered for the full term course in preparation for the minor examination of the Pharmaceutical Society. The classes are being conducted by Mr. Alan H. Ware, Ph.Ch.

POISONING CASES.

Salt of Lemons.—An inquest was held at Southborough, on Monday, October 9, respecting the death of Lady Edwards (57), wife of Lieut.-General Sir James Bevan Edwards, which occurred on Saturday, the 7th inst. It transpired that early in the afternoon of Saturday, Lady Edwards had purchased four ounces of salt of lemons from Mr. Chatterton, chemist, and was subsequently found lying on Southborough Common suffering from the effects of poisoning, death occurring shortly afterwards. A *post-mortem* examination was made, and it was stated that she had consumed half-an-ounce of the salt of lemons, which was more than enough to cause death. The jury returned a verdict of suicide by poisoning, and recommended that salt of lemons should be placed on the schedule of the Pharmacy Acts.

Oxalic Acid.—In the case of Elizabeth Pitchley, the widow of a druggist's sundriesman, it was stated before Coroner Braxton Hicks, last week, that she had been afflicted with religious mania for some years, and after attending revival meetings held by American evangelists in the "Great American Tent," at Tooting, she went to stay with her sister at Wandsworth. Some beef-tea was given to her, to which she surreptitiously added oxalic acid. This mixture she consumed with a fatal result.—The Coroner, in the course of his remarks, said that the Legislature ought to place oxalic acid in Part I. of the Poison Schedule, so as to prevent it being so easily procured. There were, he said, no fewer than ten cases of oxalic poisoning in London each week—not all fatal; it was the cases of accidental poisoning it was desirable to guard against.

Carbolic Acid.—Agnes Harcourt (18), of Hulme, Manchester, a domestic servant, out of a situation, after writing a letter to her sweetheart, who had "given her up," to say that she was heart-broken, swallowed a quantity of carbolic acid. Death followed, and at the inquest held on Thursday, October 5, a verdict of suicide whilst insane was returned.——In another case which occured at Cressage, near Shrewsbury, on Monday, October 2, Henry Williams, saddler, drank from a bottle containing carbolic acid whilst in bed, and in spite of medical aid died about half an hour later.

Prussic Acid.—On Tuesday, October 3, John Greaves (56) chemist and druggist, Cardiff, died from the effects of poisoning. His relatives are of opinion that he took prussic acid in mistake for medicine prescribed for him by Dr. James.

Eye Lotion.—At Kendal on Thursday, October 5, four members of the family of a Mr. Winder were admitted to the Memorial Hospital, suffering from the effects of poisoning. It is supposed that in moving from one house to another some eye lotion became mixed with a quantity of vinegar in a bottle. At any rate, after partaking of the vinegar with some beetroot at dinner, the whole family was taken ill. Two doctors were sent for, and they found symptoms of poisoning, which they agreed was consistent with those which would be produced by the eye lotion. Every effort was made to counteract the effects of the poison, with the result that the patients are recovering.

IRISH NEWS.

Pharmaceutical Society of Ireland.—The following have passed the Preliminary Examination:—T. O'Reilly, Octavia G. Greer, F. J. Brice (D. Flynn and E. H. O'Sullivan, equal), W. J. McKinney, C. H. Fenelon, C. Agnew, T. Linehan, T. G. S. Bogue, W. P. Kennedy, Johanna M. Maher, J. Bradley, and G. F. Bredin. Nine candidates were rejected.

The Pharmaceutical Society's Annual Dinner was held on Tuesday, October 3, when Mr. R. J. Downes occupied the chair, and was supported by a large and distinguished company. In responding to the toast of the "Pharmaceutical Society of Ireland," Mr. Downes said the aim of the Council of the Society was to establish a high standard of education amongst licentiates, and for the benefit of the public. He regretted that their numbers were not increasing at such a rate as might be expected. He attributed that to the trading by unqualified persons under shelter of the Companies Acts. In that way bread was taken out of the mouths of qualified men, and there was a falling off in the numbers who were joining the Society. In combating this system of company trading by unqualified persons they had the support of many members of Parliament, and notably of Mr. Field, M.P.

The Third Session of the Evening Meetings of the Pharmaceutical Society of Ireland will be opened in a very short time. A circular on the subject has been sent to the members, and those who are desirous of discussing or contributing papers upon matters of pharmaceutical interest are asked to communicate with Mr. Henry O'Connor, M.P.S.I., the honorary secretary, at 67, Lower Mount Street, Dublin.

Typhoid Fever is at present prevalent in Dublin. Several deaths have occurred, and the malady seems on the increase.

Sir Charles Cameron, Dublin, has been appointed analyst for drugs to the Wexford Union at £10 a year.

In the Dublin Law Courts recently an amusing case was heard. It was an action brought by a Mrs. Steele, of Waterloo Road, Donnybrook, to recover damages from a Dublin perfumer and hair dyer for alleged unskilful treatment of her hair during the process of dyeing. Plaintiff affirmed that defendant turned her hair to a brick red and other colours in the process and burned it badly. Defendant denied this and pleaded that the plaintiff had previously injured her hair by the excessive use of peroxide of hydrogen, and that he treated her hair skilfully and properly. The judge seemed to enjoy the recital of the lady's grievance, and remarked that "the hair is the glory of woman and the pride of man." The case was remitted to the Recorder, and will be heard anew on the 29th inst.

One Thousand Pounds Per Annum, it was mentioned some time ago, had been offered by a Johannesburg chemist to a pharmacist in Belfast. This is given with all reserve lest another raid might be launched on the "gold-reef city." It is more like the "screw" of a big mill manager and is enough to make the mouths of assistants water. The precariousness of civic rights in the Transvaal and the risks which medical people run (Dr. Matthews being bludgeoned recently) ever since Dr. Jameson created a Boer prejudice against them, may account in some degree for the huge salary, but with the advent shortly of a more equitable rule, incomes will, perhaps, by the influx of adventurous chemists, approximate to a more normal figure.

Doctors in Some Instances are favourably impressed with the excellence of their handwriting. They cannot believe that their penmanship is not the best "Civil Service" style, but the fact is it is unnecessary trouble inditing their prescription in Latin to conceal its contents from the patient, their ordinary English writing being sufficiently cryptogammic. What could a Continental Apotheker-Verein or pharmacien make of "C———"? Yet, an Irish dispenser knew that that was to be read as indicating the name of a client.

Take the Case of a Gentleman who made a purchase in a Leinster pharmacy, desiring it to be posted to the address which he wrote out. When the chemist subsequently proceeded to rewrite it he found the caligraphy a mere jumble of saw-edged angles; so he cut it out and pasted it on the parcel, fully confident that the post-office authorities would decipher it, if anybody could. But shortly after the package of requisites was returned, address untranslateable. So it was left aside. The gentleman some days later appeared, was wroth, and desired to know why the articles had not been forwarded. He was told. "Absurd!" he retorted; "anyone could have read it." He was allowed to proceed in this strain in order that he might irretrievably commit himself, and then the parcel bearing the post-office inscription was shown him. "Is that your writing?" There was a great silence, and then the great man took up his little parcel and passed out speechless. [N.B.—He was not a doctor.]

The Local Government Board, writing to the Omagh Guardians *re* Mr. O'Connor's appointment as analyst, said:—"In view of the importance of the duties devolving on him, they required in the case of persons other than public analysts educational attainments equivalent to the F.I.C. status." A copy of the letter was forwarded to Mr. O'Connor.

In Dublin two women have been "accidentally poisoned" by mistaking some mixture for whiskey. One of them has since died, whilst the other is in a critical condition. The fact that one of the victims was stated to be a nurse renders the occurence the more extraordinary.

Marriage.—Deakin and McLachlan.—On September 18, at Drumcondra Church, by the Rev. John Connell, M.A., James Aubry Deakin, L.P.S.I., Mount Auburn, Richmond Road, to Catherine Robertson, only daughter of Donald McLachlan, Drumcondra.

Death.—Cunningham.—The death has occurred at Belfast of Mr. Benjamin Cunningham, L.P.S.I., Crossan, County Down.

SCOTTISH NEWS.

Spirit of Salt for Whisky.—A sad case of poisoning by misadventure is reported from Dollar, where a plumber named Charles Roxburgh swallowed a quantity of spirit of salt, supposing it to be whisky, and though everything possible was done to relieve him, he expired in great agony some hours afterwards.

Presentation to Mr. George Center.—Upwards of sixty past and present pupils of the Edinburgh Central School of Pharmacy held a smoking concert in the Imperial Hotel, Market Street, on Tuesday, October 3. Mr. W. B. Cowie, Principal, occupied the chair, and in the course of the evening Mr. William Cowie, one of the pupils, on behalf of the past and present students, presented a gold albert and pendant, bearing a suitable inscription, and several valuable books on chemistry and physics, to Mr. George Center, who has resigned his position as a teacher in the school to pursue his studies at University College, London, with a view to graduating in Science at the London University.

Glasgow Chemists and Druggists', Assistants', and Apprentices' Association.—The Treasurer of this Association writes to the Glasgow *Evening News* as follows:—"Some time ago a number of your readers engaged in the trade were lamenting the fact that assistants in Glasgow had no organisation of their own, whereby much might be done to ameliorate the conditions and working hours of labour, etc. I would, with your permission, inform my brethren in affliction that the above Association has been formed with this and other objects in view, and would appeal to all interested to come forward and avail themselves of the opportunity thus afforded, to mutually benefit one another socially, intellectually, and otherwise. A splendid syllabus has been prepared for the ensuing session, consisting of lectures from able men (scientific and literary), also "At Homes," and other lighter forms of amusement as a variation in the programme. The Association has secured central premises in the Masonic Chambers, 100, West Regent Street, where weekly meetings are to be held every Friday evening from 9 p.m. Assistants are therefore most cordially invited to become members at once, and so encourage the movement, which is by no means antagonistic to the interests of employers, but rather the reverse."

FOREIGN NEWS.

The First Doctor of Pharmacy of the University of Paris is M. Lacourt, whose graduation thesis dealt with the historical, chemical, and bacteriological study of the water of Versailles.

Plague Microbes Brought Back to Paris.—When Dr. Albert Calmette, Director of the Pasteur Institute at Lille, returned from fighting the plague at Oporto a day or two ago, he drove straight to the *Figaro* Office to shake hands with his brother, Monsieur Gaston Calmette, before leaving Paris for Lille. He was welcomed by several journalists who happened to be present, among them M. Emmanuel Arène, who gives a description of the scene in the *Eclair*. Dr. Calmette had left his luggage downstairs on a cab, but he carried in his hand a little tin box, fastened with two padlocks, which he put down carefully on the mantel-piece. Conversation became general. The doctor declared that all his experiments had been most successful. "So you know exactly what kind of plague you had to deal with?" asked one of the company. "Of course I do," was the startling answer, "for I have brought it back with me," and the doctor calmly took the tin box off the mantel-piece, and, somewhat to the horror of the listeners, began to open it. He took out a little glass tube, hermetically sealed, which contained something that looked very much like clear glycerine. There were millions of microbes in it, though they were not very easy to see. "You have only to dip a pin in this and prick yourself," he said, "and in ten hours you would have the plague; in five days you would be dead. But you had better take my word for it," he added, smiling, and everyone cheerfully did. Dr. Calmette has no fear for Paris. "If the plague should get here," he said, "nothing would be easier than to isolate it on its first appearance. It would be a matter of a few hours, and it would be localised in the house in which it broke out."

The French Government proposes to establish a bureau of information at the 1900 Exhibition for the convenience and comfort of English and American visitors. Monsieur Louis Herbette, member of the Superior Commission of the Exhibition, is visiting America and Canada on an official mission designed to stimulate the interest of America in the science and art and literature of France. In an interview M. Herbette said: "It is considered by France of the greatest importance to open to foreign visitors, especially Americans, who are interested in the highest intellectual pursuits, an opportunity to examine fully the establishments and institutions devoted to these varied lines of thought and endeavour. My chief purpose at the present time is to ascertain what is desired in the way of such information by prospective American visitors, and I especially desire to obtain, by correspondence, the views of Americans as to the best means of meeting their requirements. We have already established in Paris a bureau of information under the auspices of the Faculty of Medicine, which furnishes to every visitor, especially to those speaking the English language, precise information on hospitals, wards, clinics, and results secured in the scientific branches. I wish to correspond with those intending to visit France that I may present their ideas to our Government with a view to accomplishing the highest possible results."

The Scheurer-Kestner Monument.—At the top of the twelfth subscription list for a monument to the late Monsieur Scheurer-Kestner are prominent the names of Alfred Dreyfus for 500f., Mathieu Dreyfus 500f., and Monsieur Hadassard 200f.

Monsieur Jumelle, in a recent note to the Académie des Sciences, Paris, mentions a new rubber plant, found in Madagascar. It is the Piralahy, a liana common in the island, and a new species of the genus Landolphia. The Sakalaves draw from it a clear rubber containing five per cent. of resin, and suitable, apparently, for industrial purposes.

Plague in Portugal.—It is reported that several of the soldiers forming the military cordon have been attacked by plague. According to the official bulletin, five fresh cases of plague and one death occurred at Oporto on Sept. 30. Dr. Ricardo Jorge the leading medical officer, has asked to be allowed to discontinue his work in connection with the plague, both on the ground of his own state of health and of the condition of public opinion.

ARTIFICIAL COAL, a mixture of 92 to 94 per cent. of ordinary earth and 6 to 8 per cent. of chemical ingredients, is cheaper and better than coal, says Herr Montag, its German inventor. It does not develop poisonous gases, creates but little soot, and leaves no slag but a small amount of ash which resembles that of wood or cigar (*sic*). The price of the plant for producing this fuel is 18,750 francs, and patents for the invention, it is said, have been taken out in seventeen countries.

AT A RECENT MEETING of the Académie des Sciences, Paris, Monsieur Moissair, the famous chemist, announced that Professor Dewar had solidified hydrogen. "By evaporating the liquified gas he had produced a cold sufficient to freeze it. The temperature thus attained was about 267° C. below zero—that is to say, within 6 to 8 degrees of the "absolute zero" of temperature (274° C.), a theoretical temperature not yet attained in practice. We have always styled the "absolute zero" the "North Pole" of the physicist, and Professor Dewar has publicly adopted our comparison. He will not, therefore, take it amiss if we regard him as the "Nansen" of experiment, for he has certainly gone much nearer to the Pole than anybody else, and there is hope now that we may reach it."

PHARMACY IN SOUTH AFRICA.

SOUTH AFRICAN PHARMACEUTICAL ASSOCIATION (EASTERN PROVINCE).—The annual meeting of this Association was held in East London, Cape Colony, on Thursday, September 14. On account of the absence of the President, Mr. W. K. Magor (at present on a visit to the Home Country), and the Secretary, Mr. Lister, the attendance was not up to former years, letters of apology being also sent by several prominent Eastern Province chemists who could not attend. The proceedings of the meeting held at Queenstown on September 14, 1898, were read and adopted. A vote of condolence with the widow of the late Mr. Henry Tebb (Lennon, Limited), was unanimously passed, Mr. Tebb having been closely connected with South African pharmacy. The election of officers for the ensuing year resulted as follows:—President, Mr. W. K. Magor (Queenstown), re-elected; Vice-President, Mr. G. F. Dutton (East London); Executive Committee, Messrs. McJannet (East London), G. E. Cook, A. G. Doble, R. Lumsden (King William's Town), A. E. Austen (Cradock), Walsh and Willett (Port Elizabeth); Secretary, Mr. Lister (Queenstown), re-elected. New members elected were Messrs. H. E. Austin (Cradock), J. C. Jamieson, J. B. Preston and E. A. Hodge (East London). It was decided by those present that a circular letter be sent to all members and associates as to the advisability of holding a special meeting of the Association at the more general convenience, the date and place to be left to the executive committee. It has been usual to hold the annual meetings at the towns where the District Grand Lodge of Freemasons visit for their annual gatherings, but as this has not suited many who live in the up-country districts, it was considered that a more central place should be fixed upon, or one of the large towns, such as Cape Town, Port Elizabeth, East London or De Aar (Junction). The social element might be introduced to advantage on the lines of the meetings of the British Pharmaceutical Conference in England, combining business with a *soupçon* of pleasure. The question of amalgamation with the Western Province Association was discussed, but left for a future meeting. The recent Medical and Pharmacy Act Amendment Bill was successfully opposed by the Association, supporting the Cape Pharmaceutical Association, and the Bill passed the House of Assembly with the three objectionable clauses worded to meet the requests of the chemists. It was suggested that as the chemists were getting stronger in numbers that steps should be taken at an early date for drafting a Pharmacy Act pure and simple, and not bracketed with the medical profession as at present. Further business was left by mutual consent to the next meeting, to be convened before the next annual meeting, and, with a cordial vote of thank to the chairman, members once more parted on their several ways.

MASONIC.—The District Grand Lodge of South Africa (Eastern Division) met for its annual gathering this year at East London, and among the visitors pharmacy was represented by Messrs. A. E. Austen, D.D.G.M. (Cradock), G. E. Cook, P.M., B.K. 853, A. G. Doble (King William's Town), G. F. Dutton (East London). A banquet was given by members of the Buffalo Lodge in the Drill Hall, and a ball was held the following night. The electric light was used at these functions for the first time in East London, the town now being "wired" for electric tramways and lighting.

THE PURITY OF FOOD AND DRUGS.

CAMPHORATED OIL.—On Saturday, September 30, James Evans, grocer, Six Bells, was summoned at Pontypool Petty Sessions for selling camphorated oil deficient in camphor to the extent of 15 per cent. The bottle was marked as containing genuine camphorated oil.—The defence was that the oil was purchased from the wholesale dealers as a genuine article.—Fined 10s.

SPIRIT OF NITRE.—James Snowden, shopkeeper, Dinnington, was summoned at the Rotherham West Riding Police Court on Monday, September 25, for selling spirit of nitre not of the nature and quality demanded by the purchaser.—Mr. A. H. Allen, analyst, certified that the mixture contained nitrous ether, 0·87; alcohol and legitimate water, 97·84; excess of water, 1·29.—Defendant stated that he sold the spirit of nitre in question as he received it, and called Robert Bennett, chemist and druggist, Sheffield, who stated that he supplied the article to Mr. Snowden, and could vouch that there had been no adulteration. The excess of water, in his opinion, was due to evaporation.—Fined 5s., and costs.

SEIDLITZ POWDERS.—Francis Pursell, grocer, Aylesbury, was summoned at the Aylesbury Petty Sessions (Bucks) on Saturday, September 30, for selling one dozen seidlitz powders not compounded according to the B.P.—The defence was that the powders were sold as received from the wholesale firm in London.—The chairman pointed out that the printing on the box stated that they were improved powders, and were not claimed to be in accordance with the standard of the B.P.—The prosecutor said he took his stand from the fact that he asked for seidlitz powders and expected to get them.—The Bench, after some consultation, decided that they must convict, although there was no imputation against defendant.—Fined £1 1s., including costs.

Partnerships Dissolved.

(From the London Gazette.)

Edward Buxton and Henry Buxton, carrying on business as Physicians and Surgeons, at Great Crosby, in the County of Lancaster, under the style of Drs. E. and H. Buxton.

Richard Henry Reeves, Joseph Emil Maeder and Thomas Moffatt, Chemical Manufacturers, 19 and 21, Pennyfields, Poplar, E., trading under the style of the Orion Chemical Company. Debts will be received and paid by Joseph Emil Maeder.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Herbert Sturge, Veterinary Surgeon, 2, Manston Road, Heavitree, formerly of Cowick Street, St. Thomas the Apostle, Devonshire.

John Batty Beckworth, Chemist and Druggist, 19, Moss Grove, Liverpool, formerly carrying on business at 139, Oakfield Road and 86, Everton Road, Liverpool.

James Henry Pollitt, Chemical Agent, 265, Mill Street, Bradford, Manchester.

Thomas Edward Parkin and Frederick George Fry (trading as Parkin and Fry), Photographic Material Manufacturers, 31, Sanstone Road and Etna Mills, Old Swan, Liverpool.

Daniel Macpherson Taylor, Physician and Surgeon, formerly 100, Burdett Road, Mile End, now of 1, Thanet Place, Strand, London.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

October 12, 1899.

Business, without being very active, has been somewhat better, as far as Drugs and Chemicals are concerned, during the past few days, the chief event of past week being a further advance in price of Cocaine; Quicksilver, Mercurials, refined Camphor, Quinine, and Senna are also dearer. Acid Carbolic very steady, and reported to be likely to advance in price. Opium, Morphine, Codeine firm. Sulphate of Ammonia weak. Glycerin very firm. Codliver Oil tending upwards as regards price. As the fears that war would be the ultimate result of the Transvaal question have unfortunately been realised, it now remains to be seen how prices will be affected beyond what has already taken place. It is probable that those who acted promptly on the hint given in these columns last week in the way of looking to their stocks and laying in a fair store of anything which they might require while they could still do so at a moderate price, will not have cause to regret having so done. The following are the prices actually ruling for some articles of principal interest:—

ACETANILIDE—Remains dull and weak at 9½d. to 1s. per lb., according to quantity.

ACID BORAX AND BORAX—Are quiet and unchanged prices.

ACID CARBOLIC—Firm at unchanged prices—namely, 6¾d. to 7d. per lb., according to quantity and make for 35-36° C. Ice Crystal in large bulk, 7½d. per lb. for the 39-40° C. Ice Crystal, and 8d. to 8¼d. per lb. for 39-40° C. B.P. quality in detached crystals. Crude, 60° F., 2s. 1d. per gallon; 75° F., 2s. 7d. per gallon; Liquid, 95-98 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. in 40 gallon casks; ditto, 30 per cent. of dark colour, 10d. to 11d. per gallon.

ACID CITRIC—Is weak at 1s. 5d. to 1s. 6d. per lb., according to quantity and make, for crystals in 5 cwt. casks.

ACID TARTARIC—Quiet, and unchanged, at 1s. 1d. per lb. for English, and 1s. 0¼d. per lb., c.i.f., for foreign.

ALOES.—Cape have been in good demand privately, and full prices have been paid up to 26s. per cwt. for good hard bright.

AMMONIA COMPOUNDS.—Are unchanged, with the exception, that Sulphate continues weak, and is quoted at rather lower prices

BROMIDES—Are steady at unchanged prices.

CAMPHOR.—Owing to the firmness of Crude Camphor, the English makers of the refined article have raised their price 1d. per lb. to 1s. 8d. per lb. for Bells and Flowers in ton lots.

CINCHONA BARK.—Unimportant supplies were catalogued for these auctions to-day, the total amounting to only 975 packages of all descriptions, as compared with 1,904 packages at the preceding sale. A good demand prevailed, and practically the whole changed hands at an advance on the last Dutch sales, the average unit obtained being 1⅛d., being steady previous London auctions. Ceylon: 44 bales and 18 bags offered and 26 packages sold, according to analysis, Succirubra, natural stem chips at 3⅛d. to 3½d., fair Ledger ditto at 4⅝d. East Indian: 176 bales and 50 cases offered and 176 bales sold. Red, natural stem chips at 2¾d. to 3⅛d., bold, mossy, silvery Quill at 4d.; Officinalis, ordinary to fair stem chips and shavings at 2¾d. to 3¾d., branch at 1¼d. to 2⅞d.; renewed chips and shavings at 4d. to 4¼d. Ledger, natural stem chips 5⅝d., Hybrid ditto at 2d. Java: 279 bales offered and sold, ordinary to good Ledger stem chips at 3½d. to 5⅜d., good Root at 5⅛d., branch 4⅝d., twigs 1¼d. South American: 165 bales Bolivian cultivated Quills offered and sold, fair to good at 6d. to 7⅝d. Cuprea: Of 200 bales 156 sold, new import, at 1⅝d. to 1¾d. Colombian: 46 packages offered and chiefly sold, with all faults, for account of whom it may concern.

CLOVES.—Privately Zanzibar steady, but quiet, quotations being—October-December, 3⅛d., and January-March, 3 3/16d. At auction Penang in large supply, and lower prices ruled. Of 218 cases 185 sold, without reserve, good fair picked at 5⅝d. to 5¾d., dullish at 5½d. to 5⅝d. No Zanzibar offered.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 3d. per gallon. Benzole, 50 per cent. prompt, 10½d. to 11d., November-December, 11d. per gallon; 90 per cent., 9d. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent., at 120° C., 4½d. per gallon. Solvent Naphtha, 95 per cent, at 160° C., 1s. 5d. per gallon; 90 per cent., at 160° C., 1s. 3d. per gallon; 90 per cent., at 190° C., 1s. 2d. per gallon. Anthracene, A., 3¾d. per unit; B., 2¾d. Pitch, 35s. per ton, f.o.b. Tar, refined and crude, 14s. 3d. per barrel, 3d. per gallon.

COCAINE.—Makers again advanced their price 3s. per oz., quotation now being 20s. 6d. per oz. for the Hydrochlorate in 25 oz. tins for 200 oz. lots, while it is stated that in consequence of the continued scarcity of crude Cocaine, makers of the refined article are not free sellers, even at the above advanced prices.

COD LIVER OIL—Is decidedly better, quotations being now 60s. to 65s. per barrel according to brand and quantity for best non-congealing Norwegian oil in tin-lined barrels of 25 gallons each.

CODEINE.—Firm at 12s. 11d. to 13s. 6d. per oz., according to quantity, for the pure, and 1s. per oz. less for the salts.

CREAM OF TARTAR.—Firsts white crystals are still quoted 74s. per cwt., and powder 76s. to 78s., according to percentage.

GINGER.—Cochin, in large supply, found poor demand; of 1,407 packages only 171 sold: Cut kinds, bold, some medium scraped, at 76s. to 76s. 6d.; ditto, washed, at 75s.; medium, fair scraped, 52s. 6d. to 53s.; small, and ends slightly limed, at 25s.; good shrivelled pickings at 17s. to 17s. 6d.; common ditto, 15s.; Calicut, rough, fair, slightly mouldy, at 23s.; medium and small, bright, at 22s. 6d.; small at 21s. to 21s. 6d. Of Jamaica only 40 barrels offered and sold, chiefly without reserve, ordinary middling at 60s. to 61s. 6d.; common at 54s. to 56s. 6d.

GUM TRAGACANTH.—On Friday last 1,300 packages were offered by auction, and, with a strong demand, about 750 packages found buyers at, and after, the sales at an advance of 5s. to 10s. per cwt., some of the medium grades realising extreme values Stock is now small, and the selection very indifferent. Nominal values:—Firsts, £14 10s. per cwt.; seconds, £13 10s.; thirds, £11 15s.; fourths, £10 15s., and other qualities down to 50s. cwt.

IODIDES—Are unchanged in price.

MERCURIALS.—In consequence of the advance in value o Quicksilver, makers advanced their prices 1d. per lb. to 3s. per lbf for Calomel, and 2s. 8d. per lb. for Corrosive Sublimate.

MORPHINE—Is firm at the prices quoted last week, say, 5s. per oz. for the Hydrochlorate Powder.

OILS (FIXED) AND SPIRITS.—Linseed firm; on spot, pipes, London, £22 7s. 6d. to £22 10s.; barrels, £22 15s.; Nov.-Dec., £22 12s. 6d.; Jan.-April, £22 7s. 6d.; Hull, spot, naked, £20 15s.; Nov.-Dec., £20 15s.; Jan.-April, £21; May-Aug., £20 15s. Rape firm; ordinary brown on spot, £24; Nov.-Dec., £24; Jan.-April, £24; Refined, spot, £25; Ravison, naked, dearer, spot, £21 5s.; Nov.-Dec., £21 5s.; Jan.-Feb., £21 10s. Cotton steady; London, crude, spot, £17 15s.; Nov.-April, £17 10s.; refined, spot, £19 10s.-£20 10s., according to make; Hull, naked, refined, spot, £18; crude, spot, £16 15s.; Nov.-April, £16 7s. 6d. Olive firm; Mogador, £33; Spanish, £34; Levant, £33-£34. Cocoanut firm; Ceylon, on spot, £25 10s.; Nov.-Jan., £24 10s., c.i.f.; Cochin, spot, £29 10s.; Oct.-Nov. and Jan.-March, £27, c.i.f.; Mauritius, £25 10s., in hogsheads, just arrived. Palm has advanced 10s.; Lagos, spot, quoted £27 10s. Castor Oil firm; Belgian first pressing, spot, £26 10s.; Jan.-June, 1900, £25 10s., f.o.b. Antwerp; second pressing, spot, £25 per ton, ex-wharf; Hull manufactured, guaranteed cold drawn, pure pharmaceutical, £29 5s. per ton in barrels, 3⅜d. per lb. in cases; pure firsts, £26 15s.; seconds, £25 15s. per ton in barrels; firsts, 3⅛d. per lb. in cases; seconds, 3d., ex-wharf, London. Lubricating Oil: Pale American, spot, 7s. to 9s.; black, 6s. 3d. to 8s.; Russian black, 5s. 6d.; pale, 7s. to 8s. 6d. Petroleum Oil flat; Russian, spot, 5 7/16d. to 5½d.; American, spot, 6⅞d. to 7d., and to end of March; water-white, 8⅛d. to 8¼d. Turpentine firmer; American, spot, 37s. 7½d.; Nov.-Dec., 37s. 10½d.; Jan.-April, 38s. 7½d.; July-Dec., 32s. 6d. to 32s. 9d. Petroleum Spirit: American, 9¾d.; deodorised, 10d.

PHENACETINE—Is still being offered at the late low prices, say, 3s. 3d. to 3s. 6d. per lb., according to make and quantity, for both Crystals and Powder.

POTASH COMPOUNDS.—There are practically no changes in price to report.

QUICKSILVER.—Rothschild advanced his price to £8 17s. 6d. per bottle, while there are sellers from second hand at 1s. per bottle less money.

QUININE.—After some hesitation the market is again tending upwards, there being buyers in the speculative market at 11¾d. per oz. for B & S or Brunswick sulphate, while the makers of these brands. to-day advanced their prices ½d. per oz., *i.e.*, from 11½d. to 1s. per oz. for sulphate for 1,000 oz. lots in 100 oz. tins.

SCAMMONY.—There has been a fair demand for "firsts" at 30s. per lb.

SENNA.—Tinnevelly: During the week there has been a very fair demand, but there is very little offering from second hands. Arrivals are coming forward a little more freely, over 300 bales being due here at the end of the week. Alexandria: Siftings are inquired for, but stock appears to be exhausted.

SODA COMPOUNDS.—These are practically unchanged from last week.

SPICES (VARIOUS).—Black Pepper: 7 packages fair small Tellicherry sold at 5⅜d.; 100 bags Penang bought in at 5⅜d. White Pepper: 4 bags Singapore sold, fine at 9½d.; Siam bought in at 8⅝d., and Penang at same figure. Chillies: 39 bags African sold, fair to good bright red at 42s. to 45s. 6d.; ordinary dull at 38s.; 10 bags Japan sold, good bright at 34s. Capsicums: 24 bags African bought in, fair bright red at 38s. Cassia Lignea: 453 cases all bought in, fine old at 50s.; new selected at 40s. Cinnamon: Of 303 packages Ceylon only 59 bags sold, broken at 5¾d. to 8d., chips at 3⅝d. Mace: 29 packages West Indian sold, fair to good pale at 1s. 6d. to 1s. 8d.; fair red, 1s. 4d. to 1s. 5d. Nutmegs dull at about previous rates. Pimento: Of 436 bags only 98 sold, fair to good at 3⅜d. to 3½d.

THURSDAY'S DRUG SALES.

To-day's Drug Auctions passed off quietly, only a limited number of the lots catalogued finding buyers, while there are no changes of any special importance to record. Senna sold well at again higher prices. Cardamoms and Buchu Leaves also sold well. The following are some of the particulars :—

ALOES.—7 boxes fair livery Curacoa were bought in at 33s., an offer of 25s. per cwt. being declined. Good hard bright Cape sold at 23s. to 24s. 6d. per cwt. 2 cases fair Zanzibar in monkey skins sold at 50s.

ANNATTO SEEDS.—2 packages of dull appearance sold at 1d. per lb.

ANNATTO PASTE.—1 case of fair quality was taken out at 1s. 3d. per lb.

ANTIMONY.—60 cases Japan crude (black sulphide) were held for £23 10s. per ton.

BALSAM COPAIBAE.—6 casks bought in at 1s. 6d. per lb.

BALSAM PERU.—6 cases of fair quality were bought in at 7s. 9d. per lb.

BALSAM TOLU—10 cases bought in at 1s. 6d. per lb.

BUCHU LEAVES—Sold at good prices, yellowish green rounds realising 8d. per lb.

CAMPHOR.—50 cases China crude were bought in at 140s. per cwt.

CARDAMOMS.—Fine bold pale Ceylon Mysores realised 3s. 7d. to 3s. 9d. per lb., 1 case of especially fine quality fetching 4s. 3d. per lb.; 2s. 5d. to 2s. 11d. per lb. for medium, down to 1s. 8d. to 2s. per lb. for lower qualities. Malabars part sold at 1s. 9d. to 2s. per lb.; part taken out at 2s. 6d. For fair Tellicherry an offer of 2s. per lb. was refused. Good seeds sold at 2s. 5d. per lb.; medium to fair ditto at 1s. 9d. to 2s.

CASCARA SAGRADA.—2 bales damaged sold without reserve at 21s. per cwt.

CASCARILLA BARK.—12 bales thin bark of fair quality were taken out at 50s. per cwt.

CASTORUM.—2 boxes were bought in at 60s. per lb. for A quality and 52s. per lb. for B.

CHINA SOY.—20 casks, which had been catalogued, were sold prior to the auctions at 1s. 2d. per gallon.

CINCHONA BARK.—44 serons sold readily at 6¾d. to 7¾d. per lb. for Huanoco and 9¾d. to 10d. per lb. for Loxa; 20 bales Carthagena were held for 4d. per lb.; 8 bags New Granada sold at 2d. per lb., subject to owner's approval.

COCA LEAVES.—Four bales somewhat inferior Truxillo were bought in at 1s. 4d. per lb.

COCCULUS INDICUS.—65 bags bought in at 9s. 6d. per cwt.

COD LIVER OIL—For 5 barrels yellow Norwegian, there was no bid.

COLOCYNTH.—4 cases good Turkey apple were bought in at 2s. per lb. Less money would, however, probably be accepted. Another lot of 6 cases of only fair quality were taken out at 1s. 5d. per lb.

COLOMBO ROOT.—Fair sorts realised 21s. 6d. to 22s. 6d. per cwt., fine washed sold at 50s.

CROTON SEEDS.—10 bags good quality realised 48s. per cwt. 19 bags of dull appearance sold at 30s. per cwt.

CUBEBS.—31 bags were bought in at 25s. per cwt. 56 bags very dusty, sold at 20s. 6d. to 21s. per cwt.

CUTTLEFISH BONE.—5 cases of fair quality were bought in.

DRAGON'S BLOOD.—4 cases, part sold at £10 15s. for picked bright lump; 1 case fine picked was taken out at £22 per cwt.

ERGOT OF RYE.—Fair sound Russian was held for 2s. per lb. Another lot of small but sound quality was taken out at 2s. 3d. per lb.

ESSENTIAL OILS.—25 cases fair Cajeputa oil bought in at 2s. 9d. per bottle, 8 cases Lime oil at 3s. per lb., 3 drums Citronelle at 1s. 1d. per lb. 15 cases Eucalyptus sold at 1s. 5½d. per lb.

GAMBOGE.—Fair bright pipe sold at £7 17s. 6d. to £8 per cwt.; and pickings at £5 15s. to £7 5s., down to 70s. for dust, and 95s. per cwt. for chips.

GUAZA (HERBA CANNABIS INDICA).—25 robbins, part fair green tops, part brownish, were bought in at 3½d. per lb.

GUM AMMONIACUM.—22 cases bought in at 35s. for blocky, part free; at 30s. for clean blocking; and 20s. per for dark blocky.

GUM ARABIC.—4 cases fair pale grain bought in at £7 per cwt.; 14 packages part sold previously, part bought in at 35s. per cwt. for good pale sorts.

GUM ASAFŒTIDA.—41 cases, chiefly dark, but some good, were practically all bought in at 25s. to 65s. per cwt., according to quality. Of other 41 cases, part sold at 75s. per cwt. for loose almonds, down to 50s. to 55s. for pale almondy block.

GUM BENZOIN—Fair Sumatra seconds sold at £8 per cwt. Fair Palembang bought in at 60s. to 65s. per cwt. Very common ditto, at 40s.; fair free almondy Siam sold at £17 per cwt.; fine reddish block with large almonds was bought in at £14 5s,; small ditto selling at £10 10s.; and friable block at £9 down to 92s. 6d. per cwt. for lower and inferior qualities; 1 case siftings sold at 45s; 3 cases Penang sold at 72s. 6d. per cwt.

GUM MASTIC.—2 cases were bought in at 1s. 7d. and 1s. 8d. per lb.

GUM MYRRH.—1 case of fine picked gum sold at £5 10s. per cwt.; good but dusty sorts bought in at 50s. per cwt.; 5 bales fair dusty sorts sold, 49s.

GUM KINO.—2 cases genuine Cochin were bought in at 4s. per lb.; 4 tins dark blocky ditto sold cheaply at 1s. 6d. per lb.

GUM SANDRAC.—10 casks taken out, price required being 51s. per cwt.

HONEY.—Good Jamaica sold at 25s. for good pale, down to 22s. 6d., good set ditto at 25s. 6d. per cwt.; fair Honolulu realised 25s. per cwt.

IPECACUANHA.—Two bags fair Rio were bought in at 15s. per lb., and two bags Carthagena at 11s. Another lot of Carthagena offered without reserve sold at 10s. to 10s. 1d. per lb. Later on fair Rio sold at 14s., and Carthagena at 10s. 6d. per lb.

JALAP.—8 bales, consisting of small but fairly heavy tubers, were bought in at 7d. per lb. Of 37 other bags bold Tampico were bought in at 6d. per lb., and fair small Vera Cruz at 6d. to 6½d.

KOLA NUTS.—60 bags wormy nuts were taken out at 3d. per lb.

KAMALA.—6 cases very dusty were taken out at 8d. per lb.

LIME JUICE.—19 hhds. bought in at 1s. 6d. per gallon.

MATICO.—Of 4 bales part fair green, part brown, 2 bales sold at 5½d. and 6d. per lb. respectively.

MUSK.—1 caddy fair Tonquin bought in at 65s. per oz. 2 tons selling without reserve at 17s. and 25s. per oz. respectively.

NUX VOMICA.—2 bags were bought in at 7s. per cwt.

ORRIS ROOT.—13 bales fair Florentine were held for 36s. per cwt. 8 serons Mogador sold at 12s. to 13s. per cwt.

ORANGE PEEL.—Of 24 packages part sold at 5d. to 6d. per lb. for dried thin cut, and 5d. per lb. for ringlets.

OTTO OF ROSES.—4 vases were taken out at 18s. per oz.

RHUBARB.—Of 71 cases offered, medium to fair, round and flat Shensi was bought in at 1s. 3d. to 2s. per lb., trimming root at 1s. 8d.; good round Shensi bought in at 3s. 6d. per lb; fair bold, but wormy, flat Canton sold at 6d. to 7½d. per lb., according to

condition; round ditto at 6¾d. to 9d. per lb., subject to owner's approval; 2 cases fair bold flat fetched 11d. per lb.; roughish flat, high dried, sold at 9½d. per lb.

ROSE OIL.—1 pot bought in at 5d. per oz., 2 bottles settlings selling at 1d. per oz.

SANDAL WOOD.—497 bundles chips of fair quality were taken out at 25s. per cwt.

SARSAPARILLA.—Fair Lima was taken out at 1s. 4d. per lb.; 5 bales good Jamaica at 2s.; very medium native Jamaica selling at 10d. per lb.; 5 serons fair Honduras were taken out at 1s. 4d. per lb.

SENNA.—10 bales Mecca were taken out at 3d. per lb. 3 bales bold Tinnivelly at 8d. per lb. Another lot of 75 bales sold readily at a further advance of ½d. per lb.; fair green bold leaf realising up to 6d. per lb. 13 pkgs. Alexandria chiefly bought in at 6d. to 8d. per lb. 3 bales half-leaf selling at 4d.

SQUILLS.—Fair quality sold at 3d. per lb.; not quite so good at 2½d. per lb.; 11 bags, without reserve, sold at 1¾d. per lb.

STROPHANTHUS SEEDS.—9 bags bought in at 3s. per lb. for Kombé and 2s. 6d. per lb. for the fluffy kind.

TAMARINDS.—3 barrels of dark colour sold at 9s. per cwt.

TONQUIN BEANS.—1 case black Para sold at 1s. per lb., another lot of 5 cases bought in at 2s. 8d. to 3s. 6d. per lb., 1 cask Angostura at 3s. per lb.

VANILLOES.—15 cases Tahiti all bought in at 7s. 6d. per lb. for 4½ in. by 6½ in., and 8s. 6d. for 5 in. by 6 in.

WAX—Fair Jamaica sold at £6 12s. 6d. to £6 17s. 6d. per cwt. 27 bags good Mozambique bought in at £6 15s. 1 case wormy Madras, sold at £5 7s. 6d. per cwt.

Fortnightly or Monthly Drug Sales.—On Monday last, a meeting of buyers took place at the drug sale room to consider the views of those present on the above subject. After a discussion, we understand that by a bare majority it was decided to recommend that the sales should, during the year 1900, be held monthly. Subsequent resolutions, however, are said to have rather counteracted the first resolution, and it is thought that the sales will probably be practically continued as heretofore.

Newcastle-on-Tyne Chemical Report.

October 11, 1899.

A very steady business continues on this market for the principal makes of heavy goods. Soda Crystals for certain markets in the Mediterranean have been advanced 5s. per ton. Other figures are unchanged, but firm. Quotations are: Bleaching Powder, £6 5s. to £6 10s. Soda Crystals, 50s. to 55s. Caustic Soda, 70 per cent., £8 10s. Soda Ash, 52 per cent., £4 5s. to £4 10s., Alkali, 52 per cent., £5 5s. to £5 10s. Sulphur, £4 17s. 6d. to £5.

Manchester Chemical Report.

October 11, 1899.

The Board of Trade returns for the past month show that the trade in chemicals participates in the general improvement in the national industries noted for some time past. The imports of chemicals, dye stuffs, and tanning substances for the month of September show an increase of 11 per cent. as compared with the corresponding month last year, being £352,366, as against £317,426. The exports of chemical and medicinal preparations, etc., amount to £692,482, being an increase of 3 per cent. It is satisfactory to note that in heavy chemicals Alkali shows an increase in exports in quantity of 13·5 per cent., being 351,593 cwts., as against 309,733, and Bleaching Materials 35·6 per cent.—namely, 111,281 cwts., as against 82,092 cwts. The increase in Alkali value is almost the same, though Bleaching Materials do not bear the same proportion, being only 21·1 per cent. of increase. A very satisfactory feature is a slight improvement in the exports of heavy chemicals to the United States, although in other respects this country seems to be more than holding its own. During the past week the brisk demand noted for some time past continues. Contracts for both Bleach and Alkali are being made over next year, but up to the time of writing there is no change in quotations. Sulphate of Copper is firmer at £26 to £26 10s. per ton, and £25 10s., forward, is quoted. White Arsenic ranges from £19 to £19 5s. per ton, on rails, Garston. Acetate of Soda is higher at £13 15s. to £14 per ton, c.i.f., and White Sugar of Lead is quoted £22 10s., c.i.f. Nitrate of Lead, £22 per ton. Chlorate of Potash and Bichromate unchanged. Anilinc Oil and Salt unchanged. Oxalic Acid is lower at 2⅝d. to 3d. per lb. Green Copperas is easier for best Lancashire.

Liverpool Market Report.

October 12, 1899.

Quotations have sufferced very little alteration since last week, except that Castor, Olive, Linseed and Cotton-seed Oils have advanced. Among general sales will be noted Chilian and Californian Honey at very full rates. Beeswax and Carnauba Wax at late prices, together with refined Spermaceti of Chilian origin. Chemicals have been in improved demand, and prices are raised for some markets.

AMMONIA SULPHATE—Has gone down a shade, and is now quoted at £11 12s. 6d. per ton.

BEESWAX.—About 70 sacks of Chilian sold at fully recent rates.

BORAX.—£16 per ton; £16 10s. powdered.

CANARY SEED—Is quiet at 39s. per 464 lbs. for Turkish, and 50 bags have changed hands at this figure.

CARNAUBA WAX—240 bags of grey sold at 40s. 6d. to 43s. per cwt.

COPPER SULPHATE—Has been in better demand, and sales are reported at £25 5s. to £25 7s. 6d. per ton spot, and £25 10s. to £25 12s. 6d. for spring shipment.

GUM—Arabic "sorts" have been in good demand, but no transactions have been reported.

HONEY—150 barrels of Chilian changed hands at recent full prices, and 20 cases of Californian at 42s. 6d. to 46s. 6d. per cwt.

LIME, CHLORINATED—Has become dearer, and is priced at £5 5s. to £5 10s. per ton.

LINSEED.—Calcutta seed is quite idle. there being none offering and quotations being nominal. North American seed has risen from 42s. 3d. per 424 lbs. c.i.f., to 43s. 9d.. and remains firm.

OILS (FIXED) AND SPIRITS.—Castor is steady with a fair demand for all kinds. Calcutta is firm at 3⅛d. per lb. French 1st pressure, 2⅞d. per lb., two tons reported sold; 2nd pressure, 2⅝d. per lb., six tons sold; and Madras, 2¾d. per lb. Olive Oil is selling moderately at £35 per ton (Spanish oil) to £39. Linseed Oil is very firm at 23s. 3d. to 23s. 6d. per cwt. with good business passing. Cottonseed Oil is very steady at the improved price of 20s. to 20s. 6d. per cwt. Spirits of Turpentine is firm at 38s. 6d. per cwt. with a moderate demand.

POTASH SALTS.—Cream of Tartar is selling in retail amount at 74s. to 80s. per cwt. Potashes, 5 barrels, sold at 21s. 6d. per cwt. Prices are now 21s. to 21s. 3d. per cwt. Pearlashes, 30s. per cwt.

SODA SALTS.—Caustic is very firm and higher prices are expected. 76 to 77 per cent., £9 7s. 6d. per ton. Crystals, £3 5s. per ton. Nitrate is still quoted at 7s. 7½d. to 7s. 9d. per cwt., though the price in Chili is 3s. 9d. per ton dearer.

SPERMACETI.—36 cases of refined Chilian at auction brought 13¾d. to 13 13/16d. per lb.

Calendar for the Week.

Sunday, Oct. 15. 20th after Trinity. Sun rises 6.25, sets 5.6.

Monday, Oct. 16. Sun rises 6.25, sets 5.4.

Tuesday, Oct. 17. Sun rises 6.26, sets 5.2.

Royal Photographic Society, 5*a*, Pall Mall East, London, W., at 8 p.m.—Henry W. Bennett will read a paper upon "Architectural Photography."

Wednesday, Oct. 18. Sun rises 6.30, sets 4.59.

Royal Microscopical Society, 20, Hanover Square, London, W., at 8 p.m.—A Lantern Demonstration by F. Enock, subject, "British Trap-Door Spiders."

Western Chemists' Association, Wesbourne Restaurant, 1, Craven Road, London, W., at 9 p.m.—Annual Meeting; Election of Committees, etc.

Thursday, Oct. 19. ○ 10.5A. Sun rises, 6.32; sets, 4.57.

Chemists' Assistants' Association, 73, Newman Street, London, W.—Musical and Social Evening.

Sheffield Pharmaceutical and Chemical Soeiety, Wharnecliffe Hotel, at 7.45 p.m.—Annual Dinner.

Friday, Oct. 20. Sun rises, 6.33; sets

Saturday, Oct. 21. Sun rises, 6.35; sets 4.53

Deaths.

Bignold.—On September 29, Walter Bignold, Chemist and Druggist, Battersea. Aged 42.

Taylor.—On September 30, Henry William Taylor, Chemist and Druggist, Lincoln. Aged 54.

Walker.—On October 2, Henry Walker, Chemist and Druggist Swadlincote. Aged 54.

Greaves.—On October 3, John Greaves, Chemist and Druggist, Cardiff. Aged 56. Mr. Greaves was formerly an Associate, and latterly, a Member of the Pharmaceutical Society.

Fresson.—On October 4, Lewis Francis Fresson, Pharmaceutical Chemist, Stevenage, Herts, eldest son of the late Captain Francis Fresson, 60th Rifles. Aged 78. Mr. Fresson had been a member of the Pharmaceutical Society for forty-six years, having joined in 1853.

Abley.—On October 5, Edward Abley, of Hereford. Aged 94. Mr. Abley was one of the oldest and most respected citizens of Hereford, and was at one time in business in Eign Street as mist, but retired about thirty-five years ago.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Six-gallon Carboy; cut stopper. What offers?—Wright, West Ryton-on-Tyne.

Chemist's Lamp; nearly new, a bargain.—Apply, Thomas, 115, West Street, Erith.

Chemistry and Physics Books, cheap list sent.—Johnson, 155, Lea Rd., Wolverhampton.

Welsh Honey (1899) and Genuine Beeswax. What offers?—Williams, Chemist, Holyhead.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

"Squire's Companion" (Martindale), latest editions; quite new.—J. B., Westminster College, Borough, S.E.

What Offers for Quain's "Dictionary of Medicine"? Complete in 8 sections; unsoiled.—Holroyd, 75, Wellington Road, Ashton-under-Lyne.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

For Disposal—No. 1 Patent Multiple Grinder, by the Hardy Patent Pick Co., Ltd., with Powder Collector; complete as new.—Mitre Works, Cordova Road, Grove Road, Bow, E.

Books and Periodicals. All free: Squire's "Companion," 13th, 5s.; Nisbet's "Marriage and Heredity," 2 vols. (published 12s.), 6s. 6d., new; Gordon's "Electricity and Magnetism," 2 vols. (42s.), 12s. 6d., new.—Davies, 5, Myddleton Road, Bowes Park.

Two Specie Jars for Sale, splendid condition. Circumference, 46 in.; diameter, top 9 in., bottom 14 in. 1 yellow and 1 white, with coat of arms, labelled "Carb. Soda" and "Sulphur"; 2 lids for same. Cost £6 each, will take £5 for both.—Highton, Chemist, Blackburn.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Publications Received.

A Guide to Urine Testing: for Nurses and Others. By Mark Robinson, L.R.C.P., L.R.C.S. (Ed.) Pp. 48. Price 1s. Bristol: John Wright and Co. 1899. From the Publishers.

London University Guide and University Correspondence College Calender for the Year 1899-1900. Pp. xx. + 230 + 64. Price, gratis. London: The University Correspondence College Press. 1899. From the Publisher.

Advertisements.

(Received too late for Classification.)

FRANCE, South. Wanted, end of October, qualified Assistant, speaking French.—Apply, R. L., c/o S. Maw, Son & Thompson, 7 to 12, Aldersgate St., E.C.

ENGLISH NEWS.

Sheffield School of Pharmacy.—The 1899-1900 session of the School of Pharmacy conducted by the Sheffield Pharmaceutical and Chemical Society was inaugurated, and the prizes won by the students at last session's classes were distributed, at a meeting held on October 19 at the Literary and Philosophical Society's rooms, Sheffield. The Society has recently given up its own classes, and arranged for a three years' course of instruction at the Sheffield University College, and the principal of that institution (Dr. W. M. Hicks) attended to give the inaugural address to the students. There was a large attendance, and the chair was occupied by Mr. G. Squire, the President of the Society.—Mr. S. T. Rhoden, school secretary, read his report, in which he referred to the fact that the new departure of last session consisted in the holding of part of the classes at the University College and part in the Society's own rooms. This was done with a view of establishing a curriculum for this district, and, with a further view to this object, all the classes were being held at the College this year. The lecturers reported well on their classes. The attendance had been regular, and the attention given by the students very satisfactory. The results of the examinations were also satisfactory.—Mr. Squire then presented the prizes, which consisted of books, to the successful students. He said that previous to the last session the Society carried on its own classes with its own masters, but this was not found satisfactory. They had often thought of joining the classes with the University College, and, now that this had been brought about, they considered it an ideal scheme. Students could now take up their subjects from the beginning, and, as a three years' course of instruction had been arranged for, they should, after passing through that, be able to present themselves for the qualifying examination. The prizes were not awarded on the same plan this year as in previous years. Instead of an examination being held by the Society, the awards had been made on the results of the classes at the College, judged by the professors, the prizes being given to the first and second in each class. The prize-winners were as under:—Chemistry: 1, T. T. Cocking; 2, A. Yates. Botany: 1, W. Cooper; 2, A. A. Watts. Materia Medica: 1, T. Cocking; 2, Harold Williams.—Principal Hicks, of University College, Sheffield, then proceeded to deliver an address to the students, after which, on the motion of Mr. G. T. W. Newsholme, seconded by Mr. J. B. Pater, a hearty vote of thanks was accorded to him.—The annual dinner of the Society was subsequently held at the Wharncliffe Hotel.

Chemists' Assistants Union.—At a council meeting held on Wednesday night last, Mr. Ned Whineray was re-elected Chairman, the Vice-Chairmen being Mr. C. E. Pickering and Mr. W. C. Softley (Bath.) Mr. R. E. Wright was elected Secretary, and Mr. R. T. Branwall, Assistant Secretary; Mr. H. Brook Clegg was elected Treasurer. Several patrons and members were elected. The session opens with a Smoking Concert on Tuesday night next, at the Horse Shoe Hotel, Tottenham Court Road, when the chair will be occupied by Mr. W. S. Glyn-Jones, who will be supported by several well-known members of the trade, and a number of gentlemen representing allied professions. A big gathering is expected.

Burnley and District Chemists' Association.—The committee of this Association held a meeting on Tuesday, Oct. 17, Mr. J. A. Heaton being in the chair. Mr. Heaton directed attention to a letter from the Pharmaceutical Society with respect to the appointment of local secretaries, and referred to the important position local secretaries would occupy in the future. It was mentioned that Mr. B. Cowgill had been asked to act again as local secretary, but that he had refused to continue in the office. The meeting expressed itself in favour of appointing Mr. Brown, yet he too declined to stand. At the suggestion of Mr. Brown, Mr. Lowton (Nelson) moved, and Mr. Stuttard (Colne) seconded, that Mr. Heaton fill the position, and this was decided upon. The Chairman next drew attention to the meeting of the Council with respect to company trading, with the result that the following resolution was adopted:—"That this Association notice the Council intend to take action to combat the pernicious Bill now before Parliament with respect to company pharmacy, and to introduce a clause into the Bill when it is presented to Imperial Parliament, and they trust that the clause will be of such a nature as to meet with the approval and support of the Association."

The Medical Title Difficulty illustrated by the Hunter case (see last volume, p. 86) is likely to be raised anew, the Society of Apothecaries having obtained an opinion from Sir Edward Clarke to the effect that a licentiate of the Society who has obtained his diploma since 1886 is entitled to describe himself as physician or surgeon, or both, and that the judgment in Hunter *v.* Clare would not of necessity be held to be a binding authority, inasmuch as the conviction of the appellant was quashed on other grounds, so that the opinions expressed by the Court as to the rights of licentiates of the Society of Apothecaries were, under the circumstances, immaterial to the issue. From remarks which fell from the judges, the *British Medical Journal* thinks it was clear that they regarded the case as a friendly suit brought with the object of settling the question of the right to the title of physician and, if Sir Edward Clarke's opinion is to be accepted, went out of their way to make a pronouncement on this point more or less as an act of complacency. The discussion which took place at the last session of the General Medical Council made it clear that the Council would not again allow itself to be brought into the position of proceeding against a registered practitioner for making use of titles which both custom and common-sense justify him in using. It is possible that some other body or some individual might do so, and the Society of Apothecaries considers itself under an obligation to obtain a judicial decision which shall not be open to exception, to form its own opinion, and may well demand that facilities should be afforded it to attain the object in view. At any rate, observes the *British Medical Journal*, the Society has now invited the co-operation of the General Medical Council in having the issue retried in some form so that the question may be finally and formally set at rest.

The North Staffordshire Chemists' and Druggists' Association has spoken on the subject of company trading, and has passed two resolutions thereon. (*See p.* 392.) The zeal and activity of the Association in bringing so prickly a theme forward, is commendable, and the generally rational tenour of the discussion is still more a matter for commendation; but in regard to the two resolutions which were adopted as the outcome of the evening's proceedings the Association must be prepared for a little gentle chiding. Briefly stated, resolution number one urges the Council to promote such "legal action as will prohibit absolutely the practice of pharmacy by associations of unqualified persons." Now the futility of such an exhortation must be apparent to anyone who will recollect that the *ne plus ultra* of legal action in that direction was reached eighteen years ago, when the House of Lords pronounced its fiat on the subject. That pronouncement of the highest legal tribunal lies, as an effectual barrier, in the path along which the North Staffordshire chemists express a desire that the Council should travel—that statement is not the expression of a mere personal opinion, but it represents an absolute, though perhaps unpalatable, fact. Parliament alone can remedy the retrograde effect of the House of Lords' decision, and the resolution beforementioned would have been all the clearer and all the more forcible if "parliamentary" had been substituted for the word "legal." The second resolution embodies a rather graver fault, though its obvious loyalty to the Society largely disarms criticism. It is a corollary to the first resolution, and proposes to establish a fund for the purpose of legal action for defence of chemists' interests—a fighting fund to which every registered person should be invited to subscribe. Apart from the fact that to use such a fund for the promotion of the "legal action" which appears to have been contemplated, would be simply throwing money away, the very establishment and organisation of a legal defence fund would be a waste of energy, a frittering of strength, and, what is more, past experience has shown that such a proceeding would be calculated to hamper rather than to assist the successful efforts of the specially constituted means of defence which chemists have ready to their hand. There can be no necessity for making heroic efforts to collect money locally while the Pharmaceutical Society exists. If registered persons perceive the dangers which threaten them, and are earnestly desirous of doing what they can to avert disaster, let them join the Society, and, by their adhesion, the representative body will become thoroughly invested with both the moral and the financial power requisite to fight for the unabridged maintenance of the principles of the Pharmacy Acts. This text has been reiterated almost *ad nauseam*, and has furnished so many lay and official sermons in the Journal that it can scarcely be touched upon without exciting in certain journalistic quarters more or less brilliant references to the greed for guineas at Bloomsbury Square;

but for the benefit of the chemists in North Staffordshire and generally, the suggestion may be risked that if there is, in the nature of things, strong reasons for "touting for guineas," it is better the process should operate in favour of strengthening the existing fighting machinery than in the direction of creating new.

MIDLAND CHEMISTS' ASSISTANTS' ASSOCIATION.—This Association opened the session on Wednesday, October 11, at the Exchange Rooms, with an address from the President, Mr. F. A. Spear, terminating with a musical programme. In reviewing the work of last session, he congratulated the Association on the work done, but regretted that the attendances were so small, especially seeing that such men of repute in the world of pharmacy as Messrs. J. Barclay, F. H. Alcock, J. Spilsbury, and M. Dencer Whittles had taken great pains to give interesting and valuable papers. It was discouraging to both lecturers and promoters. The previously mentioned gentlemen, also Mr. A. W. Gerrard, had kindly consented to help during this session, and he (the President) hoped that members would show more enthusiasm. There was no doubt that the pharmacist of the next generation would be a man who had worked through a pharmaceutical curriculum similar in its spirit to those which are now required for qualification in the medical and dental professions, and it behoved assistants to do all in their power to obtain knowledge, scientific, general, and pharmaceutical, that they might not in course of time feel that their acquirements were vastly inferior to those of the men who succeeded them. Needless to say, the social evenings were a great success, and highly appreciated by good audiences. In mentioning the items on the present session's programme, he drew attention to the prizes offered for the best original papers on subjects of interest to pharmacy, and hoped there would be keen competition.—The following gentlemen contributed to an enjoyable musical programme: -Messrs. White, Foster, Holland, MacGregor, and Colley.

SKERRY'S CIVIL SERVICE COLLEGE (CITY SCHOOL OF CHEMISTRY).—This popular and well-known "coaching" institution having just attained its majority, the interesting event was celebrated on Wednesday, October 11, by a banquet at the Holborn Restaurant, given by the principal and founder of the college (Mr. G. E. Skerry) to his tutors and staff, and a number of personal friends. Mr. Skerry presided, Mr. J. P. H. Bewsher, the manager, and Mr. R. W. Hines, the secretary of the college, occupying the vice-chairs, while there were present a number of representatives of the seventeen Skerry Colleges now in existence in the three kingdoms. The proceedings throughout were of a most enjoyable character, Mr. Skerry himself, and Messrs. Bewsher and Hines, upon whom, as stewards, the labour of carrying out the arrangements mainly devolved, being most assiduous in promoting the pleasure and convenience of the guests. The usual loyal and other toasts having been honoured, Mr. J. P. H. Bewsher proposed the toast of the host, and before calling upon Mr. Hines, regretted to say that they were unable to present Mr. Skerry that evening with an album which had been prepared containing the signatures of all the subscribers, and an illuminated address expressing the esteem in which Mr. Skerry was held by the whole of his staff, on account of its not having been returned from the branches. Mr. R. M. Hines then uncovered a massive silver bowl, and, as representing all the various branches of the college, requested Mr. Skerry to accept it as a slight recognition of their appreciation of his work as principal of the college and of relationship to them as their head. There was an old song which called upon the landlord to fill the flowing bowl. That bowl they would fill with domestic happiness, with prosperity, and with the very best of good wishes.—Mr. Skerry said that during the twenty-one years of the existence of the college he had often given presents, but he had never before received one. On such an occasion he failed to find words to express his appreciation of their gift. He thoroughly appreciated their kindness, and throughout the days to come he should treasure the kind words they had spoken that night. He thanked them very much, and from the bottom of his heart.

PHARMACY AS AN EMPLOYMENT FOR GIRLS is the title of a brief article, by Miss R. Kathleen Spencer, published in the *Girl's Own Paper* for October 14. The article is quite free from the inaccuracies which are usually found in similar contributions to lay periodicals, and its perusal may be recommended to parents who think of having their daughters trained as dispensers.

SUFFOCATED BY CHLOROFORM.—An enquiry was held at the Gate Hotel, Matlock, on Friday, October 13, touching the death of Mary Elizabeth Brown (24), a daughter of Mr. Edwin Brown, hydropathist, of Rutland Street.—Florric Brown, sister of the deceased, stated that her sister complained of toothache, and asked her to fetch some chloroform for it. She went to Mr. Davis, chemist, at Matlock Bridge, and bought twopennyworth. Her sister rubbed it externally, and at half past nine said she was going to sleep, and did not want to be disturbed. Witness heard nothing more until her father found her sister dead at 11 o'clock.—Dr. William Moxon said he was sent for, and tried artificial respiration without effect. He was shown the bottle the deceased had used the chloroform from, and should say 25 minims had been used out of a drachm. He attributed the death to the fact that deceased wrapped her head closely so as to exclude air, and thus secured the full strength of the chloroform. Death was caused by chloroform asphyxia.—The jury returned a verdict in accordance with the medical testimony.

DEATH OF AN OLD CHEMIST.—According to newspaper reports, Mr. Joseph Wilding Lomas, pharmaceutical chemist, was found dead at his residence, 31, Vicarage Road, Camberwell, under somewhat peculiar circumstances on Monday, October 16. Mr. Lomas, as is mentioned elsewhere, was an old member of the Pharmaceutical Society and regularly attended its public meetings. He was at one time in business at 785, Old Kent Road, and subsequently in Queen Victoria Street, E.C. There is also reason to believe that at the time of the Indian Mutiny he was a dispenser in the Army. His mode of living in Vicarage Road, Camberwell, seems to have interested his neighbours, but he never satisfied their curiosity. Apparently he was a bachelor or widower, about seventy years of age. He did his own shopping, cooked his own food, and did what cleaning was carried out in his rooms. When his death was discovered there were in his bedroom securities representing several thousand pounds, and it is understood that he had some valuable property in a deposit safe, the key of which was found on him.

A CHEMIST'S MOTOR CAR.—At Bearsted Police Court on Monday, October 16, Harry R. Beckett, chemist and druggist, Tonbridge, was summoned for non-compliance with a certain section of the Light Locomotives Act, at Barming, on September 20, by not stopping his motor vehicle when requested to do so.—The prosecutor, Mr. Herbert White, stated his case, which was to the effect that while out riding with his wife, one of his horse's shoes became loose and he called at a blacksmith's forge to have it fastened. Defendant passed at the time in his motor car, and as the horse was restive, prosecutor signalled for the car to stop, but defendant took no notice and did not stop the car until prosecutor mounted his horse and rode after him.—For the defence it was contended that no offence had been committed, because the Act simply dealt with motor cars upon the highway. Prosecutor's horse was not on the highway, and he therefore had no power to require the defendant to stop his vehicle. As a matter of fact, defendant on perceiving the signal to stop did endeavour to do so, but finding it impossible to pull up the vehicle until he had passed the horse, decided to run by silently, as, in his opinion, that was the best thing to do under the circumstances.—The Bench stopped the case while the evidence for the defence was being given and dismissed it.

SCOTTISH NEWS.

FATAL FALL.—Thomas M'Master (50), (described as a chemist), while engaged on Friday, October 13, in cleaning the window of his bedroom in his brother's house at 449, Duke Street, Glasgow, overbalanced and fell into the court, a distance of three storeys, and was instantaneously killed.

THE GLASGOW CHEMISTS' AND DRUGGISTS,' ASSISTANTS,' AND APPRENTICES' ASSOCIATION made a good start on Friday, October 13, when Mr. J. Rutherford Hill delivered the opening address; his subject being "The Position and Privileges of Pharmacy and the Pharmacist" (see page 380). Meetings will henceforth be held each Friday evening up to April 6, 1900. The programme is a comprehensive one, including in addition to musical and social entertainments, papers and lantern lectures by well-known Scottish pharmacists and medical men. The following are a few of the items in the

syllabus:—"A Trip to Switzerland," by J. Lothian; "The Assistant: his Fortunes and Future," by J. P. Gilmour; "John Ruskin: The Man and His Teaching," by Councillor Wm. Martin; "Ambrose Pare and His Times," by J. Grant Andrew; "The Hospitals of Glasgow," by Councillor J. Erskine; "Reproduction in Plants," by M. Meldrum; "The Druggist as a Civil Servant," by J. P. Taylor; "The Medicinal Plants of the Clydesdale Flora," by W. Bowie; "Stereo-Chemistry," by Geo. Coull; "The Distribution of Plants in Time and on the Earth," by T. S. Barric; and lectures and communications (subjects not specified), by T. Maben, Dr. James Devon, J. Lothian and B. Cockburn, and J. Thomson.

IRISH NEWS.

Pharmaceutical Society of Ireland.—*Pharmaceutical Asssistant Examination*: J. McC. Cherry, C.H.Waddell, and W.S. Taylor, have passed. Two candidates were rejected. *Pharmaceutical License Examination*: J. Robson, A. T. Mulhall, W. S. Taylor, H. Knight, and J. Gorry, have passed. Four candidates were rejected. *Registered Druggist Examination*: S. Hanna, F. Mannin, Margaret Perrot, F. T. Smith, and T. J. Watts, have passed. Five candidates were rejected.

Speaking Last Week at Dublin, on the occasion of the reopening for the winter session of the Meath Hospital, Dr. J. W. Moore, President of the Royal College of Physicians, said that the use of antipyretic medicines or heat reducers should never be left in unskilled hands. The employment of such remedies even by the experienced physician called for the utmost caution. The danger is incurred by interference with the production of the body heat, while the escape of heat from the system was increased. Dr. Moore regards water as the only safe antipyretic. Alcoholic stimulants were to be avoided, since a patient already suffering from the effects of a specific poison might be doubly poisoned by alcohol. A good physician should also be a good cook, as there is scarcely a disease in which diet does not play a more important part than mere medicines.

Mr. John M'Bride, who has organised a corps of Irishmen in Johannesburg to help the Boers, was formerly a Dublin chemist's assistant. His exchange of the dispensing spatula for the devouring sword will be heard with horror by peace-loving pharmacists. If it was our martial chemist who secured the contract for drugging the Vaal water with prussic acid, that might account for his pro-Boer affinities.

The Herbarium of the late Lord de Tabley, consisting of 20,000 sheets of specimens, has been presented by his sister, Lady Leighton, to the botanical department of the Dublin Museum.

"As much as would Lie on a Threepenny-bit" might be considered a fair quantity for analysis in a test examination, but under other circumstances the amount might be increased. For instance, Mr. Blake, Ballycastle analyst, wrote that the Croagh dispensary samples were "of no use," two ounces being generally required, and four ounces if alkaloids were present.

The Belfast Guardians, in considering the statement that all the apothecaries had not sent in samples to the analyst, which would prevent the Board getting half the expense on the scheduled medicine supplied, resolved to surcharge the apothecaries with any loss thus occasioned.

TRADE NOTES.

Guaiacum Resin Tabloids.—Messrs. Burroughs, Wellcome and Co. submit for examination a specimen of a 5-grain guaiacum resin tabloid which the firm has recently introduced. The properties of this therapeutic agent are well known, and its introduction as a tabloid enables the physician to prescribe it in a practically tasteless form in the treatmont of rheumatic gout, tonsilitis, etc.

Brand's Nutrient Powder.—This powder, which is prepared by Messrs. Brand and Co., Limited, Mayfair, W., from raw meat, consists of powdered muscle fibre only, from which the moisture has been removed at a temperature below the coagulation point of the muscle proteids. In the process of drying, powdering, and sifting, all the connective tissue and tendon, which constitute in popular language gristle, is rejected, and the resulting preparation is partly soluble in water and saline solution, and almost instantly and completely soluble in pepsin. It is practically tasteless, and contains all the constituents of lean meat in an unaltered condition. One ounce of the powder is equivalent in nutritive value to four ounces of fresh lean meat. This claim is based on the fact that moisture constitutes three-fourths of the weight of lean meat, hence the removal of this moisture results in the production of one-fourth of dry solids. The great dietetic importance of the preparation to invalids consists in the ease and completeness with which it can be digested, and in the fact that it can be assimilated with a minimum of effort upon the part of the digestive organs. The makers state that nothing is removed in the process of manufacture except the water of the fresh meat and the tough, stringy and indigestible portion. From this it follows that in Brand's Nutrient Powder the natural relationship of the proteids, extractives, and salts are preserved unchanged. This claim cannot be made for any other preparation of the kind on the market. The powder is supplied in screw-cap bottles, to retail at 10d. (1 ounce), 1s. 6d. (2 ounces), and 2s. 10d. (4 ounces) each.

Paper Convenience Cover.—Rolls or books of specially prepared, disinfected paper are prepared by M. Page, 473, Caledonian Road, London, N., to retail at 1s. each, the paper being perforated in sections of a convenient length to cover the seat of a w.c., and the centre of each section being cut out, leaving a tongue-piece to flap over into the pan, serving as a shield. The object of this invention is to provide an absolutely clean, disinfected seat, and that result ought to be attained if the covers are regulary used as directed by the maker.

"Norse" Toilet Paper.—Messrs. Ayrton and Saunders, 34, Hanover Street, Liverpool, send a specimen of their "Norse" Sanitary Toilet roll, which they guarantee to be absolutely pure, and in every respect a perfect toilet paper. The roll, which is impregnated with the odour of the pine (*Pinus sylvestris*), imparts a refreshing fragrance to the air, and acts both as a disinfectant and deodoriser. The regular use of this paper, it is claimed, will prevent many painful and troublesome complaints. The roll is enclosed in an attractive wrapper, space being provided for the name and address of the seller. It can be obtained wholesale only from Messrs. Ayrton and Saunders, at the above address.

FOOD AND DRUGS ACT PROSECUTIONS.

Accuracy in Dispensing.—At the West London Police-court on October 12, Mr. Rose heard an adjourned summons against William Luther Longstaff, trading as Keith Longstaff, chemist and druggist, of 84, Fulham Road, issued under the 7th Section of the Food and Drugs Act, with respect to an ingredient in a prescription prepared by Dr. Jackson, medical officer of health, and presented by the sanitary inspector to be made up. The question in dispute was as to the quantity of iodide of potassium demanded. The prescription required four drachms, but it was alleged by the public analyst that there were 36 grains in excess. The summons when first heard, was adjourned for an analysis to be made at Somerset House.—Mr. Rose, who now had the Government certificate before him, said the excess found was 23 grains instead of 36. —Mr. Ralph Swinton, analytical chemist, stated that he had analysed a sample sent by Mr. Longstaff. It contained 54 C.c. of liquid, in which there was 82·8 grains of potassium iodide. In a six fluid ounce bottle that would equal 248·4 grains, being 8·4 grains more than the prescription provided.—Mr. Rose, in giving his decision, pointed to the fact that there had been three different analyses in the case, showing that chemists would be placed in difficulties if perfect accuracy was required in making up prescriptions. The Act pointed to something injurious

to health. He found that there had not been any carelessness, or any excess in the quantity of the drug which was injurious to health. He also expressed an opinion that the 7th Section did not apply to such a case. Therefore, both on the facts and law, he decided in favour of the defendant, and dismissed the summons. He also declined to grant any costs. There was also a summons against William Fletcher Barrett, trading as Barrett's Drug Stores, with respect to an alleged excess of 24 grains of iodide of potassium in a mixture, but after the decision in the other case it was withdrawn.

MILK OF SULPHUR.—On Monday, October 9, Benjamin Dugdale, grocer, Waddington, was summoned at Bolton-by-Bowland (Yorks) Petty Sessions for selling 2oz. of milk of sulphur containing 59 per cent. of hydrated calcium sulphate.—Defendant pleaded that he sold the article in the same condition as he bought it. The wholesale people had admitted that a mistake had been made by them, and promised to pay any expense he was put to.—The inspector pointed out that the magistrates at that court had frequently advised shopkeepers to obtain warranties with their goods, but they had failed to do so.—The Chairman said it was a very serious matter that adulterated drugs should be sold to the public.—Fined £2 and costs.——David Leeming, grocer, West Bradford, was also summoned for selling milk of sulphur adulterated with 66 per cent. of hydrated calcium sulphate.—Defendant said the article in question was old stock, it had been in his possession several years.—The Chairman, in fining defendant £2 and costs, said he had no right to keep drugs in stock for years, and then sell them to the public.

SPIRIT OF NITRE.—At Bolton-by-Bowland (Yorks) Petty Sessions, on Monday, October 9, David Wright Speakman, grocer, Waddington, was charged with selling sweet spirit of nitre which was certified by the county analyst to be deficient in nitrous ether, and to contain an excess of water to the extent of 2·23 per cent.—Defendant stated that spirit of nitre deteriorated, and he could not avoid its going wrong.—The inspector did not deny that it deteriorated, but pointed out that this was allowed for by the British Pharmacopœia, and a minimum fixed; the spirit of nitre in question came below the minimum, hence its medical value was greatly reduced.—Fined £1 and costs.

CAMPHORATED OIL.—At the same court, the defendant in the spirit of nitre case referred to above, was also charged with selling camphorated oil deficient in camphor to the extent of 13 per cent., and containing 5 per cent. of mineral oil.—Fined £1 and costs.——David Leeming, grocer, West Bradford, was fined £2 and costs for selling camphorated oil 5 per cent. deficient in camphor, and adulterated with 40 per cent. of mineral oil.—Defendant said the wholesale firm from whom he obtained the oil had promised to pay all expenses.——The case against Benjamin Hargreaves, grocer, Grindleton, was described by the Chairman as disgraceful, and a fine of £3 and costs was inflicted. Defendant, who was charged with selling camphorated oil deficient in camphor to the extent of 12 per cent., and containing 88 per cent. of mineral oil, stated that he sold the oil in the same condition as he bought it from the wholesale dealers.

CAMPHORATED OIL PROSECUTIONS.—At Glasgow on Thursday, October 12, Sheriff Boyd heard three prosecutions under the Merchandise Marks Act.—Dr. Gordon admitted having sold camphorated oil which consisted of sesame oil, and which was also deficient in camphor to the extent of 41 per cent.—Mr. Neilson, who prosecuted, referred to the urgent necessity of medicines being pure, and mentioned that sesame oil cost much less than olive oil. Sheriff Boyd, in imposing a fine of £4, with £1 18s. expenses, expressed the hope that as the warning was addressed to an educated and intelligent body of men they would learn the lesson quickly.——A similar fine was inflicted on Richard Hogg, chemist and druggist, 357, Paisley Road, for having sold camphorated oil which consisted of rape oil, and was also deficient in camphor to the extent of 15 per cent.—For the defence it was stated that it was customary in the trade to have two kinds of oil, and the public in buying the cheaper article had the benefit of getting more for their money——Joseph M'Feat, M.B., was also fined £4, and £1 1s. costs, for having in his shop at 338, Scotland Street sold olive oil which contained 20 per cent. of sesame oil.

FOREIGN NEWS.

THE REUNIONS OF THE BRITISH AND FRENCH ASSOCIATIONS at Dover have been followed by a decision to establish a permanent organisation which shall maintain, develop, and utilise the good relations thus so fully initiated. According to the *Standard* it is proposed to form a General and Advisory Committee, consisting of members of the British Association, the Association Française, and of other representatives of pure and applied science, education, art, etc., with the object of promoting arrangements for an international meeting or assembly in connection with the Paris Exposition of 1900. Sectional meetings of the Committee will be held in London, Paris, New York, etc. It is stated that important French representations on the Committee has been assured, and the adjustment of the programme will be proceeded with the least possible delay. General and special lectures, with expert guidance through the various departments of the Exposition, are being arranged, both in French and English, together with excursions, etc., broadly corresponding to the features of a British Association programme.

WITH A VIEW to the reform of pharmaceutical education in Germany, it is intended by the German Government to raise the standard of pharmaceutical education. Hitherto, the young man who desires to enter upon the pharmaceutical career must, for admission as an apprentice, produce the certificate entitling to the one year's service in the army (the "Einjährig-Freiwilligen-Zeugniss"), which is obtainable by passing the lower second-class examination of a "Gymnasium" or a "Realgymnasium Untersekunda." Having been admitted and passed an apprenticeship of three years, he is admissible to the assistant's examination, and, after another period of three years passed in practical training in a pharmacy, he has the right of attending a university, where he must pass an eighteen months' course (three "Semester"). Then he can be admitted to the final examination to qualify ("Pharmaceutische Staatsprüfung"). In future no student will be admitted to apprenticeship unless he has passed the "Obersekunda," and has got his remove to the "Prima" or first-class of the "Gymnasium" or "Realgymnasium." By this elevation of the educational standard pharmacists will, in that respect, be placed on a level with officers of the army, veterinary surgeons, dental surgeons, and surveyors. The period of assistantship will be divided in two parts, one year being passed before entering the university and two years after the final examination. The university term will be prolonged from three to four "Semester" (two years) and it is also intended to increase the scientific instruction by enlarging the courses in several branches, *i.e.*, laboratory training in analysis, manufacturing of pharmaceutical products, and microscopical research. New courses too will be established for chemistry of foods and urine analysis.

THE NEGOTIATIONS between the federated German governments concerning the reform of the now existing "mixed system" of pharmaceutical privileges, transferable and not-transferable concessions, are still in progress, but it is now understood that definite regulation of that difficult matter is not soon to be expected. There is no doubt that the liquidation of the valuable properties which have come into existence under the system now prevailing is a stumbling block, not yet removable by the financial authorities. A semi-official notice announces that the question is not considered so urgent that it must be settled in a short time by legislature—a symptom that opinion is far from being agreed on that point. Meanwhile the German "Apotheker-Verein" will convoke a committee to discuss the necessary steps to be taken for carrying out the resolution passed at the Danzig meeting, that the transferable concession is the best system.

Partnerships Dissolved.

(From the London Gazette.)

Henry Ney and William Frederick Carter, Scientific Instrument Makers, Broad Arrow Court, London, E.C. Debts will be received and paid by William Frederick Carter.

Alfred Darwent and Charles Darwent (trading as A. and C. Darwent), Aërated Water Manufacturers, Swinton Bridge, near Rotherham. Debts will be received and paid by Alfred Darwent.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

October 19, 1899.

Business has not been excessively active in the Drug and Chemical markets during the past few days. There has, however, nevertheless, been a fair amount of business passing, prices of most articles remaining firm, some tending upwards, while others are again dearer. There has been considerable excitement in Quinine, which has further advanced, and is expected to go higher. Menthol is dearer. Quicksilver very firm and an advance expected. Mercurials also very firm. Camphor also expected to advance, while a further rise is also confidently expected in Cocaine. Bromides firm and in good demand. Iodides fairly steady. Acid Citric weak, as also is Sulphate of Ammonia. Opium, Morphia, and Codeia are firm. The following are prices actually ruling for some articles of principal interest.

ACETANILIDE—Continues very weak at 9½d. to 1s. per lb., according to quantity. It is reported that a fresh maker has appeared on the scene, which, in view of the pressure to sell which already existed, was hardly necessary.

ACID BORACIC—Is still quoted 25s. per cwt. for crystals, and 27s. for powder.

ACID CARBOLIC—In good demand, the prices being 6¾d. to 7d. per lb., according to quantity and make, for 35°-36° C. ice crystals in large bulk; 7¼d. per lb. for the 39-40° ice crystal, and 8¼d. for 39°-40° C. B.P. quality in detached crystals. Crude 60° F., 2s. 3d. per gallon; 75° F., 2s. 9d. per gallon. Liquid 95-98 per cent. of pale straw colour, 1s. 3d. per gallon, in 40 gallon casks; ditto, 30 per cent. of dark colour, 10d. to 11d. per gallon.

ACID CITRIC—Dull and weak at 1s. 4½d. to 1s. 5d. per lb., according to make, for crystals in 5-cwt. casks.

AMMONIA COMPOUNDS—Are practically unchanged, with the exception of sulphate, which is weak and lower; quotations are: Bromide, 2s. 2d. per lb.; carbonate, 3d. to 4d. per lb.; according to make, etc. Muriate, commercial, free from metals, 27s. 6d. per cwt.; ditto, chemically pure, small crystals, 30s. to 32s. 6d. per cwt. Iodide, 13s. 7d. per lb.; Sal ammoniac, firsts, 35s. per cwt.; seconds, 33s. per cwt.; ditto, crushed for batteries, firsts, 37s.; seconds, 35s. Sulphate, Grey, prompt, 24 per cent., London, £11 3s. 9d. per ton.; Hull, £11 1s. 3d. to £11 2s. 6d.; Leith, prompt, £11 1s. 3d. to £11 2s. 6d.; Beckton, prompt, and Nov.-Dec., £10 18s. 9d.; Beckton, terms, prompt, £10 18s. 9d. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is still quoted £39 to £40 per ton, and Japan, crude (black sulphide), £23 10s. to £24 per ton.

ARECA NUTS.—Supply short. A small quantity has changed hands at 25s. 6d. cwt.

ARSENIC—Is quiet, but steady, higher prices being looked for in the not too distant future. Present quotations are: White powder, £19 10s. to £20 per ton; white and yellow lump, £29 10s. to £30 per ton.

ASHES.—Pots, 22s. 9d.; Pearls, 32s.

ATROPINE.—Makers are very firm at 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure Alkaloid.

BENZOIN.—There is a strong demand for the cheaper grades of Sumatra, and a fair business has been done since last week's sales at £5 10s. cwt, below which nothing now can be found.

BISMUTH—Unchanged at 5s. per lb. for the commercial quality of the metal, the Salts being also unchanged at 5s. 8d. per lb. for the Subcarbonate and 5s. 1d. per lb. for the Subnitrate.

BLEACHING POWDER (Chloride of Lime).—English make is still quoted £6 10s.

BORAX—Unchanged; 16s. per cwt. for crystals, and 16s. 9d. for powder.

BROMIDES—Are in active demand at firm but unchanged prices.

BUCHU LEAVES.—Good green rounds are wanted; for yellow rounds 6d. has been paid.

CAMPHOR.—The market for crude is decidedly firm, with an upward tendency in values. There is a fair inquiry, and business is doing, but actual particulars have not transpired. There are buyers of China on the spot at 132s. 6d. and Japan at 137s. 6d., and for arrival at 127s. 6d. and 136s. 6d. c.f. and i. respectively. Refined continues very firm at 1s. 8d. per lb. for Flowers and Bells in ton lots, while it is considered more than possible that the English refiners will again advance their price before very long.

CASCARA SAGRADA.—There is a good demand and the lowest of the stock here is held for 25s. cwt., and from New York it is reported that price of 23s. for new bark is very steadily maintained. From the West Coast it is stated that holders are very firm; those who have bought with the purpose of controlling the market advising them to hold for a high price, hoping thus to protect themselves.

CINCHONA BARK.—It is reported that the shipments of bark from Java for the first half of the month have been 657,000 Amsterdam lbs.

CLOVES.—Privately Zanzibar quiet and barely steady. Business done for March-May delivery at 3¼d. At auction only 24 packages Zanzibar offered and sold at steady rates, fine bright small, in cases, at 4½d. to 4⅝d.; good, in bales, little stalky, at 3⅛d. 33 cases Penang offered and 18 sold, good bright picked, at 6¼d., smaller ditto, at 6d.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial 1s. 3d. per gallon. Benzole, 50 per cent., 11d. per gallon; November-December, 11d. per gallon; 90 per cent. 10d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 5d. per gallon; 90 per cent., at 160° C., 1s. 2d. per gallon, and the 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene A, 3½d. per unit; B, 2¾d. per unit. Pitch, 34s. per ton f.o.b. Tar, refined and crude, 12s. 6d. per barrel, 2d. per gallon.

COCAINE.—Market is very firm at 20s. 6d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, from the makers, while there is very little offering from second hand below makers' price. It is stated that in consequence of the increasing scarcity and dearness of the crude a further advance in price of the refined article is not improbable.

CODEINE.—In good demand at firm prices—viz., 12s. 11d. to 13s. 6d. per oz., according to quantity, for the pure, and 1s. per oz. less for the Muriate, Phosphate, and Sulphate Salts.

COD LIVER OIL—Is quiet, but firm at 60s. to 65s., according to brand, for new, non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—First white crystals are quoted 74s. per cwt. on the spot, and powder 76s. ditto; 95 per cent., 78s. per cwt.

ESERINE (PHYSOSTIGMINE).—Prices are firm at 2s. 3d. per gramme for both the Sulphate and the Salicylate Salts.

ESSENTIAL OILS—Remain very quiet, the business passing in same having been quite unimportant.

CUTCH—Continues quiet, and sales unimportant.

GALLS.—All descriptions have remained extremely quiet, and little business has occurred. China steady at 59s. 6d. on the spot, usual shape, and 56s. c.f. and i. for arrival, with plums at 57s. 6d. c.f. and i. Persian have been dealt in to a small extent at firm prices, comprising blue at 65s. and green at 57s. 6d., also white at 52s. 6d. Smyrna remain quiet in the absence of supplies.

GAMBIER.—The market for arrival continues inactive, and in the absence of business prices are nominal. On the spot whole bales quoted 13s. to 13s. 3d.

GINGER.—Cochin offered sparingly. Washed rough rather easier, but cuttings firm. Of 629 bags, 207 sold, Calicut, rough medium and bold, rather lean, at 22s. 6d., and washed medium and small, slightly wormy, at 22s.; fair rather dull cuttings at 18s. Jamaica in little request, and of 109 barrels offered only 12 sold, ordinary at 52s. to 53s.

GLYCERIN—Continues firm, crude being again rather dearer, while price of the refined article is fully maintained at 55s. to 60s. for English, and 58s. to 67s. 6d. per cwt. for German, according to make, for the best white double distilled, chemically pure, 1260° quality, in tins and cases.

GOLDEN SEAL ROOT—Is very firm, and prices from New York come dearer at 2s. 6d. per lb., c.i.f., for autumn-dug-root.

GUM TRAGACANTH.—Although there is now very little choice of quality, a good demand continues, and about 100 packages have been sold at full rates.

IODIDES—Are fairly steady at unchanged prices.

IPECACUANHA.—Rio is firm at 14s. 3d. to 14s. 6d. per lb., as to quality, with a small business passing. For Carthagena, 10s. 3d. to 10s. 6d. per lb., as to holder.

MENTHOL—Is firmer, 8s. 3d. per lb. having been paid for Kobayashi brand in case lots (12 + 5 lb. tins in a case).

MERCURIALS—Remain very firm, in consequence of the firmness of quicksilver, calomel being quoted 3s. per lb., and corrosive sublimate 2s. 8d. per lb.; other quicksilver preparations being quoted in proportion.

MORPHINE—Is very firm at 4s. 11d. to 5s. 2d. per oz. for the Hydrochlorate powder, and 2d. per oz. more for crystals.

OILS (FIXED) AND SPIRITS.—Linseed firm; on spot, pipes, London, £22 12s. 6d.; barrels, £22 17s. 6d., November-December, £22 12s. 6d. to £22 15s.; January-April, £22 15s.; May-August, £22 10s. Hull, spot, naked, £21; November-December, £21; January-April, £21 10s.; May-August, £21 5s. Rape steady; ordinary brown, on spot, £24 5s. November-December, £24 5s.; January-April, £24 10s. Refined spot, £25 10s. Ravison naked, spot, £21 10s.; November-December, £21 10s.; January-February, £21. Cotton quiet. London crude spot, £17 10s.; November-April, £17 10s. Refined spot, £19 to £20, according to make. Hull has sharply declined; naked refined spot, £16 17s. 6d.; November-April, £16 7s. 6d.; crude spot, £15 17s .6d.; November-April, £15 7s. 6d. Olive firm; Mogador, £33; Spanish, £34; Levant, £33-£34. Cocoanut steady; Ceylon, on spot, £25 10s.; November-January and December-February, £24 10s. c.i.f.; Cochin, spot, £29 10s. to £30 in warehouse, and afloat £27 10s. c.i.f.; October-December, £26 15s. to £27; January-March, £26 10s. to £26 15s. c.i.f.; Mauritius on spot, £25 10s. in hogsheads Palm: Lagos, on spot, quoted £27 10s. Castor oil firm; Belgian, 1st pressing spot, £27; January-June, 1900, £26 10s. f.o.b.; Antwerp, 2nd pressing spot, £25 10s. per ton, ex-wharf. Hull manufactured, guaranteed cold drawn, pure Pharmaceutical, £30 per ton; in barrels, 3⅝d. per lb. in cases. Pure firsts, £27 10s.; seconds, £26 10s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3⅛d., ex-wharf, London. Lubricating oil: Pale American, spot, 7s. to 9s.; black, 6s. 3d. to 8s.; Russian black, 5s. 6d.; pale, 7s. to 8s. 6d. Petroleum oil quiet; Russian spot, 5 7/16d. to 5⅝d. American spot, 6⅞d. to 7d., and to the end of March; water white, 8⅛d. to 8¼d. Turpentine steady, inactive. American spot, 38s. to 38s. 1½d.; November-December, 38s. 1½d. to 38s. 3d.; January-April, 38s. 9d. to 38s. 10½d.; July-December, 32s. 10½d. Petroleum spirit: American, 9¾d.; Deodorised, 10d.

OPIUM.—Market has been quiet, but firm at nominally unchanged prices, only retail sales having been effected. A Smyrna telegram reports that 100 cases have changed hands there at full rates. Fair to fine Persian is quoted 12s. to 12s. 9d. per lb.

OXALIC ACID—Is still quoted 3d. to 3¼d. per lb. nett, delivered free, London.

PARAFFIN WAX.—Crude, 2½d. to 3d. per lb.; refined, 3d. to 3¾d.

PHENACETINE.—The long-hoped-for turn has at last arrived, to the extent that makers now refuse to sell below 3s. 3d. per lb. for both crystals and powder.

PILOCARPINE—Is still quoted 30s. per oz. for both the Hydrochlorate and the Nitrate Salts.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt.; Bichromate, 3½d. per lb.; Bromide, 1s. 10½d. per lb.; Chlorate crystals, 3¾d.; powder, 3⅞d. per lb., spot, London; Iodide, 10s. 6d. per lb; Permanganate quotations vary according to make, from 52s. 6d. to 62s. 6d. per cwt. for small crystals in 1-cwt. kegs, large crystals being quoted 5s. per cwt. more money. Prussiate, yellow, Beckton make, 7¾d. per lb. Other English makes, 8d. to 8½d.; red, 1s. to 1s. 2d. per lb., according to quantity, etc.

PITCH.—8s. to 8s. 6d.

QUICKSILVER.—Market is very firm at £8 17s. 6d. per bottle, and even at this figure all orders have to be first submitted. It is stated that a further rise is extremely probable. There is no second-hand price.

QUININE.—This article has received a considerable amount of attention during the past few days from those interested in the same. Late on Saturday afternoon the makers of the brands which are exclusively quoted in the speculative market—viz., B. & S. and Brunswick, raised their price 1d. per oz., to 1s. 1d., and again on Monday to 1s. 2d. per oz, while at one time there were buyers from second-hand at 1s. 2¼d. per oz. for above-named brands. To-day there are not many sellers at 1s. 1½d. It looks very much as if a "bear hunt" were in progress, and it will be interesting to watch the course of the market, and especially if one has bought at about 11d.

ROSIN.—Strained spot, 4s. 6d. per cwt., ex wharf, and 4s. 2½d. to 4s. 3d. per cwt. for November-January and January-March shipment per sailing vessel.

SANTONIN.—Market is firm at late advance to 11s. 3d. to 11s. 9d. per lb., according to quantity.

SASSAFRAS BARK.—The Root is scarce both here and in New York, the nominal value here being 4¼d. per lb.

SENNA.—The demand continues for Tinnevelly leaves of all qualities, and a little business has been done this week at full prices. About 350 bales will be offered in next week's auctions. For Alexandrian there is a good inquiry, but very little of fine quality is available.

SHELLAC.—The market in all positions remains very quiet. The demand on the spot is slow, with only moderate sales at steady rates. For arrival, 200 cases TN Orange, in second hands, have been sold for October-December shipment at 60s., being cheaper. The Calcutta price is still 62s. c.f. and i.

SODA COMPOUNDS.—Crystals are still quoted 60s. per ton in barrels and 57s. 6d. per ton in bags, ex ship Thames. Ash, £5 5s. to £7 per ton, according to percentage, etc. Bicarbonate, £7 10s. to £8 10s. per ton; ditto, fully bicarbonated, 22s. 6d. to 25s. per cwt. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic: White, 70 per cent., £9 per ton; ditto, 60 per cent., £8. Hyposulphite (Antichlor.), 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate dearer at £8 per ton on the spot for refined and £7 15s. per ton for commercial.

SPICES (VARIOUS).—Black Pepper: No Singapore offered, and Penang bought in at 5¼d. White Pepper: Very small lots offered, and all bought in, fine Singapore at 11½d. and fair Siam at 8¾d. Capsicums firm; 47 bales Bombay cherries sold, fair red, 30s. 6d. to 31s. 6d. Cinnamon Chips: 420 bags sold, ordinary to fair, chips and bark, at 2⅜d. to 3⅛d.; cuttings and pieces at 5½d. to 7d. Mace quiet; only 2 cases Penang sold, without reserve, fair pale reddish, little wormy, at 1s. 6d.; 2 cases Ceylon sold, fair pale reddish, at 1s. 5d.; 14 cases Singapore bought in at 1s. 5d. Nutmegs dull; only 5 cases Penang sold, 65's at 2s. 4d; 6 packages Ceylon sold, 86's at 1s. 6d., 103's at 1s. 1d., 106's at 1s., 127's at 10½d. Pimento in slow demand; of 567 bags offered, only 176 sold, ordinary to fair, at 3¼d. to 3⅜d.; good clean, small, at 3½d.

STROPHANTHUS SEEDS.—Good green Kombé are held for 4s. lb., supply being very small, ordinary Kombé selling at 3s. 3d. lb. Brown, 1s. lb.

SULPHATE OF COPPER—After slightly receding, has again advanced, present quotations being £24 10s. to £25 10s. per ton, according to brand.

TAR.—Stockholm, 25s. 6d. to 26s.; Archangel, 18s. to 18s. 6d.

TARTARIC ACID.—English is quoted 1s. 1d. per lb. on the spot, and foreign 1s. 0¼d. per lb. c.i.f.

TURMERIC—Remains firm, although quiet, and only small sales have occurred at full rates. Bengal quoted 26s. Madras, fair to fine bright finger, 32s. 6d. to 37s. 6d. Cochin, split bulbs, 11s., and fair China finger, 26s.

Liverpool Market Report.

October 19, 1899.

A good deal of attention has been turned to Honey during the week, large sales of Chilian having been effected at satisfactory rates, whilst for Californian fine new samples have sold at higher rates, and the closing quotations are higher still. In seeds, but little has been done, as Linseed has been immovable, and Canary-seed is in poor demand. Oils generally are in a satisfactory condition. Castor Oil is firm, with fair business doing. Olive Oil, chiefly Spanish, has been selling in limited amount, whilst a further advance will be noted in the price of Spirits of Turpentine. Amongst the other articles of daily sale, Beeswax has brought good prices, Gum Arabic has been moving off well, and a parcel of dried Kola Nuts sold at a rather better figure than has been obtained of late. Chemicals are only slightly affected. Sulphate of Ammonia is weaker, Copper Sulphate is slow of sale, but other chemicals are firm, and more likely to advance, in sympathy with the higher prices for fuel, than to go down.

AMMONIA SALTS.—Carbonate is firm and scarce, 3¼d. to 3½d. per lb.

BEESWAX.—20 sacks of Chilian sold at £6 17s. 6d, £7 2s. 6d., and £7 5s. per cwt., according to quality.

BLEACHING POWDER—Is scarce at £5 5s. to £5 10s. per ton.

COPPERAS—Is exceedingly firm, Welsh at 37s. 6d. per ton, Lancashire at 40s.

COPPER SULPHATE.—£25 5s. to £25 7s. 6d. on the spot; forward (spring) £25 10s. to £25 12s. 6d. per ton.

GUM.—The demand for Arabic sorts is good, and sales have been made at 62s. 6d. per cwt. Niger Gum has sold at 50s. to 75s.

HONEY.—Chilian has been selling as follows: 170 barrels at 22s. per cwt. for Pilc 2, 20s. 6d. for Pile 3, 24s. 6d. Pile 1, and 29s. Pile X. 30 barrels of Pile 2 afterwards sold for 23s. 20 barrels of Peruvian made 25s. per cwt. Californian fine new sold early in the week at 46s. 6d., then later, 25 cases went for 47s. per cwt. Holders now want an advance on this.

KOLA NUTS.—50 bags of dried changed hands at 2d. per lb.

OILS (FIXED) AND SPIRITS.—Castor Oils, though quotations are well maintained, have not been very busy, and prices are showing a movement forward. Calcutta "good seconds," 3⅛d. per lb. French 1st pressure, 2$\frac{15}{16}$d. to 3d. per lb.; 2nd pressure, 2⅝d.; Madras, 2⅞d. per lb. Olive: Such transactions as have taken place have been almost entirely confined to Spanish, which has been sold at £35 per tun, other oils are very firm, and in small amount locally. Linseed is steady and unaltered at 23s. 6d. per cwt. in export packages. Cottonseed is still firmly held for 20s. to 20s. 6d. per cwt. for Liverpool refined, in export barrels. Spirits of Turpentine is steady at the higher rate of 39s. 6d. per cwt., with a fair amount of inquiry.

POTASH SALTS.—Bichromate firm, 3¼d. to 3½d. per lb. Chlorate quiet at 3½d. to 3¾d. per lb. Cream of Tartar is 2s. per cwt. dearer, and 1st French is now priced at 77s. to 80s. per cwt. Pearlashes are dull at 30s. per cwt. Potashes are being held for a rise at 21s. 6d. to 21s. 9d. per cwt. Saltpetre is firmly held at £21 10s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax steady at 16s. per cwt. crystals, and 17s. powdered. Caustic is in good demand, 76 per cent. to 77 per cent., £9 7s. 6d. per ton; 70 per cent., £8 10s. per ton. Crystals steady at £3 5s. Nitrate is firm on the spot with a fair business going at 7s. 7½d. to 7s. 10½d. per cwt

Manchester Chemical Report.

October 18, 1899.

The activity in the textile industries in this district, coupled with a well-sustained demand for export, is causing the utmost firmness in heavy chemicals. Caustic Soda is very firm at £9 2s. 6d. to £9 7s. 6d. for 77 per cent., and £8 7s. 6d. to £8 12s. 6d. for seventies. Bleaching Powder is unchanged, as are also Soda Crystals and Bicarbonate of Soda. Sulphate of Copper continues brisk for Spring delivery at £25 15s. to £26 10s. per ton, best brands, delivered Manchester. Salt cake is easier at 24s. to 25s. per ton in bulk on rails. There is continuance of the upward movement in Carbolic Acid, and local makers are asking 2s. 1½d. to 2s. 2d. for sixties. Pitch is also in good demand at late rates. Brown Acetate of lime continues steady at £5s. 5s. per ton, Welsh and American, here. Alum and Sulphate of Alumina are said to be on the advance. White Powdered Arsenic £19 to £19 5s. per ton, ex ship, Garston, with higher figures for forward delivery. Yellow Prussiate continues scare and firm, but cyanide is dull on account of Transvaal affairs.

Newcastle-on-Tyne Chemical Report.

October 18, 1899.

A fair amount of business is still passing, and as the principal makes of the district are scarce, in some instances higher quotations are being made. Soda Crystals, for instance, to certain markets are 5s. per ton dearer. Quotations are:—Soda Crystals, 55s. Bleaching Powder, £6 5s. to £6 10s. Caustic Soda, 70 per cent., £8 10s. Soda Ash, £4 10s. Alkali, £5 10s. Sulphur, £4 17s. 6d. to £5 per ton.

PERSONAL AND BUSINESS NOTES.

Mr. F. M. Taubman, the sculptor, who has been commissioned to execute a bronze statue of Sir Sydney Waterlow, for erection in Waterlow Park, Highgate, is the son of Mr. Robert Taubman, of the firm of Morson and Sons, London, and is himself a registered chemist.

Mr. R. M. Williams, chemist and druggist, Abergavenny, has recently opened a new pharmacy, the fittings, etc., being supplied by Messrs. Ayrton and Saunders, Liverpool.

Marriages.

Plant—Bootiman.—On Wednesday, October 11, at St. Stephen's Church, South Shields, by the Rev. Arthur McCullagh, M.A., rector, assisted by the Rev. J. W. D. McIntosh, B.A., and the Rev. F. Peacock, M.A. (Sunderland), Walter Edward Plant, pharmaceutical chemist, youngest son of the late William Cart Plant, Doncaster, to Lucy, eldest daughter of Dr. Bootiman, M.S., Admiralty surgeon, South Shields.

Tiley—Heyeswood.—On Wednesday, October 11, at Hartford, by the Rev. E. Eddowes, vicar, Arthur Percival Tiley, chemist and druggist, Burslem, Staffordshire, to Catherine Barlow Heyeswood, of Hartford.

Deaths.

Bevan.—On Wednesday, October 11, Charles Frederick Bevan, Pharmaceutical Chemist, Harwich. Aged 78. Mr. Bevan, who was one of the few remaining old Pharmaceutical chemists, had been a member of the Pharmaceutical Society since 1847, and has served the Society as local Secretary for many years. As a youth he was articled to Dr. Clarke, of Wellingborough, afterwards turning his attention to pharmacy. He spent a few months with Mr. Provost, of Huntingdon, and five years with Messrs. Lea, Perrins, and Smith, of Cheltenham, leaving them in 1847 to take a business in the Hackney Road, London. In March, 1850, he removed to Harwich, and established the business he personally carried on until, a few years ago, he took his son, Mr. Wm. Bevan, into partnership. He took an active interest in local affairs, and has held many public offices. While serving as a member of the Town Council he was offered the position of Mayor several times, but he always declined the honour.

Seymour.—On October 3, Henry Seymour, Chemist and Druggist, Bristol. Aged 65.

Smith.—On October 5, David Smith, Chemist and Druggist, Stroud. Aged 63.

Hickin.—On October 16, Henry Hickin, Chemist and Druggist, Shrewsbury. Aged 80.

Lomas.—On October 16, Joseph Wilding Lomas, Pharmaceutical Chemist, London. Mr. Lomas had been a member of the Pharmaceutical Society since 1861.

Calendar for the Week.

Sunday, Oct. 22. 21st after Trinity. Sun rises 6.37, sets 4.51

Monday, Oct. 23. Sun rises 6.39, sets 4.49.

Tuesday, Oct. 24. Sun rises 6.40, sets 4.47.

Bradford and District Chemists' Association, County Restaurant, Bradford, at 9 p.m.—Paper on "The Legal Aspect of Pharmacy, Present and Prospective," by F. A. Wilcock.

Chemists' Assistants' Union, Horse Shoe Hotel, Tottenham Court Road, London, W.C., at 9 p.m.—First Smoker of the Season.

North-East Lancashire Chemists' Association, Blackburn.—Annual meeting; Paper by R. Lord Gifford on "Pharmacy 1868-1899"; followed by a discussion on the Companies Bill.

Royal Photographic Society, 5*a*, Pall Mall East, London, W., at 8 p.m.—Paper on the "Wellington Film," by Harry Wade.

Wednesday, Oct. 25. Sun rises 6.42, sets 4.45.

Thursday, Oct. 26. ☾ 9.40M. Sun rises, 6.44, sets, 4.43.

Chemists' Assistants' Association, 73, Newman Street, London, W., at 9 p.m.—Paper on "Ethics as Applied to the Practice of Pharmacy," by J. C. Hyslop.

Friday, Oct. 27. Sun rises, 6.46, sets, 4.41.

Glasgow Chemists' and Druggists' Assistants' and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Paper on "The Assistant: His Fortunes and Future," by J. P. Gilmour.

School of Pharmacy Students' Association, 17, Bloomsbury Square, London, W.C., at 7 p.m.—Inaugural Address by J. Spiller. Refreshments provided. Members may take their friends.

Saturday, Oct. 28. Sun rises, 6.47, sets 4.39

Publications Received.

ON THE USES AND ABUSES OF THE PUBLIC HOSPITALS IN AUSTRALIA, TASMANIA, AND NEW ZEALAND; with thirty-two Practical Suggestions for Reform. By L. BRUCK. Pp. 72. Sydney: L. Bruck, Medical Publisher, 1899. From the Publisher.

THE PHOTO-MINIATURE: A Monthly Magazine of Photographic Information—Orthochromatic Photography. Vol. 1., No. 6. September, 1899. Price, post free, 7d. London: Dawbarn and Ward, Limited, 6, Farringdon Avenue, E.C. From the Publishers.

TRANSACTIONS OF THE JENNER INSTITUTE OF PREVENTIVE MEDICINE. Edited by ALLAN MACFADYEN, M.D. Second Series. Pp. xv. + 253. London: Macmillan and Company, Limited, 1899. From the Secretary.

THE CHEMISTRY OF THE HAIR, FACE, AND TEETH. By A. B. GRIFFITHS, Ph.D., F.R.S. (Ed.), F.C.S. Pp. viii. + 152. Price 2s. 6d., post free, 2s. 8d. London: R. Hovenden and Sons, 30-33, Berners Street, W., 1899. From the Publishers.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Three Doz. 1/6 size Wilson's Food; 1 doz. 2/- and 1 doz. 2/6 Chapman's Cattle Oils; all in good condition. What offers?—Gartside, Chemist, Oldham.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Teck, East Dereham.

Overstocked.—Bism. Subnit., 5/3 lb., 4 lb. £1; Iodoform, Ppt., 13/- lb., Crystal, 12/- lb.; Potass. Iodid. Opt., 9/6 lb., 4 lb. 36/-; Atrop. Sulph., 2/6 ʒj., 14/- ʒ; 17 ʒ Gum Opii, 12/-.—Eastman, Forest Lane, Stratford.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Frog in Throat, Vanilla Pods.—Eastman, Forest Lane, Stratford.

Bloxam's Chemistry, 1895; Fresenius's Qualitative Analysis, 1887.—Morris, 26, S. Mount St., Aberdeen.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

LADY Pharmacist, qualified; to superintend in the packing department, handling of preparations containing poisons.—Applicants will please state age, experience, and salary required, to POISONS, "Pharm. Journal" Office, 5, Serle Street, London, W.C.

ENGLISH NEWS.

The Monument Pelletier-Caventou, to which reference was made in the Journal a fortnight ago (*ante*, p. 368), is the subject of a further communication from Mr. Walter Hills, who acknowledges the receipt of the following subscriptions to the Memorial Fund:—

Bourdas, Isaiah	£1 1 0
Reynolds, Richard	1 1 0

Other British pharmacists who may be desirous of contributing to the Fund are requested to communicate with Mr. Hills, at 17, Bloomsbury Square, London, W.C.

Lectures on Bacteriology, etc., at Exeter.—The authorities at the Albert Memorial College, Exeter, have arranged for a course of lectures on bacteriology to be delivered by Mr. C. G. Moor, M.A., F.I.C., F.C.S. (joint author of "Applied Bacteriology," "The Examination of Water," etc.), beginning on October 27, at 8 p.m. Fee, £2 2s. The lectures will be fully illustrated by lantern slides, and cultures of all important organisms will be shown. The ground covered by the lectures will be the same as for the various examinations for the diploma of public health, so far as theory is concerned. Arrangements can also be made for students who desire to undertake practical work in bacteriology, or the analysis of water, foods, etc. It is also intended to institute a systematic course of instruction, embracing all the subjects required for the diploma of public health and other examinations in sanitary science. Some of the classes are already in operation and particulars may be obtained on application. In addition to the foregoing classes, the College provides complete instruction for the examinations of the Pharmaceutical Society. For particulars see the College Time Table, which may be obtained by writing to the Secretary.

Chemists' Assistants' Association.—The first of the musical and social evenings of the session was held at 73, Newman Street, London, W., on Thursday, October 19, Mr. J. F. Harrington (member of the Pharmaceutical Council and President of the Western Chemists' Association) in the chair. There were about forty members present, and nine new members were duly proposed and seconded. An exceptionally good programme had been arranged by Mr. C. J. Strother and his colleagues. The following gentlemen taking part in the proceedings:—Mr. Victor Slin, Mr. A. Latraille, Mr. J. S. Strother, Mr. H. Hymans, Mr. T. Morley Taylor, and Mr. E. A. Marcus. Each one performed his part well, and was heartily applauded. The recitations by Mr. T. Morley Taylor were as usual highly appreciated. Mr. W. N. Ellis accompanied the songs. During the interval the President (Mr. F. W. Gamble), proposed a vote of thanks to Mr. Harrington for coming there that evening to fill the chair. Mr. Harrington briefly replied, and a very enjoyable evening terminated by the singing of "God save the Queen."

Breeze, Jackson, and Green, Limited.—Messrs. Jackson and Co., wholesale druggists and sundriesmen, and Messrs. Breeze and Co., baking and egg powder manufacturers, both Plymouth firms, announce that they have united and converted their respective businesses into a limited liability company, as from the 1st inst., and from that date will trade as Messrs. Breeze, Jackson, and Green, Limited. The share capital will be £6,000, in 6,000 shares of £1 each; of which 3,000 will be cumulative 5½ per cent. preference shares, and 3,000 ordinary shares, debentures at 4¼ per cent., £3,000. Of the ordinary shares, the vendors will take £2,000 in part payment of the purchase money, and there is offered for public subscription the balance of 1,000 ordinary and 3,000 cumulative 5½ preference shares, 10s. per share being payable on application and 10s. on allotment. Applications will also be received for sixty 4¼ per cent. debentures of £50 each, at par. The directors will be Mr. George Breeze, chemist and druggist, Mr. A. D. Breeze, wholesale druggist, and Mr. E. W. H. Green, wholesale druggist. Application for shares should be made to the Secretary, Mr. A. D. Breeze, 41, Station Road, Plymouth.

Football.—On October 21, the Metropolitan College of Pharmacy and London College of Pharmacy Football (Association) teams met at Hyde Farm, Balham. The game throughout was played in a thick fog and resulted in a win for the "Metros." by three goals to one.

Midland Pharmaceutical Association.—In consequence of the delivery of the inaugural address to this Association, by Alderman W. Gowen Cross, J.P., on "Pharmaceutical Politics," having been fixed for Thursday, November 2, Mr. Charles Thompson, local secretary of the Pharmaceutical Society, writes to say that he will be pleased to meet any member of the Pharmaceutical Society, at the Great Western Hotel, Birmingham, on Friday, November 10, instead of November 3, as previously announced.

North Staffordshire Chemical Association.—Referring to the report of a recent meeting of this Association, Mr. Weston Poole, Newcastle, writes to say that Mr. Blade's motion was not carried unanimously, as reported in last week's Journal. He says: Certainly I was the only one who did oppose it and voted against it. My reasons for doing so were:—(*a*) That everything should be done through the Council as our official representative, and as the Council had not asked for extra funds, there was no necessity for them; (*b*) that if chemists saw their danger, they should join the Society, and so present a united front, at the same time providing the necessary financial support. I am loth to occupy your valuable space by obtruding my opinions on your readers, but in justice to myself I felt I ought to let it be known that I strongly disapprove of the resolution."

Bradford and District Chemists' Association.—On Tuesday, October 24, a meeting of this Association was held at the County Restaurant, the President, Mr. H. A. Rogerson, in the chair. The preliminary business being dispatched, Mr. F. A. Wilcock read a paper on "The Legal Aspect of Pharmacy, Present and Prospective," in which he reviewed the history of pharmacy since the passing of the Pharmacy Act, 1868, referring principally to the company pharmacy problem and to the question of further regulation of the sale of poisons, advocating in the latter connection a large addition to the poison schedule. With regard to "company pharmacy," he was of opinion that it did not make for the safety of the public that unqualified persons, with or without the assistance of an irresponsible qualified assistant, should be able to usurp the titles and functions of a pharmacist, any more than they should take and use those of a doctor or lawyer. If that anomalous state of affairs was plainly put to the outside public, he thought that chemists would be able to get the question settled on a satisfactory basis. It was of no use being too modest and afraid of attacking pretended "vested interests." Chemists had right and justice on their side, and their motto ought to be "No Compromise." After a lengthy discussion, in which Messrs. Silson, Wilcock, Waddington, and the President took part, Mr. Waddington proposed, and Mr. Hanson seconded:—

> That this Association notes with pleasure the expressed intention of the Council of the Pharmaceutical Society to promote legislation having for its object the prevention of the assumption of the titles of Pharmaceutical Chemist, Chemist and Druggist, or Chemist, or Druggist, by limited liability companies, unless the individuals constituting such companies are themselves registered under the Pharmacy Act.

This was carried unanimously. The President then moved, and Mr. Silson seconded, the following proposition, which was also agreed to unanimously:—

> In the interests of the safety of the public, this Association would press upon the Council of the Pharmaceutical Society the desirability of taking steps to extend the scope of the Poison Schedule, with a view to the inclusion of a number of other dangerous substances, which will suggest themselves to the Council's judgment.

In reference to the scheme which Mr. G. T. W. Newsholme has proposed with regard to the appointment of local secretaries, Mr. Waddington proposed, Alderman Dunn seconded, and the meeting unanimously agreed to a proposition to the effect:—

> That this Association has noticed with regret that no steps have been taken by the Pharmaceutical Council to put into practice the very excellent scheme brought forward a year ago by the Vice-President, Mr. Newsholme, with regard to the appointment of local secretaries, and respectfully requests them to give it their official sanction so that the local associations may take the necessary steps for its completion.

The meeting shortly afterwards terminated.

Chemists' Assistants' Union.—On Tuesday, October 24, the first smoking concert of the season was held at the Horse Shoe Hotel, Tottenham Court-road, the chair being occupied by Mr. W. S. Glyn-Jones (member of the Pharmaceutical Council). An excellent programme of vocal and instrumental music was gone through, the ventriloquial and conjuring entertainment by Mr. Bewsher being very amusing. The comic songs by Mr. Wild, who is an excellent comedian and dancer, were highly appreciated.

Mr. Dan Jones rendered "The Wonders of the Deep" and "The Vagabond" in masterly style. The other artistes were Messrs. Graham Stead, Hollingsworth, Tidbury, Sillitoe, Taskar, Casselis, Mitchell, and Tom Taylor, Mr. Sanders acting as accompanist. Dr. Dutch, being called upon to speak, said that the pharmacist was even more necessary to the physician than the physician to the pharmacist. He thought that such preparations as tabloids, pellets, etc., should be only supplied to the trade in bulk, and dispensed only on the order of a medical man; also that chemists should support those medical men who prescribed from the B.P.—The Chairman, in the course of his remarks, said that if smoking concerts had been held by assistants twenty years ago, at the present time things would have been better for both masters and men. Mr. Whineray had said that the Union had found situations for several assistants coming up to London from the provinces. He thought the masters ought to appreciate that, as good assistants were difficult to obtain. He hoped that in the near future the certificate of membership of the C.A.U. would prove itself a sufficient guarantee that the holder was a capable man. He impressed on the members the necessity of working together, and not to leave the work to a few officers. He then read a letter from the President of the Pharmaceutical Society, saying he had an engagement elsewhere, but would attend if time permitted. He was sorry the President had not been able to come.—Mr. J. Fitzgerald, L.D.S., in proposing a vote of thanks to the Chairman, expressed himself in sympathy with the Union, and wished the members every success. The concert, which was the most successful yet held in connection with the Union, closed with the National Anthem at 11.45 p.m.

GADD'S 'SYNOPSIS OF THE B.P.'—Messrs. Baillière, Tindall, and Cox announce that they have issued a new edition (the fourth) of Mr. H. Wippell Gadd's 'Synopsis of the British Pharmacopœia.' In preparing this edition Mr. Gadd has had the assistance of Mr. C. G. Moor, M.A. (Exeter City Analyst), who has contributed some valuable analytical notes and suggested standards based on the examination of commercial samples.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—The annual dinner of this Association will be held on Wednesday, November 8, at the Freemasons' Hall, Princess Square, Plymouth, at 7 p.m. prompt. Applications for tickets (5s. each), accompanied by remittance, must be made to the Secretary, Mr. G. Breeze, 42, Station Road, Union Street, Plymouth, not later than Saturday, November 4, or to any of the following Dinner Committee:—Messrs. F. Maitland, Jas. Cocks, Martin Johnson, J. Davy Turney, C. J. Park, A. D. Breeze, C. T. Weary, J. A. Lamble, and W. H. Woods.

BACTERIOLOGY IN LIVERPOOL.—Pharmaceutical students in Liverpool and district may be interested to know that Professor Boyce, of University College, is now conducting a class in bacteriology suitable for pharmacists, in the Thompson Yates Laboratories, on Monday evenings, at 7.45.

IRISH NEWS.

"POISONING BY NITRIC ACID, self-administered whilst temporary insane," was the jury's finding as to the cause of the death of Mr. W. J. Clarke, grocer, Newry. Deceased suffered from insomnia and nervous depression. He had been treated at different times by three doctors, and, being a total abstainer, consulted Dr. Crossle in regard to stimulants, who, however, warned deceased against their use. On the 17th inst. he procured twopennyworth of "pure nitric acid" (labelled poison) from Mr. Edgar, a druggist, which he mixed with "about a pint of whiskey" and drank. The medical evidence showed that the symptoms were such as would be produced by pure nitric acid.

OPIUM POISONING.—An inquest was held on the 18th inst. concerning the death of Mrs. Maria Wood, wife of the proprietor of the Hope Arms Hotel, Castleblayney. The deceased lady had been an invalid, customarily attended by a nurse. One night some medicine was administered which produced excitement and restlessness; the next morning deep slumber and stertorous breathing supervened. Doctors Clarke and Wilson, who were summoned, diagnosed narcotic poisoning, and applied the usual remedies, but without success. A number of bottles were found, one containing laudanum. The verdict of the jury declared the probable cause of death to be opium, but how administered there was no evidence to show.

A FURTHER POISONING FATALITY took place in Belfast. The victim, Michael Hanna, had been drinking, and, becoming "temporarily insane," swallowed some laudanum. He was taken to the Royal Hospital, where he succumbed in two days. Professor Lorraine Smith, having made a pathological examination, stated that death was due to complication following opium poisoning.

CHLOROFORM AS AN ANÆSTHETIC has been debited with another failure, a patient of Monkstown Hospital, Dublin, having died immediately after its administration.

MISS MARGARET PERROT, who has just qualified as a registered druggist, is in business with her sister as Perrot and Co., Upper Newtownards Road, Belfast.

SCOTTISH NEWS.

GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The second meeting of the above Association was held in the Masonic Chambers, 100, West Regent Street, on Friday evening last, John P. Gilmour, President, in the chair. Mr. John Lothian, Principal of the Glasgow School of Pharmacy, delivered a lecture on "Switzerland." There was a very large attendance of members and their friends, including a number of ladies, and the lecture, which was illustrated by seventy limelight views of Swiss scenery, was much appreciated. On the motion of Mr. Adams, a hearty vote of thanks was awarded to Mr. Lothian, who, in acknowledgment, expressed his gratification at such a bumper meeting, and trusted that the Association would go on and prosper.

FOREIGN NEWS.

A PROTEST FROM MEDICAL STUDENTS.—It has recently been stated that the house-surgeons who were coming up at the next examination at Paris objected to two of the examiners—Drs. Benjamin Auger, surgeon at the Beaujon Hospital, and Gouguenheim, of the Lariboisière Hospital. The latter was more particularly objected to. It was stated further that a petition had been sent in to the proper authorities—the Assistance Publique. As a matter of fact, although such a petition has apparently been drawn up, it does not seem to have been presented. There would be nothing astonishing about it if it were. Medical students have a way—or several ways—of protesting against authority, and the acts of the authorities. The French students are not alone in this respect; they have kindred souls across the Channel. There is seldom a year passes that the examination in question does not provide the occasion for some sort of demonstration. So far as Dr. Gouguenheim is concerned, he says that he declined to act as an examiner as soon as he knew of his appointment, on the ground that his health did not permit him to undertake the duties. As to the objection made against him by the competitors, this was ancient history, dating back fourteen years, and had already been disposed of at the time. He had then asked for an enquiry, which was held, and showed the utter groundlessness of the charge and the recklessness of those who made it. He had since been appointed examiner on two occasions for competitions much more important than that in question, and he did not know that the slightest objection had been raised against him. As to Dr. Auger, who bears a high reputation in the profession, it seems that the only objection to him is that he is cold and reserved in his attitude towards the students. Yet a number of these have subscribed to a letter in which they say:—"There is only one thing to reproach our master about—that is, that he is honest. Incomparable anatomist and surgeon, he makes use of surgery only to cure. And because he does not use the knife indiscriminately there are only two deaths in his ward, where there are a dozen in wards where the other doctors operate." The students recall the words of the doctor:—"Make a thorough examination of your patients, gentlemen; console them; give them to eat and drink, for that is the best surgeon. Do not operate excepting in a case of urgency, and you will thus reduce the mortality to its lowest."

Professor Mosso, of Turin, has made experiments in preventing smoke in long tunnels. Compressed air, carried on the locomotive tender, was allowed to escape as the train passed through the tunnel, and it blew the smoke back, purifying the atmosphere. Compressed oxygen was also allowed to enter the furnaces and promote combustion. Both methods were effective, but the former, being cheaper, is in the future to be adopted.

A Learned German, who has devoted himself to the study of physiology, anthropology, and allied sciences, makes the rather startling assertion that moustaches are becoming commoner among women in the present day than in the past. He says that in Constantinople, among the unveiled women that are to be met, one out of ten possesses an unmistakable covering of down on the upper lip. In the capital of Spain, again, the proportion of ladies with the masculine characteristic is said to be quite equal to that observable on the Golden Horn. An American medical man states that in Philadelphia fully three per cent. of the adult fair sex are similarly adorned, and probably the proportion would be still larger but that many women take the trouble to eradicate the unwelcomed growth by the application of depilatory preparations.

What the World owes to Louis Pasteur the world's great vocabulary is incompetent to express. Through his researches, and those of the students who have come after him, the light has been turned upon what has hitherto been total darkness. Doubt, uncertainty, and experiments have given way to precision and accuracy in diagnosis. As the farmer knows that the chinch bug is the cause of his withered crops, so the physician knows that the bacillus of certain diseases brings about certain symptoms. The microscope is the physician's reliance. A few drops of blood, a bit of tissue, a little perspiration brought under the eye of this magic assistant will tell him at once the cause and progress of the disease. And it is not alone the physician who benefits by this knowledge. The farmer, the vineyardist, the dairyman, the stockraiser, the cultivator of the silkworm, and the enthusiast on bees are alike indebted to the discoverer of the germ-origin of disease for invaluable aids in their business. A necessity of the near future is an improvement in microscopes and their cheapening, so that a knowledge of germs may become more widespread. Every township should have its bacteriologist and its microscopic equipment. There is no study more interesting, and none that is so important to humanity.

Pasteur once Made the Remark that the dust-brush and broom were a thousandfold more dangerous than gunpowder, and cost the world thousands of lives to one of the latter. It seems like an exaggerated statement that, while gunpowder and explosives have caused the death of thousands, the broom and dust-brush have slain millions; but this is a fact past question. Constant stirring up of dust in the house is a menace to health and a direct destroyer of life. The time will come when such a thing as a carpet will not be permitted in a civilised household, and when the floor-brush and broom will have disappeared for ever. Few people realise that they may bring in from the street on their shoes or skirts every form of disease that flesh is heir to. This is ground off into the carpet, the warmth of the apartment helps on the process of development, then the housemaid deliberately sets the germs in motion with her broom, and the air is filled with them. They settle on the furniture and ornaments, and with the dust-brush she whisks them off again on to the carpet, where they remain, possibly to propagate, certainly to live, until by the next stirring up they may float into somebody's throat or lungs. This is precisely what they have been waiting for, and is the object of their existence. Once settled in their congenial quarters, they begin their deadly work, and the system is soon overrun with their progeny; then there may be attacks of coughing, expectorating, and floating germs on the breath to scatter this same deadly enemy not only through this dwelling, but also all others from which visitors come and go.

There was at One Time an epidemic of throat trouble in a community in the South of France, and greatly were the doctors puzzled to know how the infection spread, as the only original case had been confined to the house for a long time and never mingled with his neighbours. At last someone recalled the fact that this man had been to the post-office; then someone remembered that, as he stood talking with some friends, he expectorated into the register of the heater. Down in the pipe a quantity of dust and lint had lodged, and here, in this agreeably warm bed, millions of germs were liberated, and, rising on the hot-air current, floated out into the open space in the post-office lobby. It is high time that the deadly nature of germs of this sort were proclaimed aloud through the land. Bacteriology in some simple way should be taught in every public school, and hand-in-hand with these instructions should go warnings against the broom and the dust-brush. Bare floors or matting which can be wiped clean with damp cloths are the only suitable, safe, and sanitary floor coverings. Next in order come the better grades of oilcloth. Well-fitted, matched flooring, thoroughly oiled and kept reasonably clean, makes a floor that meets all the conditions of health. Happy will the human family be when floors of this and similar kinds are the rule and not the exception.

TRADE NOTES.

Soloid Indicators for Chemical Tests.—Messrs. Burroughs' Wellcome and Co., Snow Hill Buildings, London, E.C., have recently introduced in soloid form the indicators more frequently used in conducting chemical tests and volumetric determinations. These include indigo carmine, lacmoid, methyl orange, phenolphthalein, rosolic acid, starch. By means of these soloids small amounts of a solution of any indicator, of proper quality and strength, may be quickly prepared as required.

Novelties for the Xmas Season.—Messrs. Marshalls, Limited, 27, Red Lion Square, London, W.C., are again to the front with an exceedingly pretty lot of attractive lines suitable for the Xmas season. To meet the increasing demand for their Butterfly Sachets the firm has laid down special machinery for their manufacture, and are offering the advantage thus gained to the trade by reducing the price from 4s. 6d. to 3s. 6d. per dozen large size, and from 3s. 6d. to 2s. 6d. per dozen small size, thus making it a very profitable line. Another very attractive line is their Poppyland Sachet, in beautifully shaded silk, in almost every colour of the rainbow, at 4s. 6d. per dozen. The Fairyland Sachet, made in delicately shaded crinkled silks and flowers, are very appropriately named. A number of these sachets artistically arranged make a most effective window display, and are sold at the low price of 4s. 6d. per dozen. Space will not permit of reference to all the lines that may be seen in Messrs. Marshalls' showroom, but several novelties deserve special mention as being quite a departure from the usual run of these goods. Perhaps the most appropriate for the season is the Plum Pudding Sachet, a miniature plum pudding, made in silk, and cleverly coloured to represent a rich fruity pudding, adorned with the orthodox sprig of holly (in miniature), mounted on a pretty little plate on which are various suitable greetings. Price 5s. per dozen, complete. The latest novelty of this firm, and one which is likely to "take on," is a Sachet Button. These are made in beautiful satins, exquisitely coloured with numerous designs to suit all tastes. They are made in two sizes—about the size of a sixpence and a two shilling piece—and each is a decided work of art. A great feature about them is that they are supplied with a detachable pin, which enables them to be worn as a badge for gentlemen, or can be sewn on ladies' garments like an ordinary button. They are supplied on attractive show-cards at 3s. 6d. and 2s. 6d. per dozen. There is also a very fine collection of Silk-lined Perfumery Cases, ranging from 6d. to 10s. 6d., and for chemists' convenience the firm is putting up assorted dozens. Quite a new line is that shown in the illustration, of Pot Pourri Jar. These are of beautiful translucent china, hand-painted, with charming delicate designs, unlike the usual daubs on inferior Japanese ware. They are filled with a very sweet-scented pot pourri, forming a really charming ornament. Prices vary from 6s., 9s., 12s., 15s. per dozen.

THE LANTERN SEASON.—Messrs. Perken, Son, and Rayment, 99, Hatton Garden, Holborn Viaduct, London, E.C., send a copy of their illustrated catalogue. It contains the latest prices and novelties in "Optimus" specialties, including photographic apparatus, magic lanterns, and optical instruments. Lanterns suitable for exhibitions in drawing-room and lecture hall are listed at prices ranging from 30s. (second quality 21s.) upwards. The 30s. "Optimus" Magic Lantern, made by the firm in London, and complete in outside box, which may be arranged for use as a table when displaying the lantern, appears to be very good value. It has a stout metal body, thoroughly well japanned, side and back doors, telescopic draw tube, with brass nozzle Petzval portrait combination front lens (achromatic), having rack and pinion for focal adjustment; pivoted flashing shutter and compound condensing lens, composed of two plano-convex lenses of four inches diameter. Light is obtained from a three-wick refulgent lamp, of the best London make, burning petroleum oil, each wick being two inches wide. The chimney is of Russian iron, securely joined without solder. Oxy-hydrogen gas can be fitted to the lantern at an extra cost of 16s., or in lieu of lamp 7s. 6d. A slide outfit for the above, comprising thirty-six coloured transparencies, twelve uncoloured photographic transparencies, coloured comic slipping slides, together with sliding carrier to display them in the lantern, is supplied at 30s. In addition to these the firm has a large selection of photographic transparencies, both plain and coloured, illustrating several thousand subjects. These slides are illustrative of the interesting and important features of various countries, the habits and customs of the people who inhabit them, the history—zoology, botany, geology, etc.—connected with each. Scientific subjects are also displayed, including among others anatomy and astronomy. Fairy tales and tales of adventure, comic, and in fact almost all subjects, are thus treated in pictorial form. Messrs. Perken, Son, and Rayment claim to be the makers of the only English animated photograph machine with an established reputation, £12,000 worth of machines and films having been sold with universal satisfaction. Chemists interested in the magic lantern trade should apply for the firm's catalogue of prices, etc.

FOOD AND DRUGS ACT PROSECUTIONS.

SPIRIT OF NITRE.—Eliza Noon, grocer, Nottingham Road, Ilkeston, was summoned at Ilkeston Petty Sessions on Friday, October 13, for selling sweet spirit of nitre not of the nature, quality, and substance demanded.—The analyst's certificate stated that the sample contained 86·5 parts of nitre and 13·5 parts of added water, its specific gravity being 873·5, instead of 84·2, as required by the B.P. The analyst also stated that the water could not possibly have got into the nitre by evaporation through leaving the bottle uncorked.—Defendant pleaded that she sold the nitre in the same condition as received from the wholesale dealers, but it had been in stock about eighteen months. She should take care not to sell it in future.—Fined 5s. and costs.

VINEGAR.—A case of some importance was tried at Hanley on Monday, October 16, the question at issue being, What is vinegar? Frederick Heath, grocer, Campbell-road, Stoke-on-Trent, was summoned for selling as vinegar an article which Mr. Jones, the county analyst, certified to be simply acetic acid diluted and coloured, whereas it was contended for the prosecution that vinegar ought to be the product of alcoholic and acetous fermentation.—In cross-examination, Mr. Jones, who was supported in his evidence by Mr. Otto Hehner, admitted that there was nothing in the sample analysed by him which might not be found in real vinegar.—On behalf of Messrs. Pickard and Co., manufacturing chemists, Sheffield, who supplied the extract from which the vinegar was made, and accepted all responsibility, it was urged that the extract was made from pure acetic acid of vinous origin, and was the product of alcoholic and acetous fermentation. Evidence in support of this contention was given by Mr. H. White, manager to the firm, Dr. J. Attfield and Dr. W. Hind, all of whom stated that the article sold by defendant was real vinegar, that there had been no adulteration, and that no material substance was absent.—The case was dismissed, defendant's costs, £19 17s. 6d., being allowed.

MILK OF SULPHUR.—On Wednesday, October 18, Dennis Whone, grocer, Micklethwaite, was summoned at Bingley Petty Sessions for selling milk of sulphur containing 49 per cent. of sulphur and 51 per cent. of hydrated calcium sulphate.—For the defence it was stated that the sulphur in question was bought as a pure article; the sample purchased by the inspector was the only lot sold, all the remainder had been destroyed.—The case was dismissed on payment of costs, £1 8s. 2d.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. E. M. Holmes, President of the British Pharmaceutical Conference, 1900, and Curator of the Pharmaceutical Society's Museums, has been elected an Honorary Member of the American Pharmaceutical Association.

Mr. Rowland Dixon, pharmaceutical chemist, has recently opened the Endcliffe Pharmacy, Hunter's Bar, Sheffield. The bottles, jars, and fittings have been supplied by Messrs. Ayrton and Saunders, Liverpool.

Marriages.

Ruff—Willis.—On October 19, at the Parish Church, Whitby, by the Rev. H. F. Fisher, William Ruff, M.P.S., chemist and druggist, Skinner Street, to Hannah, daughter of James Willis, master mariner, West Terrace, Whitby.

Oldham—Hargreves.—On the 25th inst., at St. James's Church, Rusholme, by the Rev. F. G. Buller, Harry Oldham, M.P.S., chemist and druggist, of The Brook, Liverpool, younger son of Joseph Oldham, Ash Mount, Gee Cross, to Annie, elder daughter of John Hargreves, of Longsight, Manchester.

Deaths.

Ernst.—On August 12, Dr. Adolphus Ernst, F.L.S., Professor of Natural History in the University, and Director of the National Museum, Caracas. Dr. Ernst had been a Corresponding Member of the Pharmaceutical Society since 1892.

Ridgley.—On October 19, Edward Barrance Ridgley, Chemist and Druggist, Ramsey. Aged 70.

Chadwick.—On October 21, George Nicholas Chadwick, Chemist and Druggist, Leeds. Aged 47.

Partnerships Dissolved.

(From the London Gazette.)

John Hurd-Wood and James Dunbar-Brunton, Surgeons, Apothecaries, and Accoucheurs, Manor House and Surrey House, Leatherhead, Surrey. Debts will be received and paid by John Hurd-Wood.

Ferdinand Sievers, Rudolph Sievers, and Albert Sievers, trading as Messrs. Sievers Brothers, Surgeon-Dentists, at Gloucester, Hereford, Stroud, and Kensington.

Henry Jones, Joseph Cort, John Rutherford, and Christopher Robert Slater (trading under the style of the Throstle Nest Soap and Chemical Company), Soap and Chemical Manufacturers, Blackburn. Debts will be received and paid by Christopher R. Slater.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Walter W. B. Sparrow, Surgeon, carrying on business at 25, Horninglow Street, Burton-on-Trent, and at Victoria Street, Blackburn.

Raphael Charles Humfrey, Chemist and Druggist, lately carrying on business at 10, Hewlett Street, Cheltenham, afterwards at 94, Hunter's Road, Birmingham, and now residing at Tintern, Cambridge Road, King's Heath, Worcestershire.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

October, 26, 1899.

Business in Drugs and Chemicals has been fairly active during the past week; the changes in values which have taken place have, however, not been very important. Star Aniseed Oil is dearer, both for spot and to arrive, and the more especially for shipment. Quicksilver is dearer, Mercurials very firm. Refined Camphor very firm in sympathy with the crude article. Bromides firm. Iodides fairly steady. Glycerine firm. Cod-liver Oil tending upwards. Opium, Morphia, and Codeia steady. Sulphate of Ammonia weak, and again rather lower. Quinine has assumed a somewhat undecided tone, but the late advance in value is fairly well maintained. Acid Carbolic dearer and in active demand. Phenacetin is also tending higher. Acid Tartaric and Cream of Tartar steady. Acid Citric dull and weak. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE.—There is no improvement to report in this article, which is weak at 9½d. to 1s. per lb., according to quantity and make.

ACID BORACIC—Is steady and without change in price.

ACID CARBOLIC—In good inquiry, the prices being 6⅞d. to 7¼d. per lb., according to quantity and make, for 35°-36° C. ice crystal in large bulk; 7⅜d. per lb. for the 39°-40° C. ice crystal, and 8⅜d. for 39°-40° C. B.P. quality in detached crystals. Crude 60° F., 2s. 3d. per gallon; 75° F., 2s. 9d. per gallon. Liquid 95-98 per cent. of pale straw colour, 1s. 3d. per gallon in 40-gallon casks; ditto 30 per cent. of dark colour, 10d. to 11d. per gallon.

ACID CITRIC—Continues dull and weak at 1s. 4d. to 1s. 4½d. per lb., according to quantity and make, for crystals in 5 cwt. casks.

ACID OXALIC—Is steady at price quoted last week.

ACID TARTARIC—Is fairly steady at unchanged price.

AMMONIA COMPOUNDS—Are without any special changes on the prices quoted last week. The tendency is, however, in some cases in an upward direction. Sulphate flat, quotations being: Gray, prompt, 24 per cent., London, £11 per ton; Hull, £10 7s. 6d.; Leith, prompt, £10 7s. 6d.; Beckton, prompt and November-December, £10 15s.; Beckton, terms prompt, £10 15s.

BORAX—Unchanged at steady prices.

BROMIDES—Are firm and in good demand at unchanged prices.

CAMPHOR.—The market for Crude continues firm, with sales of 100 cases China on the spot at 140s. There are buyers of Japan, October-December shipment, at 137s. 6d.; importers quote 147s. 6d. per cwt. c.i.f. For Refined the Hamburg makers advanced price, but still quote slightly lower rates than their English confréres, whose price remains at 1s. 8d. per lb. for Bells and Flowers in ton lots.

CHLORATE OF POTASH.—Crystals are still quoted 3¾d. for crystals and 3⅞d. per lb. for powder, spot, London.

CLOVES.—Privately Zanzibar are rather firmer, but little business doing. Small sales comprise spot at 3½d. to 3 5-32d., and March-May delivery at 3 9-32d. At auction 20 bales Zanzibar sold, ordinary dark at 3d. No Penang offered.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon. Benzole, 50 per cent., 10½d. per gallon; November-December, 11d. per gallon; 90 per cent., 9d. per gallon. Creosote, 3⅜d. per gallon. Crude Naphtha, 30 per cent. at 120°C., 5d. per gallon; Solvent Naphtha, 95 per cent. at 160°C., 1s. 6d. per gallon; 90 per cent. at 160°C., 1s. 3d. per gallon; 90 per cent. at 190°C., 1s. 2d. per gallon. Anthracene A., 4d. per unit; B., 2¾d. per unit. Pitch, 34s. per ton f.o.b. Tar, refined and crude, 12s. 6d. per barrel; 2d. per gallon.

COCAINE.—Makers' prices remain at 20s. 6d. per oz. for the Hydrochlorate in 200-oz. lots, and they are apparently not free sellers even at this price. There is, however, still a moderate quantity offering for second hands at 9d. to 1s. per oz. below makers' price. It is asserted that in view of the continued scarcity and dearness of the crude, a further advance on part of the makers of the refined article is by no means improbable.

CODEIA—Is very firm at 12s. 11d. to 13s. 6d. per oz. for the pure.

COD LIVER OIL.—Is at last tending upwards again, best non-congealing Norwegian oil being quoted 65s. to 67s. 6d. per barrel, in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—Steady and unchanged.

GAMBIER.—The market for arrival remains quiet, without business reported, quotations being rather easier at 13s. 3d. for October-December shipment.

GINGER.—Cochin in good supply, but firmly held, and only small lots sold at rather dearer rates. Of 1,656 bags and 98 cases offered, 305 packages sold, bold, some medium, roughly cut and scraped and little lined, at 76s.; ditto, more heavily lined at 73s. 6d.; washed medium and small, slightly mouldy, 25s.; mouldy ditto, 23s. 6d. to 24s.; small and ends, mixed with shrivelled, at 21s. 6d.; small and medium rough at 24s. 6d. Jamaica in slow demand. Of 71 barrels only 4 sold, ordinary dark at 48s., good common to fair at 55s. to 66s.

GLYCERINE—Is very firm, both for crude and for refined; there is, however, no change in price to report.

GUM TRAGACANTH.—A very strong market, and although new arrivals are coming in the selection continues poor.

IODIDES—Are fairly steady at prices hitherto ruling.

MERCURIALS—Are very firm, but so far makers have not advanced prices, which remain 3s. per lb. for Calomel, and 2s. 8d. per lb. for Corrosive Sublimate.

MORPHINE.—Makers are firm at 5s. per oz. for the Hydrochlorate powder in quantity.

OILS (ESSENTIAL).—Star Aniseed has been in good demand this week, and closes rather dearer at 6s. 2d. per lb. on the spot, whilst the quotations for arrival are higher. Peppermint: H. G. H. is firmer at 5s. 6d. per lb., with stronger advices from the other side. Japanese dementholised, 3s. 9d. per lb.; 40 per cent., 5s. per lb. Cassia quiet; 80-85 per cent., 4s. 6d. per lb. Citronelle, 1s. per lb. Lemongrass quiet at 3¼d. per oz.

OILS (FIXED) AND SPIRITS.—Linseed quiet and rather easier; on spot, pipes, London quoted £23 15s. to £24; barrels, £24 to £24 5s.; Nov.-Dec., £24; Jan.-April, £23 15s. to £24; May-Aug., £23 10s.; Hull, spot, naked, £23 5s.; Nov.-Dec., £23; Jan.-April, £23; May-Aug., £22 10s. Rape steady; ordinary brown, on spot, £24; Nov.-Dec., £24; Jan.-April, £24 5s.; refined, spot, £25 10s.; Ravison, naked, spot, £21 10s.; Nov.-Dec., £21 10s.; Jan.-Feb., £22. Cotton firm; London crude, spot, £17 5s.; Nov.-April, £17 5s.; refined, spot, £19 to £20, according to make; Hull, naked, refined, spot, £17; Nov.-April, £17; crude, spot, £16; Nov.-April, £16. Olive firm: Mogador, £33 10s.; Spanish, £34 10s.; Levant, £34. Cocoanut quiet; Ceylon, on spot, £25 10s.; Oct.-Dec., £24 5s., c.i.f.; Cochin, spot, £29 10s. to £30; in warehouse near, £27 5s., c.i.f.; Oct.-Dec., £26 15s.; Jan.-March, £26 10., c.i.f.; Mauritius, on spot, £25 10s. to £26, in hogsheads. Palm: Lagos, on spot, quoted £27 10s. Castor Oil firm; Belgian, first pressing, spot, £27; Jan.-June, 1900, £26 10s.; f.o.b. Antwerp, second pressing, £25 10s. per ton, ex-wharf; Hull, manufactured, guaranteed cold-drawn pure pharmaceutical, £30 per ton in barrels, 3⅝d. per lb. in cases; pure firsts, £27 10s.; seconds, £26 10s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3⅛d., ex-wharf, London. Lubricating Oil: Pale American, spot, 7s. to 9s.; black, 6s. 3d. to 8s.; Russian black, 5s. 6d.; pale, 7s. to 8s. 6d.. Petroleum Oil steady; Russian, spot, 5⅜d. to 5⅝d.; American, spot, 6⅞d. to 7d., and to end of March; water white, 8d. to 8¼d. Turpentine: A good business has been done, fully 5,000 barrels in various positions, at easier rates, the market closing steady, as follows: American, spot, 37s.; Nov.-Dec., 37s.; Jan.-April, 37s. 4½d.; July-Dec., 31s. 4½d. to 31s. 6d. Petroleum Spirit: American, 9¾d.; deodorised, 10d.

OPIUM.—The market continues firm for all kinds. For manufacturing descriptions a fair demand has prevailed, and retail sales of "Soft Shipping" have been made at full rates. Persian is firmly held, and has met a fair inquiry; but few sales of importance have transpired.

PHENACETIN.—The makers appear to be no longer eager to book orders at the low price of 3s. 3d. per lb. for crystals or powder, for quantity and bulk packing, and the general idea appears to be that we shall see higher prices ruling for this article before very long.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt.;

Bichromate, 3½d. per lb.; Bromide, 1s. 10½d. per lb.; Chlorate crystals, 3¾d.; powder, 3⅞d., spot, London; Iodide, 10s. 6d. per lb. Permanganate quotations vary according to make from 52s. 6d. to 62s. 6d. per cwt. for small crystals in 1-cwt. kegs; large crystals being quoted 5s. per cwt. more money. Prussiate, yellow, Beckton make, 7¾d. per lb.; other English makes, 8d. to 8½d.; red, 1s. to 1s. 2d. per lb., according to quantity, etc.

QUICKSILVER.—Importer again advanced his price to £9 per bottle, while it might be possible to buy from second hand at 6d. per bottle below importer's price.

QUININE—Has become somewhat quiet, with but little business passing in the speculative market, there being now sellers of B. & S. and or Brunswick brands of Sulphate for later delivery at 1s. 1¾d. per oz., while the makers still quote same at 1s. 2d. per oz. The future of the article remains somewhat of a puzzle even to those most likely to be able to form a correct and reliable opinion.

SCAMMONY.—Virgin: The entire stock of firsts has been cleared at 30s. per lb. Roots: Business done at 21s. per cwt.

SENNA.—A few small sales of Tinnevelly from second-hand this week at from 4½d. to 5d. per lb. About 200 bales are arriving at the end of the week.

SHELLAC.—A decidedly firmer tone prevails in this market. The demand on the spot continues steady, although not active, with moderate sales of Second Orange at the auction advance. For arrival no business is reported; there are first-hand sellers of TN November-January steamer at 63s. 6d., and buyers at 62s. c. f. and i. For March delivery 500 cases have been sold at 66s. to 65s. 6d., closing sellers at the lower rate.

SODA COMPOUNDS.—Crystals are still quoted 60s. per ton in barrels, and 57s. 6d. per ton in bags, ex ship Thames. Ash, £5 5s. to £7 per ton, according to percentage, etc. Bicarbonate, £7 10s. to £8 10s. per ton; ditto, fully bicarbonated, 22s. 6d. to 25s. per cwt. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic White, 70 per cent., £9 per ton; ditto, 60 per cent., £8. Hyposulphite (Antichlor.), 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate dearer at £8 2s. 6d. per ton on the spot for refined, and £7 17s. 6d. per ton for commercial.

SPICES (VARIOUS),—Black Pepper: 5 bags Ceylon sold, fair at 5⅝d.; 100 bags Penang bought in at 5¾d. White Pepper: 20 bags Ceylon sold, fair Coriander kind at 8⅝d., and 3 bags ordinary brown limed Penang at 8¼d. Chillies firm: 100 bags Japan sold, fair bright at 38s.; 16 bags African sold, good bright at 42s. to 44s. 6d.; 34 bales Zanzibar bought in at 40s. Capsicums dearer; 147 bales Bombay sold, fair red cherry pods at 34s. Cassia Buds: 10 boxes bought in at 120s. Cinnamon quiet; of 219 packages only 16 sold, without reserve, broken at 6d. to 7½d., and cuttings at 2¼d. Mace steady, but quiet; 4 cases Penang bought in good bold pale, slightly wormy, at 2s. 6d.; 5 boxes Bombay sold, small thin red at 1s. 4d., dark broken ditto at 1s. 3d.; 12 cases West Indian sold, good pale at 1s. 6d. to 1s. 7dd., fair red at 1s. 3d. to 1s. 5d., pickings at 1s. 2d. to 1s. 3d. Nutmegs lower; 36 packages Penang sold, 78's to 80's at 1s. 7½d.; 11 boxes Bombay sold, 86's at 1s. 5d., 102's at 1s. 2d., 108's at 1s.; 75 packages West Indian sold, good pale at 1s. 6d. to 1s. 7½d., fair red at to 1s. 8d., 85's at 1s. 4d. to 1s. 5d., down to 132's at 8½d. Pimento: of 915 bags, 545 sold, ordinary to fair 3⅛d. to 3 3/16d., good 3¼d. to 3⅜d.

SULPHONAL.—The two makers continue to quote 17s. per lb. for both crystals and powder, but there are still sellers of quasi from second-hand at tangibly melow makers' price.

THURSDAY'S DRUG SALES.

To-day's Drug auctions passed off with a fair amount of activity. Cardamoms and Senna sold well, prices being fully maintained, while Buchu Leaves were dearer. The following are some of the particulars:—

ALOES.—4 barrels fair gourds were bought in. 33 cases Cape practically all sold at 25s. for good hard bright down to 23s. per cwt. for inferior.

AMBERGRIS.—5 tins were all bought in, 90s. per oz. being price mentioned.

ANISEED.—30 bags fair Spanish sold at 25s. per cwt.

ANNATTO SEED.—2 bags sold at 1d. per lb.

ANTIMONY.—10 cases Japan crude (black sulphide) were bought in at £23 15s. per ton.

BALSAM PERU.—7 cases of fair quality were bought in at 7s. 6d. per lb.

BITTER ALMONDS.—4 cases Peach kernels, catalogued as above, were bought in at 40s. per cwt.

BUCHU LEAVES.—37 packages longs part sold at 9½d. per lb., balance being taken out at 10d. 3 bales brownish green sold at 10¼d. per lb.

CARDAMOMS—72 cases Ceylon Mysores chiefly sold at prices ranging from 1s. 8d. to 3s. 8d. per lb., prices realised in last sale being fully maintained. Fair seeds were bought in at 2s. 5d. per lb.

CASCARILLA BARK.—2 barrels of fair siftings were taken out at 25s. per cwt.

COLOCYNTH.—2 cases fair Turkey were bought in at 1s. 6d. per lb.

COLOMBO ROOT.—10 bags medium sorts fetched 25s. per cwt.

CUBEBS.—93 bags offered without reserve, part sold at 20s. to 20s. 6d. per cwt. for fair quality but somewhat dull and dusty, balance being taken out at 25s.

CUS CUS ROOT.—8 bales were all bought in at 17s. 6d. per cwt., for heavy, down to 12s. 6d., for inferior quality.

DILL SEED.—22 bags sold, subject to holders approval, at the low price of 8s. per cwt.

DRAGON'S BLOOD.—6 cases Zanzibar drop, which were catalogued, were sold prior to the auctions; 1 bag dust realised 30s. per cwt.; fair reeds were bought in at £12; seedy lump at same figure; part fine bright, part dullish, at £16; fair lump selling at £10 5s. per cwt. 3 cases fair lump offered without reserve sold cheaply at £6 17s. 6d. to £7 7s. 6d. per cwt.

ESSENTIAL OILS.—Of 8 cases West Indian Oil of Limes 7 cases were bought in at 2s. 9d. per lb., 1 case hand-pressed selling at 5s. 9d.. 30 cases somewhat inferior commercial quality oil Eucalyptus were bought in at 11d. per lb. 2 demijohns Bay oil sold at 7s. per lb.

GUM AMMONIACUM.—20 cases bought in at 20s. to 35s. for fair blocky with loose tears, down to dark blocky.

GUM ASAFETIDA.—144 cases offered were all bought in at 35s. to 51s. for common grey black and heavy and brown sandy block, part softish, and heavy to soft pinky and sandy block, one lot being held for 65s. per cwt.

GUM BENZOIN.—Ordinary Sumatra was bought in at £6 5s. per cwt. fair, seconds ditto at £8 to £8 10s. 14 cases Siam were all bought in at £11 to £12 per cwt. for good block and £15 per cwt. for part free, 2 cases selling at £13 and £13 7s. 6d. respectively; lower qualities at 50s. to 80s. 23 cases common Palembang, offered without reserve, sold at 20s. to 30s. per cwt.

GUM KINO.—2 cases black Cochin were taken out at 2s. 3d. per lb. 4 cases good ditto were held for 1s. 9d. per lb.

GUM MYRRH.—28 cases all sold at 26s. per cwt. for fair bright siftings, down to 13s. per cwt. for pickings.

GUM SANDRAC—17 casks were bought in at 50s. per cwt.

HONEY.—11 casks fair Jamaica sold at 22s. 6d. to 23s. per cwt. 1 cask Australian was held for 20s. per cwt., a bid of 18s. 6d. being declined.

IPECACUANHA.—5 bags fair Carthagena were bought in at 10s. 3d. per lb., 3 cases damaged selling at 9s. 6d. to 9s. 7d. 11 bags fair Rio part sold at 14s. 3d., picked ditto being held for 15s. 6d. per lb.

JALAP.—8 bales small Vera Cruz were taken out at 7d. per lb.

KOLA NUTS.—56 bags, very wormy, were taken out at 2d. per lb., 1 bag selling at this price.

MORPHINE.—1,100 oz., part Smith's and part Wink's hydrochlorate powder, in 100 oz. tins, part sold at 4s. 6d. per oz. nett.

NUX VOMICA.—80 bags, part consisting of good Cochin pickings, were bought in at 7s. per cwt.

OTTO OF ROSE.—2 vases were bought in at 15s. per oz.

QUINCE SEEDS.—2 bags, somewhat weevily, sold at 1s. 6d. per lb.

RHUBARB.—9 cases fair medium flat high dried of good colour were held for 9d. per lb. Wormy round Shensi was bought in at 1s.; sound, at 1s. 4d.; flat, ditto, at 1s. 1d. to 1s. 3d. 1 case round and flat at 9d. 2 cases flat sold, subject to approval, at 10½d. per lb.

SARSAPARILLA.—14 bales sold readily at 8d. to 9d. per lb. 13 bales Jamaica sold at 1s. 7d. per lb., down to 1s. 4d. for 2CCD. 10 serons Honduras bought in at 1s. 4d. to 1s. 5d. per lb.

SENNA.—158 packages Tinnivelly sold at about fully the prices realised at previous auctions, say 3d. to 5¾d. per lb., according to quality, colour, and condition. 2 bales Alexandrian, broken leaf, fetched 4½d. 7 cases ditto obonata leaf were bought in at 7d. per lb.

TURMERIC.—9 bags offered without reserve sold at 31s. per cwt.

VANILLINE.—745 oz. Vanilline crystals, catalogued as "manufactured by Société Anglo-Française des Parfums Perfectionnes, Limited," guaranteed 100 per cent. purity, offered without reserve, sold cheaply at 2s. to 2s. 3d. per oz., the price of the agents here for the makers being 2s. 8d. per oz.

VANILLOES.—5 tins Tahiti were bought in at 7s. 6d. to 8s. 6d. per lb. for 3 in. × 6 in., 4½ in. × 5½ in., 5 in. × 6 in., and 6 in. lengths. 11 tins Seychelles all bought in at 19s. to 20s. per lb. for 6½ in. by 7 in.

WAX.—Fair Zanzibar realised £6 5s. per cwt., 1 case medium Australian selling at £6 10s. Only fair East Indian was bought in at £6, good ditto at £7 7s. 6d. to £7 12s. 6d. Good West Indian sold at £6 15s., fair ditto at £6 10s., 2 bales South African at 5 17s. 6d., 7 bales good Honolulu fetching £7 7s. 6d. 2 casks fair Jamaica sold at £6 15s., fair Zanzibar at £6 12s. 6d. 9 cases Japan all sold at 30s. per cwt. for good squares.

Manchester Chemical Report.

October 25, 1899.

In addition to the fact that a considerable advance in the price of fuel has been reported during the past three weeks, there is the additional factor that there has been an increase in the volume of business caused by the increased orders in textile industries and for export. Caustic Soda for export has advanced about 5s. per ton, and in all departments Bleaching Powder has gone up about the same amount, being quoted £5 10s. per ton, soft wood casks, on rails. Ammonia Alkali, 58 per cent., is unchanged at £4 7s. 6d. per ton, on rails. Sulphate of Copper, owing to the decline in the metal, tends downwards, and may be quoted £25 15s. to £26 5s. per ton, best brands, delivered Manchester. Yellow Prussiate also, owing to the war in the Transvaal, has a downward tendency, and ranges from 7¼d. to 7½d. Sal Ammoniac has advanced to £40 firsts, and £38 seconds. Brown Acetate has advanced about half-a-crown per ton, Welsh and American, delivered Manchester. Alum is expected to advance. Aniline Oil 4½d., and Salt 4d. White Powdered Arsenic is easier at £19 to £19 5s. per ton, ex-ship, Garston.

Liverpool Market Report.

October 25, 1899.

Since last report, in consequence of the advance in Linseed, a correspondingly higher price is asked for Linseed oil, whilst Cottonseed oil and spirits of Turpentine are both a shade easier. Sales of Californian Honey are reported at recent full rates, as well as sales of Carnauba Wax at good figures. In seeds, Linseed has gone up very much, but Canaryseed continues steady. American Potashes are scarce, and have risen about 1s. per cwt. since last report. Higher prices are to be noted in Caustic Soda, Bleaching Powder, and Ammonium Muriate.

AMMONIUM SALTS.—Muriate, £23 10s. to £28 per ton. Sal ammoniac, 33s. to 35s. per cwt. Sulphate, £11 5s. to £11 7s. 6d. per ton.

BLEACHING POWDER—Has risen to £5 15s. per ton.

CARNAUBA WAX.—Good business has been done at 40s. 6d. to 41s. 6d. per cwt., some 200 bags having changed hands.

COPPER SULPHATE.—Though quiet, a better inquiry has been experienced of late, spot, £25 5s. per ton; Spring delivery, £25 10s. to £25 15s.

HONEY.—About 20 cases of first-rate Calfornian made 47s. per cwt.

OILS (FIXED AND SPIRITS).—Castor of all kinds has been slow of sale, though prices are well maintained. 100 cases of Calcutta shipment, September and October, sold at 3d. per lb., spot price 3 1/16d.; French, 2nd pressure, 2 tons sold for 2 5/8d. per lb.; 1st pressure, 2 15/16d. to 3d. per lb.; Madras, 2 3/8d. per lb. Olive has been only in limited consumptive demand in retail amount at £35 per tun for Spanish oil. Linseed has risen by successive advances from 23s. 6d. per cwt. to 25s. 6d., at which price it now remains very firm, with business done at this price. Cottonseed oil of Liverpool refining is now 19s. 6d. to 20s. per cwt. in export packages. Spirits of Turpentine have fallen to 38s. 3d. per cwt., but the amount of business passing is not large.

POTASH SALTS.—Potashes, 22s. 3d. to 22s. 6d. per cwt., due to the scarcity in America. Saltpetre has advanced to £21 5s. per ton, Karachi has been selling here at 17s. 9d. per cwt., ex store 5 per cent. refraction.

SEEDS.—Canaryseed of Turkish origin has sold to the extent of 400 bags, 100 of which went for 38s. per 464 lbs., and the balance on private terms. Linseed is exceedingly firm, with high rates asked limiting business. 200 tons of 4 per cent. Calcutta, October-November shipment, sold at 47s. 6d. per 416 lbs. 200 tons North American for shipment made 46s. 9d. per 424 lbs.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Caustic is dearer, 76 per cent. to 77 per cent., £9 12s. 6d.; 70 per cent., £8 15s. per ton. Nitrate is steady but slow of sale at 7s. 7½d. to 7s. 10½d. per cwt.

Publications Received.

Arithmetical Exercises in Chemistry: A series of Elementary Lessons on Chemical Calculations. By Leonard Dobbin, Ph.D., with preface by Professor Crum Brown. Third edition. Pp. viii. + 52. Edinburgh: James Thin, 54 and 55, South Bridge. 1899. From the Publisher.

Spencer's Disease: Dermatitis Multiformis Exfoliativa. By Walter Spencer, M.D. Pp. 16. London: Pewtress and Co., 28, Little Queen Street, W.C. 1899. From the Author.

Calendar for the Week.

Sunday, Oct. 29. 22nd after Trinity. Sun rises 6.49, sets 4.38.

Monday, Oct. 30. Sun rises 6.51, sets 4.36.

Tuesday, Oct. 31. Sun rises 6.53, sets 4.34.

Burnley and District Chemists' Association, Bull Hotel, Burnley, at 7.30 p.m.—General Meeting to receive Interim Report; discuss and move a resolution on Pharmaceutical Politics; confirm special resolutions, etc.

Pharmaceutical Society of Ireland, 67, Lower Mount Street, Dublin, at 8.15 p.m.—Opening of the Society's Schools, and Presentation of the Society's Silver Medal. Address by Dr. Ninian Falkiner on "The Education of the Pharmaceutical Chemist."

Wednesday, Nov. 1. Sun rises 6.55, sets 4.32.

Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., at 11 a.m. Meeting of the Council.

Thursday, Nov. 2. Sun rises 6.56, sets 4.30.

Chemical Society, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers on various subjects will be read by J. Lewkowitsch, F. G. Edmed, S. Ruhemann and H. E. Stapleton, B. Lean, M. O. Forster.

Chemists' Assistants' Association, Throne Room, King's Hall, Holborn Restaurant, London, W.C., at 8.15 p.m.—Annual Reunion (Smoking Concert).

Linnean Society, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers by Rev. Prof. Henslow, Dr. V. G. Ridewood, Harold Wager.

Liverpool Pharmaceutical Students' Society, Kardomah Oriental Café, 46, Church Street, at 8 p.m.—Smoking Concert.

Midland Pharmaceutical Association, Great Western Hotel, Birmingham, at 8 p.m.—Inaugural meeting. Address by Alderman W. Gowen Cross, J.P. (member of the Pharmaceutical Council).

Friday, Nov. 3. ● 10.27M. Sun rises 6.58, sets 4.29.

Glasgow Chemists' and Druggists', Assistants', and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—At Home.

Saturday, Nov. 4. Sun rises 7.0, sets 4.27.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Overstocked.—Iodoform Precip., 13s. Crystal, 12s.—Eastman, Forest Lane, Stratford E.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Otto Roses, virgin, ounce bottle, original (gilt), 25s. Lavender Oil, Mitcham 1896, lb. original bottle, capsuled, 25s., postage free. Cash.—Warnes, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. —Edward Peck, East Dereham.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Old Druggists' Crockery-ware wanted. Blue and white Syrup Jars, Ointment Pots, Oil Vases, and other Pharmaceutical Antiquities.—John Austen, Pharmaceutical Chemist, Dore, near Sheffield.

Recent Editions of Perkin and Kipping's Organic Chemistry; Clowes and Coleman's Quantitative Analysis; Maisch's Materia Medica.—Stoneman, 3, Strand, Dawlish.

Advertisements.

(Received too late for Classification.)

JUNIOR unqualified ASSISTANT wanted at once for temporary engagement until Christmas; no Sunday duty; time for study allowed; must have had some experience.—Apply, H., 61, Sandgate Rd., Folkestone.

LOCAL SECRETARIES OF THE PHARMACEUTICAL SOCIETY FOR THE YEAR 1898-99.*

Aberystwith ..... Wynne, E. P.
Abingdon ..... Smith, William F.
Altrincham ..... Burgess, A. H.
Andover ..... Bienvenu, J.
Arbroath ..... Naysmith, A.
Ashbourne ..... Wardle, T.
Ashby-de-la-Zouch .. Bullen, Geo. W.
Ashton-under-Lyne .. Phillips, J. J.
Aylesbury ..... Palmer, Edwin T.
Ayr ..... McGregor, Adam.
Banbury ..... Bartlett, Hubert.
Banff ..... Alexander, William.
Bangor ..... Jones, Owen.
Barnard Castle ..... Illsley, T. B.
Barnet ..... Young, R Fisher.
Barnsley ..... Billington, H. B.
Bath ..... Appleby, Edward J.
Beckenham, &c ..... Routley, E. W.
Bedford ..... Taylor, James B.
Belper ..... Burkinshaw, Wm. T.
Birkenhead ..... Morgan, H. B.
Birmingham ..... Thompson, Charles.
Bishop Auckland .... Dobinson, Thomas.
Blackburn ..... Critchley, Thomas.
Blackpool ..... Turver, C. H.
Blandford ..... Groves, Richard H.
Bodmin ..... Cardell, R. T.
Bolton ..... Knott, Percy.
Bootle ..... Wyatt, Harold, junr.
Boston ..... Grimble, Albert.
Bournemouth ..... Hardwick, Stewart.
Bradford (Yorkshire). Waddington, Alfred H.
Brecon ..... Charles, R. E.
Brentford ..... Wood, A.
Bridgnorth ..... Deighton, Thomas M.
Bridlington ..... Purvis, John B.
Brighton ..... Gwatkin, James Ross.
Bristol ..... Keen, Benjamin.
Burnley ..... Heaton, J. A.
Burslem ..... Oldham, Wm.
Burton-on-Trent .... Wright, George.
Bury St. Edmunds .. Clark, Owen A.
Buxton ..... Wright, Robert.
Cambornc ..... Tonking, Charles H.
Cambridge ..... Deck, Arthur.
Canterbury ..... Bing, Edwin.
Cardiff ..... Munday, John.
Carlisle ..... Hallaway, John.
Carmarthen ..... Lloyd, Walter.
Carnarvon ..... Jones, John.
Carshalton ..... Carter, Francis.
Castle Douglas ..... Veitch, Andrew.
Cheltenham ..... Barron, William.
Chester ..... Shepheard, Wm. F. J.
Chesterfield ..... Barfoot, John R. D.
Chichester ..... Long, William Elliott.
Chippenham ..... Coles, John C.
Chorley ..... Hill, William.
Cirencester ..... Griffiths, W.
Cockermouth ..... Scott, Walter S.
Colchester ..... Weddell, Arthur.
Coldstream ..... Elliot, William M.
Coventry ..... Hinds, James.
Crewe ..... Cumming, J.
Croydon ..... Clarke, Josiah.
Cupar ..... Robertson, Wm. G.
Dalkeith ..... Storie, Robert.
Darlington ..... Robinson, James.
Dartford ..... Goff, Walter E.
Darwen ..... Shorrock, Ralph.
Derby ..... Cope, John A.
Devizes ..... Edwards, T. R.
Devonport ..... Rendle, Richard H.
Dewsbury ..... Gledhill, Robert.
Dolgelly ..... Williams, Richd. W.
Doncaster ..... Stiles, M. H.
Douglas (Isle of Man) Radcliffe, John C.
Dover ..... Ewell, R. M.
Droitwich ..... Harris, Stephen.
Dudley ..... White, George.
Dumfries ..... Allan, William.
Dundee ..... Kerr, Charles.
Duns ..... Hounam, Christopher.
Ealing ..... Cleave, T. W.
Eastbourne ..... Senior, Joseph,
Eccles ..... Scholes, Wm. I.
Egremont ..... Ireland, E. J.
Elgin ..... Robertson, Alex.
Ely ..... Howard, Arthur.
Enfield ..... Goldby, Frank.
Epping ..... Rowland, Thomas W.
Exeter ..... Lake, John Hinton.
Falkirk ..... Forgie, Wm.
Falmouth ..... Blamey, John.
Finchley ..... Freeman, Fredk. Wm.
Flint ..... Jones, Owen W.
Folkestone ..... Knight, John.
Forfar ..... Fowler, George R.
Frome ..... Green, Edmund C. F.
Galashiels ..... Ross, William.
Glasgow ..... Watson, David.
Gloucester ..... Minchin, William.
Goole ..... Timm, Edmund.
Grantham ..... Whysall, William.
Gravesend ..... Clarke, R. Feaver.
Great Grimsby ..... Cook, Robert.
Great Yarmouth .... Poll, Wm. Sheppard.
Greenock ..... McNaught, Archibald.
Guernsey ..... Nickolls, John B.
Guildford ..... Long, Alex. J. T.
Haddington ..... Watt, James.
Halifax ..... Fielding, Clement.
Hanley ..... Cornwell, T. C.
Harrogate ..... Davis, R. Hayton.
Harrow ..... Gunn, Samuel John.
Hartlepool ..... Horsley, John.
Harwich ..... Bevan, William.
Haslingden, &c. .... Blayney, J. J.
Hastings and St. Leonards ..... Tharle, Charles A.
Heckmondwike ..... Stead, Walter.
Helensburgh ..... McMurray, James.
Hendon ..... Goldfinch, George.
Hertford ..... Durrant, G. R.
Hexham ..... Gibson, John Pattison.
Heywood ..... Hazlitt, Frank.
Hitchin ..... Ransom, Francis.
Honiton ..... Cross, H. F.
Horncastle ..... Kemp, Herbert W.
Hornsea ..... Morrow, Charles.
Huddersfield ..... King, William.
Hull ..... Bell, Charles Bains.
Huntly ..... Chalmers, George.
Hyde ..... Wild, Joseph.
Hythe ..... Lemmon, Robert Alce.
Ilkley ..... Worfolk, George W.
Inverness ..... Ogston, Wm.
Ipswich ..... Anness, Samuel Richd.
Jarrow ..... Rose, J. D., jun.
Jersey ..... Cole, George.
Keith ..... Pirie, James.
Kelso ..... Maxton, Wm. M.
Kendal ..... Severs, Joseph.
Kidderminster ..... Smith, Maurice.
Kilmarnock ..... Borland, John.
Kings Lynn ..... Palmer, W. J.
Kingston-on-Thames Walmsley, S.
Kinross ..... Dow, William.
Kintore ..... Keith, Alfred G.
Kirkcaldy ..... Storrar, David.
Kirkwall (Orkney) .. Stewart, Duncan.
Knaresborough ..... Lawrence, William P.
Knutsford ..... Silvester, Henry T.
Lancaster ..... Vince, James.
Leamington ..... Barrett, Josephus T.
Leeds ..... Reynolds, Richard.
Leek ..... Hartley, W. H.
Leicester ..... Goodess, Fredk. W.
Leith ..... Bowman, John.
Lewes ..... Higham, Thomas.
Lichfield ..... Perkins, John Jaquest.
Lincoln ..... Birkbeck, J. Thomas.
Linlithgow ..... Spence, Alex.
Liverpool ..... Smith, John.
Llandudno ..... Winter, J.
Llanrwst ..... Jones, Owen.
Louth ..... Dennis, F. Woodrow.
Ludlow ..... Woodhouse, George.
Luton ..... Duberly, George S.
Macclesfield ..... Pass, W. H.
Maidenhead ..... Walton, Ralph.
Maidstone ..... Corfe, A. Fred.
Malvern ..... Mander, Alfred.
Manchester, etc. .... Kemp, Harry.
Mansfield ..... Patterson, Douglas J.
March ..... Davies, Peter H.
Margate ..... Harvey, Wm. Sutton.
Market Harborough .. Nash, A. Hardstaffe.
Melton Mowbray .... Wing, G. N.
Merthyr Tydvil ..... Harris, Evan W.
Middlesbrough ..... Ellington, C. S.
Montrose ..... Davidson, Alexander.
Morecambe ..... Whitehead, Fredk. N
Morley (Div.) ..... Cussons, J. W.
Morpeth ..... Schofield, Fredk. E.
Motherwell ..... Scott, Robt. A.
Newark ..... Cherrington, Geo. W.
Newbury ..... Hickman, F. S.
Newcastle-on-Tyne .. Clague, Thomas M.
Newcastle, Staffs .... Poole, Weston.
Newport (Mon.) .... Garrett, Thomas P.
Newtown ..... Owen, Edward.
Normanton (Div.) .. Briggs, A. R.
Northampton ..... Bingley, John.
Northwich ..... Humphreys, Griffith.
Norwich ..... Sutton, Francis.
Norwood ..... Golds, Lewis G.
Nottingham ..... Sergeant, F. Ross.
Nuneaton ..... Iliffe, George.
Oban ..... Lawrence, Saml.
Oldham ..... Bates, Hiram.
Oswestry ..... Jones, Thos.
Oxford ..... Prior, George Thom
Paisley ..... Fraser, Alexander.
Peebles ..... Lindsay, Robert.
Pembroke Dock .... Bowling, J. H.
Penrith ..... Cowper, Joseph.
Penzance ..... Symons, Netherton H
Perth ..... Ayre, Geo. M.
Peterborough ..... Sturton, J. G.
Peterhead ..... Tocher, James F.
Petersfield ..... Edgeler, William B.
Plymouth ..... Hunt, Freeman W.
Pontypridd ..... Arnott, Daniel.
Portsmouth, etc. .... Brewis, Thomas.
Preston ..... Williamson, F. A.
Ramsgate ..... Baily, Edward.
Reading ..... Bradley, Chas.
Reigate ..... Woodward, Moses M.
Rhyl ..... Davies, Thomas M.
Richmond (Surrey) .. Parrott, John.
Richmond (Yorks.) .. Walton, E. B.
Ripon ..... Senior, William F,

* Local secretaries are appointed in all towns in Great Britain (except London and Edinburgh) which return a member or members to Parliament, and in such other towns as contain not less than three members of the Pharmaceutical Society.

Rochdale	Highley, William.	Stockport	Orton, Wm. Billing.	Wallasey District	Robinson, R. F. W.
Ross	Benjamin, J.	Stockton-on-Tees	Brayshay, Thomas.	Wallingford	Holme, H. T.
Rotherham	France, Joseph.	Stoke-on-Trent	Adams, Frederick.	Walsall	Elliott, E. Matthew.
Rothesay	Leith, Peter.	Stone, Staffs	Jacks, Frederick.	Walthamstow	Saunders, Arthur.
Runcorn	Weston, John H.	Stonehaven	Wood A. Lyon.	Warrington	Ashton, H. M.
Ryde	Pollard, Henry Hindes	Stonehouse (Devon)	Maitland, Frank.	Warwick	Pratt, C. P.
Saffron Walden	Gilling, John.	Stourbridge	Selleck, William R.	Waterloo	Pearson, William.
St. Albans	Ekins, Arthur E.	Stranraer	Ker, Richard.	Watford	Chater, Edw. Mitchell.
St. Andrews	Kermath, William R.	Stratford-on-Avon	Hawkes, Richard.	Wednesbury	Gittoes, S. James.
St. Austell	Binks, Burcham.	Streatham	Shacklock, J. H.	Weston-super-Mare	Cooper, John.
St. Helens	Wallbridge, J. G.	Sunderland	Ranken, Charles.	Whitby	Stevenson, John.
Salisbury	Atkins, Wm. Ralph	Swaffham	Christopherson, Fred.	Whitehaven	Kitchin, Archibald.
Scarborough	Whitfield, George.	Swansea	Grose, Nicholas M.	Wick	Banks, John.
Sheerness	Sturdy, Jno. R.	Swindon	Green, J. H. B.	Wigan	Phillips, Jonathan.
Sheffield	Squire, George.	Tain	Fowler, Donald.	Wimbledon	Babb, James.
Shipley	Dunn, Henry.	Taunton	Kirkpatrick, James.	Winchester	Chaston, Alfred Edw.
Shrewsbury	Cross, William Gowen	Teddington	Stacey, Peter.	Windsor and Eton	Oldham, William.
Sidcup, etc	Hanson, A. W.	Tewkesbury	Stroud, L. L.	Wokingham	Rednall, W. R.
Southampton	Dawson, Oliver R.	Tiverton	Havill, Paul W.	Wolverhampton	Gibson, Fredc. John.
South Molton	Brown, Sidney S.	Torquay	Shapley, Charles.	Woodbridge	Betts, A. S.
Southport	Righton, James.	Totnes	Morse, Charles H. S.	Worcester	Turner, Chas. W.
South Shields	Noble, John.	Tottenham	Tanner, Alfred E.	Workington	Mason, J. R.
Spalding	Bell, E. Wightman.	Tunbridge Wells	Hobbs, Alfred E.	Worthing	Cortis, A. Brownhill.
Stafford	Averill, John.	Twickenham	Peake, Henry F.	Wrexham	Caldecott, Clement G.
Staines	Callaway, J.T. (Ashford)	Uxbridge	Coles, Arthur.	Yeovil	Wright, Alfred
Stalybridge	Simpson, Allwood.	Ventnor	Littlefield, Wm. H.	York	Sowray, Joseph.
Stirling	Raffan, John	Wakefield	Chaplin, John Henry.		

ENGLISH NEWS.

LEICESTER CHEMISTS' SOCIAL UNION.—A smoking concert will be held at the Grand Hotel, Granby Street, Leicester, on Thursday, November 23, at 8.45 p.m., when all chemists, their managers and assistants will be cordially welcomed. No charge will be made.

ASAFETIDA IN CHURCH.—At Hadleigh, on October 26, William Wakefield, baker, was fined £5 and £3 15s. 6d. costs for indecent behaviour in Kettlebaston Church on October 4. On that day he attended a celebration of Holy Communion, taking with him a drain disinfector or tester, which was said to contain asafetida, and when the incense came round he liberated the contents of the bottle.

CHARGE OF ADMINISTERING BENZINE.—William Barton Miller appeared before the Salford Police Justices on October 27 on an adjourned summons for feloniously administering to George Hoskins a quantity of benzine. The men are cabdrivers, and on Sunday morning, October 8, were on the stand at the Exchange Railway Station. The defendant was engaged in cleaning his lamps, and there was a bottle of benzine near him. Hoskins said he was thirsty and would go for a drink of water, when, as he alleged, Miller offered him the bottle, saying that it was whisky. Hoskins drank some of the liquid, and became so ill that Miller had to drive him home. He was attended by a doctor, and quickly recovered. Mr. Makinson, the stipendiary magistrate, in dismissing the summons, said the defendant had been guilty of a contemptible and dangerous act, and if any serious bodily harm had resulted from it he would have been committed for trial. He hoped this would be a warning to him.

DAMAGES FOR ACCIDENTAL POISONING.—At Malton County Court, on October 25, before his Honour Judge Raikes, a boy named Thomas Slack, a groom, of Norton, was awarded £5 damages against John Spanton, chemist, Norton, for suffering caused by defendant's negligence in supplying him with a noxious drug. It was alleged that plaintiff suffered from poisoning by atropine, and that it must have been supplied to him in a powder which he got at defendant's' shop, where he went for something to cure a headache.—Defendant swore that he had never had any atropine in his shop, and that what he supplied was eight grains of antifebrin.

ECCENTRIC ADVERTISING.—Oliver Charles Hayward, manufacturer of mechanical advertisements, of the Greyfriars' Works, King Street, sued Merton Dodge, chemist, of 139, Strangeways, Manchester, at Norwich County Court, on October 24, before his Honour Judge Willis, to recover £3 1s. 6d.—Mr. E. A. Kent was for plaintiff, and Mr. E. Reeve for defendant.—Plaintiff's case was that he let defendant have one of his eccentric reading advertisement machines at 10s. a month. The machine had a dial face with a large hand, which pointed in an eccentric manner to the reading painted on the circumference. The contract signed stipulated that the machine could be purchased within three months for £5 10s., with hiring money deducted. Defendant had kept the machine six months without giving notice of intention to buy it; hence the claim for £3 for hire, and 1s. 6d. for painting the reading round the dial.—The defence was that plaintiff's traveller represented the purchase price of the machine as £2, and that defendant decided to buy.—His Honour, however, was not satisfied that such was the case, and gave judgment for plaintiff for the amount claimed. He also directed defendant to return the machine at once.

FARMERS POISONED BY SHEEP WASH.—On October 11, Geo. Bowe, of Cockermouth, and John Sisson, of Loweswater, attended the fair at Cockermouth, and as they remained late they hired a trap and a man to drive them home. They left Cockermouth shortly after eleven p.m., accompanied by a man named Benjamin Thompson. Before starting Sisson had procured a bottle of Wilson's foot-rot liquid, and also a bottle of whisky. When about a mile out on the road Bowe asked Sisson for a drink, and Sisson handed him the bottle containing the sheep wash. Bowe took a sip, and handed the bottle to Thompson, who also drank from it. Sisson would also have drank from the bottle had it not been for the driver, Patrick Redmond, who, detecting a strong smell, knocked the bottle from Sisson's hand. Redmond examined the bottle, and finding it labelled "Poison," he at once turned round and drove back to Cockermouth. All three men were very drunk. Bowe and Thompson were taken to the surgery of Dr. Hutchinson, Cockermouth, and remedies were applied. Both men were in a very serious condition, and continued so until Thursday morning, when Bowe died from the effects of the poison. At the inquest evidence was given by Redmond (the driver), Sisson, and Dr. Hutchinson, and the jury returned a verdict of "Death from misadventure."

THE SACCHARIN PATENT.—The action of the Saccharin Corporation *v.* The Chemical and Drug Co., Ltd., came on for trial before Mr. Justice North in the Chancery Division, on Tuesday, October 31, with a large array of counsel and scientific witnesses on each side. Mr. Fletcher Moulton, Q.C., Mr. Cripps, Q.C., Mr. Graham, and Mr. Colfax represented the plaintiffs, and Mr. Roger Wallace, Q.C., Lord Robert Cecil, Q.C., Mr. Walter, and Mr. Laine the defendants.—In opening the case Mr. Moulton said the plaintiffs were the owners of a great many patents in connection with saccharin, but it had been decided to restrict the contest to one patent, that of Prosper

Monnet, No. 25,273, of 1894, which would very materially shorten the proceedings, and, on the other hand, the defendants admitted that they had imported and sold goods manufactured under that patent. It would be simply, therefore, a question as to the validity of this patent, which related only to one stage in the manufacture of saccharin, viz., the production of orthotoluene sulphochloride. Formerly that was made by acting on toluene sulphonic acid with phosphorus, but that was a costly and wasteful process, as it gave rise to a larger percentage of *para*-toluene sulphochloride, which was useless, than of the *ortho* salt, which alone was valuable. This patent gave a process for making the ortho sulphochloride direct from toluene, without passing through the sulphonic acid stage; it avoided the use of phosphorus, and acted on toluene with a large excess of chloro-sulphonic acid at a temperature of 0° to 5° C., whereby the whole of the toluene was converted into sulphonic chloride, the greater portion of which was of the ortho or liquid variety.—Professor Dewar, Dr. F. W. Passmore, and Dr. Liebmann were witnesses for the plaintiffs, and they having given evidence, Mr. Wallace opened the case for the defendants, but had not proceeded far when the case was adjourned. His contention would be that the patentee had only combined the information contained in a paper in the *Berichte* by Claesson and Wallin with common knowledge, and therefore the patent was invalid.

Medicated Wine.—On November 1 the appeal of the plaintiffs in the action of Coleman and Co., Limited, *v.* John Brown and Co., from the refusal of Mr. Justice North to grant an injunction restraining defendants from selling sherry under the name Vincalis or any name so similar in sound as to be calculated to lead purchasers to believe they were obtaining plaintiffs' Wincarnis, which is a mixture of wine and Liebig's Extract of Meat, was heard before the Master of the Rolls, Sir F. Jeune and Lord Justice Romer. It was admitted there was no similarity of get-up, but it was contended that as the names were so much alike chemists and others were likely to be misled.—Without calling upon counsel for the respondents, their lordships dismissed the appeal with costs.

Western Chemists' Association (of London).—The following have been elected officers of the Western Chemists' Association of London for the ensuing year:—President, Mr. J. F. Harrington; Vice-President, Mr. H. Cracknell; Treasurer, Mr. J. H. Mathews; Hon. Secretaries, Mr. W. J. I. Philp and Mr. A. G. Worsley. The ninth annual dinner of the Association will take place at the Café Royal, 68, Regent Street, W., on Wednesday, November 15, at 7 p.m. The cost of tickets will be 7s. 6d. each, exclusive of wine, and should be obtained, not later than November 13, from the hon. secretaries, Mr. W. J. I. Philip, 34, High Street, Notting Hill, W., and Mr. A. G. Worsley, 135, Ladbroke Grove, Notting Hill, W.

C.A.A. Cinderellas.—We are asked to announce that the fifth series of Cinderella dances in connection with the Chemists' Assistants' Association will be held at the Dorset Hall, Portman Rooms, Baker Street, London, W., on Thursday, December 7, this year, and on Thursdays, January 4 and March 22, 1900. The prices of the tickets will be as follows:—Double, admitting lady and gentleman to the series of dances (patrons and members), 10s. 6d., (non-members) 12s. 6d.; single, admitting gentleman to the three dances, 7s. and 8s. respectively; for one dance only, double (patrons and members), 4s. 6d., (non-members) 5s.; single (gentleman), 2s. 6d. and 3s.; single (lady), 2s. As the committee have decided to limit strictly the number of tickets issued, early application should be made to the hon. secretaries, Mr. C. Morley, 3, Bucklersbury, E.C., and Mr. H. H. Robins, 113, Ridley Road, Forest Gate, E.

Freemasonry.—At the Annual Festival and Installation Meeting of the St. Peter's Lodge of Freemasons, Market Harbro', held at the Three Swans Hotel, Market Harbro', on Friday, October 27, Bro. Samuel Cleaver was elected Worshipful Master. Mr. Cleaver is a Leicester, chemist in business in Wharf Street, and is a member of Committee of the Leicester Chemists' Social Union. It is gratifying to the trade in Leicester to know that two of its members have occupied positions as W.M.'s, namely Bros. Joseph Young and S. Cleaver.

Action for False Imprisonment Against a Chemist.—At Brompton County Court on Monday, October 30, before Judge Stonor and a jury, Miss Edith Little (18), of West Brompton, London, S.W., claimed £50 damages from Mr. Thomas F. Shephard, pharmaceutical chemist, 260a, Fulham Road, S.W., for alleged false imprisonment.—Mr. Clarke was counsel for the plaintiff, and Mr. Brandon, counsel, defended.—Miss Little stated that on September 2 last she, with a Miss Channon, went to the defendant's shop for some caustic. While being served she took up a small bottle of scent from the counter, simply to look at it. No sooner had she replaced the bottle than defendant's son told his father that she had stolen the scent. The defendant then accused her of theft and sent for a police-constable. She was charged, and locked up from Saturday night till the following Monday morning, when she was brought before the magistrate. The defendant, however, was only represented at the Court by his son, and she was remanded on bail. When the case again came before the Court on the following Wednesday there was no one to prosecute, and the case was dismissed.—Other evidence having been given for the plaintiff, Thomas Frederick B. Shephard, son of the defendant, stated that he distinctly saw the plaintiff take the bottle and put it in her pocket. When first accused she denied having taken the bottle, but as soon as a policeman was mentioned she took the scent from her pocket, saying that she did not really mean to steal it.—Mr. Thomas Frederick Shephard, the defendant, said that although he did not see the young lady put the bottle into her pocket, he saw her take it out. The reason he did not press the charge was that he imagined the theft might be the young lady's first offence, and he did not wish to injure her, and after she had been locked up from Saturday night until Monday morning he thought she was sufficiently punished.—The jury, after brief deliberation, found in favour of the plaintiff, assessing the damages at £25.—His Honour gave judgment accordingly, allowing costs.

Coroners' Juries and the Sale of Rat Poison.—The *Daily Mail* reports that on Tuesday, October 31, inquests were held by London coroners upon two girls not out of their teens who had committed suicide. Irregular employment and frequent headaches combined to render unhappy the life of Grace Rebecca Rowley, a machinist of nineteen, who lived at Globe Road, Forest Gate. Twice she had tried to destroy herself, and a third attempt made with rat-poison bought at a chandler's shop proved fatal—she had taken enough to kill a dozen people. The jury requested the coroner to write to the Home Office urging that restrictions should be imposed on the sale of such poisons. A still younger girl, Florence Eason, aged seventeen, who lived at Brabazon Street, Bromley, poisoned herself in the same way, after a quarrel with her young lover. The jury in this case expressed themselves just as strongly against the unrestricted sale of rat-poisons containing strychnine and phosphorus.

FOOTBALL.

Metropolitan.—On Saturday, October 28, at Wormholt Farm, Shepherd's Bush, the football (Association) teams of the Metropolitan College of Pharmacy and Kensington Rangers Reserves met in a friendly game, the final result being a win for the Metros by four goals to two.

Manchester.—A team of students from the Northern College of Pharmacy met a mixed team of medicos and pharmaceuticals from Owens College on Tuesday, October 31, at Longsight. A pleasant game resulted in a win for Owens, 8 goals to nil.

"Square" Football.—It would have rejoiced the hearts of old "Square" students, and especially old "Square" footballers, to have seen the exhibition given on Saturday at Shepherd's Bush by the team picked from their old school. It was the occasion of the first contest for the possession of the cup offered at the end of last session by Mr. Watson Will for competition between the leading schools of pharmacy in the metropolis, the opposing team coming from the London College of Pharmacy. The weather was all that could be desired, and much enthusiasm was displayed, owing to the presence of a fair contingent of onlookers from both schools, including the principal of the above-mentioned college, who liberally showed their appreciation of any smart pieces of work. The ball was started about three o'clock, the "Square" captain winning the toss, and for the first ten minutes the play was confined to the centre of the field, but the "Square" forwards pressing on a goal was soon registered, which was quickly followed by a second, chiefly due to the smart shooting of the forwards and the fine kicking of the

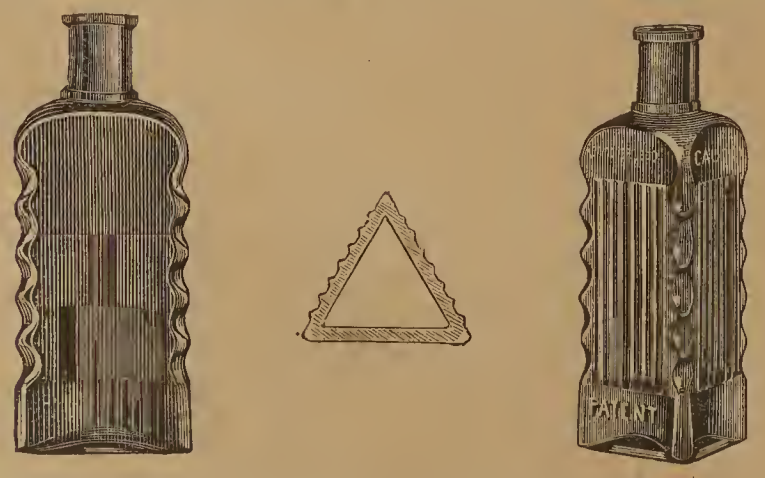
"Square" backs, which kept the ball continually in the enemy's quarters. On half-time being sounded, five goals had been registered to the "Square's" account and not one scored against. Changing over, Owen and Garsed in the front line were replaced by Fox and Jones, the two "Square" backs, and two players of whom the "Square" may well be proud, being equally proficient in any part of the field. From this point to the end of the game the ball was continually kept in our opponents' quarters, and to an onlooker the game must have appeared to be one continual succession of goal kicks and shots at goal, most of the play being in the hands of the forward line, who added three more goals to the already heavy score, making a grand "Square" total of eight goals to nil. In conclusion, it must be said that although five goals were scored in the first half they were very hardly contested, and many a close tussle ensued before the ball was finally lodged in the net; but in the second half the South Londoners seemed to lose heart, and were chiefly contented to protect as much as possible their own goal. The "Square" team was as follows:—Goal, Hirst; backs, Fox and Jones; half-backs, Collinette, Spurge, and Gray; forwards, Warren, Hills, Owen (captain), Garsed, and Godolphin.

SCOTTISH NEWS.

EXTENSION OF PREMISES.—Messrs. W. and R. Hatrick and Co., Renfield Buildings, Glasgow, after an absence of a year and a half, have now got thoroughly settled in their new premises, which stand on the site of the old building, and have been erected and fitted up in as efficient and convenient a form as their experience and business requirements suggested. Renfield Buildings is situated at the head of Renfield Street, and occupies a frontage of about 120 feet. The building consists of cellarage covering the entire area, and five storeys above, the floorage of the building being about 38,000 square feet. The ground floor comprises the offices, packing and dispatch, cart entry, and goods receiving departments. On the first floor is the working counter of the wets, dries, and patents, running from one end of the building to the other. The second floor holds the glass department, sundries, packing room, sorting room, and stocks of dries and wets departments. The bins, standards, etc., on these floors are all conveniently arranged so as to keep stocks in the best condition, and with a view to the speedy execution of orders. Each of these floors has a large fireproof room, in which the most valuable goods and special chemicals are kept. The third floor holds original packages only, but will probably be partly utilised later on for light machinery for manufacturing. The laboratory occupies the greater part of the top floor, and the apparatus, etc., for this is being transferred from the premises at Bishop Street. A hydraulic hoist runs from cellar to attic, and hot water pipes run through the whole building. The premises are lighted throughout by electricity. A complete fire extinguishing sprinkler installation has also been put in.

TRADE NOTES.

AN IMPROVED DISTINCTIVE POISON BOTTLE.—Mr. James Wilson, "Fassiefern," Holly Park, Crouch Hill, London, N., submits a specimen poison bottle which he has recently patented. The object



of the inventor has been to produce a poison bottle readily distinguishable both by sight and by touch from other bottles. In this he has succeeded, and the result is what may appropriately be termed "a safe poison bottle." It is triangular in form, having two sides corrugated and the words 'Caution" and "Not to be Taken" moulded near the shoulder; the third side is left plain for a label, and the edges are serrated in such a manner that it is impossible to grasp the bottle without noticing how it differs from other bottles. It is made in amber colour, actinic green and blue glass.

POCKET MEDICINE AND HYPODERMIC CASES.—Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., are introducing for the Christmas season a series of beautifully finished pocket medicine cases, made in various kinds of leather, including brown or green seal, levant morocco, crushed morocco, brown or green crocodile cow-hide, and lizard-skin; cases are also made of aluminium and silver. These, as well as the plain leather cases, will be found to make most handsome Christmas and New Year's presents for medical men. The one shown in the illustration is a

hypodermic case, made of solid silver, gilded inside, and contains a solid silver patent syringe (capacity 20 min.) with detachable finger grips, two platino-iridium needles, two glass-stoppered and capped bottles, fourteen tubes of hypodermic tabloids, one tube of mercuric potassium iodide soloids. The needles are enclosed in a separate compartment, which effectually protects them from damp and injury. Another very neat and compact hypodermic case is made of nickel-plated metal and shaped like a mussel-shell; others are made of fluted or hammered aluminium, fitted with hypodermic and ophthalmic drugs in tabloid form, camel-hair brushes, pair of minute forceps, etc. The chief feature of these metal cases is that they may be thoroughly sterilised. Various improvements have also been made in the larger class of medicine cases. An illustrated list will be sent by the firm to chemists on request.

Deaths.

Blackhall.—On October 18, W. J. Blackhall, who for the last twenty-three years has represented the firm of Messrs. Burgoyne, Burbidges and Co., wholesale and export druggists, London, in Chiua, Japan, etc. Mr. Blackhall died on board the "Sunda" homeward bound, and was buried at sea.

Bindloss.—On October 26, at Ventnor, Herbert Meynell Bindloss, chemist and druggist, Harlesden, youngest son of the late G. F. Bindloss. Aged 30.

Williams.—On October 29, William Lloyd Williams, Pharmaceutical Chemist, Dartford, Kent. Aged 38. Mr. Williams, who had been a member of the Pharmaceutical Society since 1883, was born at Nutfield, Surrey, but from an early age lived at Buckley, Flintshire, and was educated at Hawarden Grammar School. His pharmaceutical training commenced with an apprenticeship of four years' duration in Wrexham, and was continued in the Pharmaceutical Society's School, where in 1883 he obtained Certificates of Honour in Botany, Materia Medica and Chemistry. After passing the Major examination, he obtained the Society's Silver Medal. He was subsequently engaged for a year and half in original investigations in the Research Laboratory. In 1887 he entered upon a further course of study under Professor Meldola at the Finsbury Technical College, where he obtained the first prize. In 1889 he became a Fellow of the Institute of Chemistry; he was also a Fellow of the Chemical Society and a member of the Society of Chemical Industry. At one time he was President of the Chemists' Assistants' Association. His practical experience was gained in dispenserships at Malvern, Llandudno, and London, and he was also managing assistant in important dispensing businesses at Hyères (France), Bristol, Bournemouth, and London. In 1890 Mr. Williams entered the employment of Messrs. Burroughs, Wellcome and Co., London, in a minor position, and by sterling merit and ardent devotion to his duties worked himself up step by step to the important position of assistant manager of works, which position he held, with great satisfaction to the firm and credit to himself, at the time of his death.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

November 2, 1899.

While business in Drugs and Chemicals has not been very active during the past week, there has nevertheless been a moderate number of orders passing, while some of the changes in value which have taken place have not been quite unimportant. Refined Camphor has had two successive rises of a penny per lb. during the week, while the price of Crude Camphor has also advanced, having naturally been more or less the cause of the advance in price of the refined article. The position of Orris Root has also undergone a radical change, while Quicksilver and Mercurials are also again dearer. Acid Carbolic is also dearer. Phenacetin decidedly firmer. Quinine has also taken a turn for the better. Cod Liver Oil firmer and somewhat higher in price. Glycerine slightly weaker. Opium quiet. Morphine steady. Codeine firm. Acid Citric weak. Acid Tartaric and Cream of Tartar steady. In consequence of Thursday next, 9th inst., being Lord Mayor's Day, there will be no drug auctions in London next week. The following are the prices actually ruling for some articles of principal interest:—

ACETANILIDE—Continues very weak, with pressure to sell on part of makers, one agent quoting as low as 9½d. per lb.

ACID BORACIC—Steady, at 25s. per cwt. for powder, and 27s. per cwt. for crystals.

ACID CARBOLIC.—Market very active, the prices being 7d. to 7½d. per lb., according to quantity and make, for the 35°-36° C, ice crystal, in large bulk; 7⅝d. per lb. for the 39°-40° C, ice crystal, and 8⅝d. for 39°-40° C., B.P. quality, in detached crystals. Crude, 60° F, 2s. 4d. per gallon; 75° F, 2s. 10d. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 4d. per gallon, in 40-gallon casks; ditto, 30 per cent of dark colour, 11d. to 1s. per gallon.

ACID CITRIC—Is quiet and weak at 1s. 4d. to 1s. 4½d. per lb. for crystals in 5 cwt. casks.

ACID OXALIC—Makers still quote 3d. to 3¼d. per lb. nett, free, delivered, London.

ACID TARTARIC.—English is quoted 1s. 1d. per lb. on the spot and Foreign 1s. 0¼d. per lb., c.i.f.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, 3d. to 4d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 30s. to 32s. 6d. per cwt.; ditto, commercial, 27s. 6d. per cwt. Sal Ammoniac, firsts, 35s. per cwt.; seconds, 33s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate dull; grey, prompt, 24 per cent., London, £10 12s. 6d. to £10 15s.; Hull, £10 12s. 6d. to £10 15s.; Leith, prompt, £10 12s. 6d. to £10 15s.; Beckton, prompt, £10 12s. 6d.; Beckton, terms, prompt, £10 11s. 3d. Sulpho-Cyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is unchanged, at £39 to £40 per ton, while crude Japan (Black Sulphide) is dull and weak at £23 to £23 10s. per ton.

ASAFETIDA.—The market is quiet. A few cases have been sold at 65s. cwt. for darkish gum, some loose.

ASHES.—Pots, 24s. 6d.; Pearls, 30s.

BELLADONNA ROOT.—Really good quality is exceedingly scarce, and high prices, up to 45s. per cwt., are asked for the little that is to be had.

BISMUTH—Is unchanged, at 5s. per lb. for the commercial quality of the metal, 5s. 1d. per lb. for the Subnitrate, and 5s. 8d. per lb. for the Subcarbonate.

BLEACHING POWDER (CHLORIDE OF LIME)—Is still quoted £6 10s. per ton for English make.

BORAX—Unchanged, at 16s. per cwt. for crystals, and 16s. 6d. per cwt. for powder.

BROMIDES—Are very firm at 1s. 10½d. per lb. for Potassii Bromid, 2s. 2d. per lb. for Ammon Bromid, and 2s. 1½d. per lb. for Sodii Bromid, Bromine being quoted 2s. 2d. to 2s. 3d. per lb., according to quantity, in 60 lb. cases.

BUCHU LEAVES.—Short green are much wanted, but stock is exhausted. Long green are held for 9d. per lb.

CAMPHOR.—The market for Crude has shown increased firmness, and a large business has been done at dearer rates, comprising about 1,000 piculs, chiefly Japan, on the spot at 150s.; also China at 145s. and buyers, and Japan October-December shipment at 150s. c.f. and i. And there are now buyers of Japan on spot at 152s. 6d. per cwt., and of China at 147s. 6d.; but holders ask extreme rates. The English refiners have again raised their price 1d. per lb. for Bell and Flowers in ton lots, while to-day it is reported that the German refiners have also advanced their price to same figure.

CINCHONA BARK.—The exports of Java bark for October were 940,000 Amsterdam lbs., against 969,000 Amsterdam lbs. last year, making a total for the 10 months of 9,402,800 Amsterdam lbs., against 8,895,000 Amsterdam lbs. in 1898. It is reported that to-day's bark sales in Amsterdam show an advance in price of 15 to 25 per cent., which would point to the probability of an advance in makers' price for sulphate of quinine.

CLOVES.—At auction no Zanzibar were offered, and 35 cases picked Penang were bought in at 6d. to 7d. Privately, Zanzibar opened firm and dearer, but for delivery the market has since become dull and easier. Business has been restricted, comprising 800 bales, on spot, at 3 5/16d., Oct.-Dec. delivery at 3 11-32d., and Jan.-March at 3 7/16d., closing sellers Oct.-Dec. at 3 5/16d., Jan.-March at 3⅜d., and March-May at 3 13-32d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon. Benzole, 50 per cent., 10½d. per gallon; 90 per cent., 9d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C, 5d. per gallon. Solvent Naphtha, 95 per cent. at 160° C, 1s. 6d. per gallon; 90 per cent. at 160° C, 1s. 3d. per gallon; 90 per cent. at 190° C, 1s. 2d. per gallon. Anthracene A, 3¾d. per unit; B, 2¾d. per unit. Pitch, 34s. per ton, f.o.b. Tar, refined and crude, 12s. 6d. per barrel, 2d. per gallon.

COCAINE.—There are still a few sellers of best brands in limited quantity at 19s. 6d. per oz., makers' price being very firm at 20s. 6d. per oz. in 200 oz. lots, they still not being free sellers at this figure.

CODEINE—Is very firm at 12s. 11d. per oz. for 300 ounce lots of the pure and 1s. per oz. less for the muriate, sulphate, and phosphate salts.

COD LIVER OIL—Is decidedly firmer at 66s. to 70s. per barrel, according to brand, for best non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

COLOCYNTH.—Turkey apple is in small supply, and holders are firm at 1s. 7d. to 1s. 8d. lb.

CREAM OF TARTAR.—First White Crystals are still quoted 74s. per cwt. on the spot; Powder, 76s.; ditto, 95 per cent., 77s. per cwt.

CREOSOTE FROM BEECH WOOD TAR—Is advancing in price, one agent for a firm of manufacturing chemists, who was lately hawking the article round at about 2s. 2d. per lb., now quoting 3s. 2d. per lb.

GALLS.—China remains quiet, but steady. Fair, usual shape, sold on the spot at 60s.; for arrival the nominal quotation is 57s. c. f. and i. Persian are firm, with a good demand, business of large extent in Blues having resulted at very full prices; fair sales of Greens have also been made at 57s. 6d. per cwt. Smyrna and Morea, little offering.

GINGER.—At auction the fair supplies of Cochin met a moderate demand, bold cut kinds being rather dearer, other kinds steady; out of the 666 bags and 68 cases offered, 243 packages were sold of bold and medium, roughly cut, scraped and limed, at 77s. 6d.; medium cut and scraped, 56s.; ordinary small at 33s.; washed rough, medium and small bright, rather wormy, at 25s. to 25s. 6d.; ditto, little mouldy and wormy, at 23s.; common dark shrivelled small and ends, ditto, at 18s. Bengal dull of sale. 87 bags were offered and bought in at 21s. Jamaica: Out of the small supply, consisting of 52 barrels, 30 barrels sold, good common to middling, at 56s. to 60s.

GLYCERIN.—The Market for Crude, after being very firm at £40 to £42 for the quality most suitable for refining purposes, has receded to £39 to £40 per ton, the Refined being also a shade lower

at 56s. to 58s. 6d. for English and 55s. to 65s. per cwt., according to brand, for German; for best white double-distilled, chemically pure, 1260° quality in tins and cases (2 or 4 × 56-lb. tins in a case.)

HYPOPHOSPHITES—Are unchanged, makers' prices being 3s. per lb. for the Lime, Soda, and Potash Salts.

IODIDES—Are steady at unchanged prices, say, 10s. 6d. per lb. for Potassii Iodid., 11s. 10d. per lb. for Sodii Iodid., 13s. 10d. for Ammon. Iodid., 13s. 10d per lb for Iodoform, crystals, power, or precipitated, 12s. per lb. for Resublimed Iodine, and 7½d. per oz. for Iodine Crude.

IPECACUANHA.—A small business in Rio at 14s. to 14s. 3d. per lb. Carthagena is quiet at 10s. per lb. nominally.

LICORICE ROOTS.—Supply of ordinary rough Persian is exhausted.

MENTHOL—Is firmer, and 8s. 6d. per lb. is now asked for best Japanese brands of good dry white crystals.

MERCURIALS.—In consequence of further advance in price of quicksilver, makers of mercurials again advanced their prices 1d. per lb., to 3s. 1d. per lb. for calomel and 2s. 9d. per lb. for corrosive sublimate.

MORPHINE—Remains fairly steady at 5s. to 5s. 2d. per oz. for the Hydrochlorate.

OILS (FIXED) AND SPIRITS.—Linseed values have declined fully 10s. On the spot pipes, London, quoted £23 to £23 5s.; barrels, £23 10.; November-December, £23 5s.; January-April, £22 7s. 6d. to £22 10s.; May-August, £22. Hull is also easier: Spot naked, £22; November-December, £22; January-April, £21 5s.; May-August, £21 5s. Rape quiet: Ordinary brown on spot, £23 15s. to £24; November-December, £24; January-April, £24; Refined spot, £25 5s.; Ravison naked spot, £21 5s.; November-December, £21 5s. Cotton easier: London Crude spot, £16 10s.; November-April, £16 10s.; Refined spot, £18 10s. to £19 10s., according to make; Hull Naked Refined spot, £16 5s. to £16 10s.; November-April, £16 5s.; Crude spot, £15 2s. 6d.; November-April, £15 2s. 6d. Olive firm: Mogador, £33 10s.; Spanish, £34 10s.; Levant, £34. Cocoanut steady: Ceylon on the spot, £25 10s.; October-December, £24 5s., c.i.f.; Cochin spot, £29 10s.; near, £27 5s., c.i.f.; October-December, £26 12s. 6d.; January-March, £26 10s., c.i.f.; Mauritius on spot, £25 10s. in hogsheads. Palm: Lagos on spot quoted £27. Castor Oil firm: Belgian, first pressing, spot, £27; January-June, £26 10s., f.o.b.; Antwerp, second pressing, spot, £25 10s. per ton, ex wharf; Hull manufactured, guaranteed cold drawn, pure pharmaceutical, £30 per ton in barrels, 3⅝d. per lb. in cases; Pure firsts, £27 10s.; seconds, £26 10s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3⅛d., ex wharf, London. Lubricating Oil: Pale American, spot, 7s. to 9s.; black, 6s. 3d. to 8s.; Russian, black, 5s. 6d.; pale, 7s. to 8s. 6d. Petroleum Oil firm, at ⅛d. per gallon advance; Russian, spot, 5 7/16 to 5⅝d.; settlement price for Russian, 5⅜d. American spot quoted 6⅞d. to 7⅛d., and to end of March. Water white, 8d. to 8¼d. Turpentine: Market opened weak, but closed steady. American, spot, 36s. 1½d. to 36s. 3d.; November-December, 36s. 3d.; Jan.-April, 36s. 9d. to 36s. 10½d.; July-December, 31s. 7½d. Petroleum Spirit: American, 9¾d.; Deodorised, 10d.

OILS (ESSENTIAL).—Star Aniseed has quieted down a little, although prices remain firm at 6s. 4d. per lb. on the spot, arrival prices being still some pence above this. Peppermint H.G.H. steady at 5s. 4½d. to 5s. 6d. per lb. on the spot. Japan, 40 per cent. 5s. to 5s. 3d. per lb., dementholised 3s. 7½d. to 3s. 9d. per lb. Cassia firm at 3s. 10d. per lb. for 70-75 per cent., 4s. per lb. for 75-80 per cent. and 4s. 2d. per lb. for 80-85 per cent. Lemongrass, 3¼d. to 3½d. per oz. Lemon, 3s. 9d. per lb. for good. Bergamot, 7s. per lb. Orange, sweet 7s., bitter 9s., per lb.

OPIUM.—The market has been quiet, and business in all descriptions limited, including small sales of "Soft Shipping" at full prices. In Druggists no sales reported. Persian continue to be firmly held, and few sales have occurred.

ORRIS ROOT.—The supplies of the article are said to have been cornered on the other side, and the probability of very high prices ruling in the near future is freely spoken of. Price is nominal at 55s. to 60s. per cwt., according to holder, for good Florentine.

PARAFFINE WAX.—Crude is quoted 2¾d. to 3d. per lb; Refined, 3d. to 3¾d.

PHENACETIN.—Some of the makers have agreed to hold for 3s. 6d. per lb. for smaller quantities than 1 cwt., for both crystals and powders. A further advance is not improbable.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, spot, London, crystals, 3¾d.; powder, 3⅞d. Iodide, 10s. 6d. per lb. Permanganate quoted 52s. 6d. to 62s. 6d. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, Beckton make, 7⅛d.; other English makes, 7½d. to 7¾d.; red, 1s. to 1s. 2d. per lb., according to quantity, etc.

QUICKSILVER—Has again been advanced to £9 5s. per bottle from the importer, second-hand quoting 6d. to 1s. per bottle less money.

QUININE—Has been firm, although quiet, with only a restricted business at rather dearer prices for the nearer positions. The sales are about 30,000 oz. B&S and/or Brunswick, December delivery at 1s. 1⅝d. to 1s. 1¾d. and buyers, and March at 1s. 2d. per oz. Since the results of Amsterdam Bark sales became known, the market has stiffened considerably, there being buyers at 1s. 2d. per oz. on spot and at 1s. 2¼d. to 1s. 2½d. per oz. for December delivery with but few sellers. It appears probable that we shall now see a better market for the article, and very likely decidedly higher prices.

ROSIN—Firm at 4s. 6d. per cwt. for strained, ex wharf, and 4s. 3d. to 4s. 4½d. per cwt. for November-December and January-March shipment per sailing vessel.

SAFFRON—Is in good request, and prices are very firm. Valencia is quoted 42s. lb. for genuine, whilst Alicante can be had at 22s. 6d. to 24s. lb.

SENNA.—There has been a good inquiry for Tinnevelly, with a small business in qualities ranging from 4½d. per lb. to 6½d. per lb. Alexandrian leaves are scarce; 9d. is asked for whole leaf.

SHELLAC.—A steady demand prevails on the spot, with moderate sales at full rates. For arrival 100 cases TN Orange have been resold, November-January shipment at 63s., and 100 cases reported. in first hands, at 64s. c. f. and i. For delivery a few hundred cases have changed hands, comprising January delivery at 66s., and March at 66s. 6d. to 66s.

SODA COMPOUNDS.—Crystals are quoted 60s. per ton in barrels and 57s. 6d. per ton in bags. Ash, £5 5s. to £7 per ton, according to percentage, etc. Bicarbonate, landed, £7 5s. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic, white, 70 per cent., £9; 60 per cent., £1 less. Hyposulphite (Antichlor.), 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate, on the spot, refined, £8 2s. 6d.; ordinary, £7 17s. 6d.

SPICES (VARIOUS).—Black Pepper: 53 bags Singapore sold, without reserve, grayish, at 5½d. to 5⅝d. 80 bags Tellicherry bought in, good fair, at 5⅞d., and 44 bags Penang, including fine heavy, at 6½d. White Pepper: 15 bags offered and 4 sold, Singaport, small, at 8⅞d. Capsicums quiet; 5 bales Bombay offered and sold, fair bright, part dull and stalky, at 30s. Cassia Buds: 59 bags Bombay wild offered and bought in at 26s. Cinnamon quiet; 227 packages Ceylon at auction were bought in. Mace steady; 27 cases Penang offered and 9 cases sold, small pale reddish, rather wormy, at 1s. 5½d.; broken at 1s. 4d. Of 34 boxes Singapore 28 sold privately, price not reported. 23 cases Bombay wild offered and bought in, good bright, at 5d. Nutmegs quiet and in slow demand. 28 cases Penang offered and 7 cases sold, common shrivelled, 284's at 4d. to 4¼d. 34 boxes Singapore bought in, 79's at 1s. 8d. 9 cases Bombay withdrawn. Pimento in fair demand at steady rates. Of 308 bags offered 171 bags sold, ordinary to fair, at 3⅛d. to 3¼d.

SULPHATE OF COPPER—Is quoted £24 15s. to £25 per ton on the spot.

SULPHONAL.—The two known makers still quote 17s. per lb. for both crystals and powder. There are, however, still sellers from second-hand of what is believed to be a Swiss make of the article, and which is said not to be of very super-excellent quality, at 2s. to 3s. per lb. below the makers' official price.

TUMERIC—Remains firm, but business has been on a small scale. Bengal reported up to 28s., being dearer; Cochin split bulbs, small sales at 12s.; Madras finger, ordinary to good bright, quoted 32s. 6d., and China finger 26s.

VALERIAN ROOT—Is tending upwards, there being no longer sellers of good root below 27s. 6d. per cwt. c.i.f.

Newcastle-on-Tyne Chemical Report.

November 1, 1899.

A strong tone still prevails on this market. Middle-hands holding the principal makes, further advances in values are anticipated. Owing to dearer coal and other raw products in keeping, contracts for next year's produce of chemicals have to encounter higher prices. For the moment, Soda Crystals, Soda Ash, and Alkali are practically out of the market. Quotations, which are partially nominal, may be given as follows: Soda Crystals in bags, 55s.; Alkali, 52 per cent., £5 5s. to £5 10s.; Soda Ash, 52 per cent., £4 10s.; Caustic Soda, 70 per cent., £8 10s. to £8 15s.; Bleaching Powder, £6 5s. to £6 10s.; Sulphur, £4 17s. 6d. to £5 per ton.

Manchester Chemical Report.

November 1, 1899.

There is hardly a break in the continuous upward movement in heavy chemicals, and the important announcement was made to-day that Caustic Soda of all strengths had been advanced 10s. per ton. Therefore, 77-78 per cent. white will stand at £10 2s. 6d.; 74 per cent., £9 12s. 6d.; 70 per cent., £8 15s.; and 60 per cent., £7 15s. Bleaching Powder is now quoted £5 10s. per ton, on rails, soft wood casks, and £6 per ton, hardwoods, f.o.b. Liverpool. For 58 per cent. Ammonia Alkali there is an excellent demand, coupled with scarcity, and £4 7s. 6d. per ton, bags, on rails, is being freely paid. White Powdered Arsenic is rather quiet at £19 to £19 5s. per ton, ex-ship, Garston, though there are signs of improvement. Salt Cake is firm at 26s. to 27s. per ton, on rails, in bulk. Potash, Caustic, and Carbonate are scarce, but there is not the business which might have been anticipated in Chlorate, which remains at 3½d. to 3⅞d. In Coal Tar products there is little movement, although generally prices are steady. Sulphate of Ammonia is especially dull, but Pitch is fairly firm, and some shipments continue to be made for Ship Canal. Aniline Oil and Salt are unchanged and dull. Glauber Salts are firm at 32s. 6d. to 33s. per ton, bags, on rails, and Epsoms 60s. Yellow Prussiate is dull at 7½d. to 7⅝d., for Lancashire make. Brown Acetate of Lime may be quoted 5s. per ton better—£5 12s. 6d. per ton, delivered Manchester. Sulphate of Copper is dull, and, if anything, lower where sales are effected.

Liverpool Market Report.

November 2, 1899.

AMMONIUM SALTS.—Carbonate is firm at 3¼d. to 3½d. per lb. Sal ammoniac has advanced to 38s. and 40s. per cwt., and is likely to be dearer. Sulphate is quiet and a turn easier, viz., £11 per ton.

BEESWAX.—44 packages of Sierra Leone sold at £6 5s. to £6 6s. 3d. per cwt., and later five packages at £6.

CANARY SEED.—Turkish seed is fairly well inquired for, and 300 bags of good changed hands at 37s. 6d. per 464 lbs.; 465 lbs. of poor went for 36s.

COPPERAS—Is in good demand at firm rates, 37s. for Welsh and 40s. per ton for Lancashire.

COPPER SULPHATE—Is quiet at £25 per ton.

HONEY.—110 barrels of Pile X Chilian went for 29s. to 32s. per cwt.

OILS (FIXED) AND SPIRITS.—Castor is in moderate demand, and sales both spot and forward are but small though prices continue firm and unaltered; Calcutta, "good seconds," 3⅛d. per lb.; French, 1st pressure, 2$\frac{15}{16}$d. to 3d.; 2nd pressure, French and Belgian, 2⅝d.; 2nd sulphur, 2½d; Madras, 2⅞d. per lb. Olive is very firm, both on the spot and for shipment; Spanish is still quoted at £35 per tun. Linseed is steady but quiet at 25s. to 25s. 6d. per cwt. Cottonseed is held for 19s. 6d. to 20s. per cwt. in export barrels. Spirits of Turpentine are a shade cheaper, viz., 38s. per cwt., with a fair business doing.

POTASH SALTS.—Bichromate, 3½d. per lb. Chlorate, 3½d. to 3¾d. per lb. Cream of Tartar is steady at 74s. to 80s. per cwt. Pearlashes are nominal at 30s. cwt. Potashes are still scarce at 22s. 6d. to 22s. 9d. per cwt. Prussiate is cheaper, 7¾d. per lb. Saltpetre £21 15s. per ton.

SODA SALTS.—Bicarbonate continues firm at £6 5s. to £6 15s. per ton. Borax, £16 to £16 10s. per ton, has an upward tendency. Caustic 76 per cent. to 77 per cent., £9 12s. 6d. to £9 15s.; 70 per cent., £8 15s. per ton. Crystals, £3 5s. per ton. Nitrate is steady on the spot with small demand, 7s. 7½d. to 7s. 10½d. per cwt.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. A. Sidney Campkin, J.P., has again been returned without opposition for Petersfield Ward to the Cambridge Town Council.

Mr. Frederick Bird, M.P.S., chemist and druggist, Coventry, has been elected, without opposition, for the twentieth year a member of the Coventry City Council. He is also chairman of the Coventry School Board.

Calendar for the Week.

Sunday, Nov. 5. 23rd after Trinity. Sun rises 7.2, sets 4.25.

Monday, Nov. 6. Sun rises 7.4, sets 4.23.

Dewsbury and District Chemists' Association, Town Hall Dewsbury, at 8.30 p.m.—General Meeting.

Society of Chemical Industry, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers will be read by Walter F. Reid and Sherard Cowper-Coles.

Tuesday, Nov. 7. Sun rises 7.6, sets 4.22.

Bradford and District Chemists' Association, County Restaurant, Bradford, at 9 p.m.—Conversation on Trade Topics.

Royal Colonial Institute, Whitehall Rooms, Hotel Metropole, London, S.W., at 8 p.m.—Lantern Lecture on "Ceylon in 1899," by John Ferguson.

Royal Photographic Society, 5A, Pall Mall East, London, W., at 8 p.m.—Lecture on "Some Mediæval Towns of Germany," by J. J. Vezey.

Wednesday, Nov. 8. Sun rises 7.7, sets 4.20.

Midland Chemists' Assistants' Association, Exchange Rooms, Stephenson Place, Birmingham, at 9 p.m.—Social evening.

Plymouth, Devonport, Stonehouse and District Chemists' Association, Freemasons' Hall, Princess Street, Plymouth, at 7 p.m.—Sixth Annual Dinner.

Thursday, Nov. 9. Sun rises 7.9, sets 4.19.

Chemists' Assistants' Association, 73, Newman Street, London, W., at 9 p.m.—Impromptu Discussion.

Friday, Nov. 10. ☽ 1.35A. Sun rises 7.11, sets 4.17.

Glasgow Chemists' and Druggists' Assistants' and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—A Communication by T. Maben.

Saturday, Nov. 11. Sun rises 7.13, sets 4.16

Publications Received.

Pharmacopœia of the University College Hospital. Published by authority of the Medical Committee, 1899. Edited by Harold Wilson, Ph.C., Dispenser and Teacher of Pharmacy to the Hospital. Pp. 63. Price 1s. 6d. London: Jas. Truscott and Son, Suffolk Lane, Cannon Street, E.C. 1899. From the Editor.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Cocain Hydrochlor., in not less than 4 oz. lots. What offers?—Goldsmith, 71, Park Road, Regent's Park, N.W.

Herbarium (Sale or Exchange) consisting of 174 specimens, arranged into 56 natural orders. 2 guineas.—R. W. Tildesley, Parkgate, Rotherham.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Otto Roses, virgin, ounce bottle, original (gilt), 25s. Lavender Oil, Mitcham 1896, lb. original bottle, capsuled, 25s., postage free.—Warnes, 333, Gray's Inn Road, W.C.

For Disposal.—No. 1 Patent Multiple Grinder, by the Hardy Patent Pick Co., Ltd., with Powder Collector; complete as new.—Mitre Works, Cordova Road, Grove Road, Bow, E.

Christmas Decorations. Very best special White Glass Frost, 1 lb., full weight, posted, 1s. 7d.; 2 lbs., 2s. 11d.; 7 lbs. 9s. More satisfactory full weight.—Foster, 80, Navigation Street, Birmingham.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Two "Hospital," 1 30-sec. ditto; 3 magnifying lens front, 1 30-sec. ditto; 7 good English-made clinical thermometers; mounted on standing show-card for 14s. 6d. cash, carriage paid.—Grimshaw, 16, Fairfield Rd., Edmonton.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Formula suiting good toilet speciality purchased.—W. Lewis, 15, Shelden Street, London, W.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Old Druggists' Crockery-ware wanted. Blue and white Syrup Jars, Ointment Pots, Oil Vases, and other Pharmaceutical Antiquities.—John Austen, Pharmaceutical Chemist, Dore, near Sheffield.

A Complete Set, part-set, and odd volumes of the "Pharmaceutical Journal and Transactions," also vols. of "Chemical News," "Chem. Soc. Journal," "The Analyst."—Address offers, "Gentian," "Pharm. Journal" Office, 5, Serle Street, London, W.C.

Advertisements.

(Received too late for Classification.)

JUNIOR ASSISTANT, unqualified; 21. London preferred.—JONES, 267, King's Rd., Chelsea, S.W.

ENGLISH NEWS.

Manchester Pharmaceutical Association.—At the second meeting of this Association, held on Wednesday, November 8, Mr. Harry Kemp who presided, explained that that the President, Mr. Woolley, was unfortunately absent, owing to an attack of his old enemy, influenza. The announcement was received with regret. Messrs. Middleton, Holland, Bennett, and H. Woodruff were elected members of the Association. The Secretary stated that the dance announced in the programme of the Session would take place at the Chorlton Town Hall, on January 24, 1900.

Liverpool Pharmaceutical Students' Society. — A capital smoking concert, held at the Kardomah Café, Church Street, on Thursday, November 2, inaugurated the winter session of this Society. The muster of members and their friends was very satisfactory, especially when the unpropitious state of the weather is taken into account, and the President, Mr. Prosper H. Marsden, had no difficulty in providing entertainment for the audience from the lengthy list of songs and recitations drawn up by the Secretary, Mr. Patridge, with the help of Mr. P. G. Jenner. The following artistes contributed songs:—Messrs. Atkinson, Cooke, Davies, Gilbert, Harrison, Harrod, Kennel, Nicholson, and Scott, whilst Messrs. Brown and Doran gave some capital recitations. During the evening, Messrs. Woodward and Matthew Hall officiated at the piano, giving general satisfaction both to the audience and the artistes.

Dewsbury Chemists' Association.—A meeting of the Dewsbury and District Chemists' Association was held on Monday, November 6, Mr. A. Foster presiding. The other members present were Messrs. G. Walker, G. N. Gutteridge, and R. Gledhill (Secretary), Dewsbury; Messrs. W. Stead and A. B. Barker, Heckmondwike; Messrs. C. Crooke and J. Rhodes, Mirfield; Mr. F. Broadhead, Batley; Mr. J. Day, Savile Town; Mr. J. Walker, Cleckheaton; and Mr. J. W. Cussons, Ossett. Mr. Broadhead referred to the company pharmacy problem,and some conversation took place respecting what was done at the meeting of the Pharmaceutical Council last week. It was decided, however, to leave the matter over until the future policy of the Pharmaceutical Council was made known. Arrangements were made for a special meeting to be held at the end of the month to hear a paper from Mr. Glynn-Jones on the "P.A.T.A. and Chemists' Defence Fund." It was also decided to ask all members of the association to vote in favour of Mr. Charles Troke, of Penge, being placed on the list of annuitants on the Pharmaceutical Society's Benevolent Fund.

Bradford and District Chemist's Association. At a meeting of this Association, held on Tuesday, November 7, it was decided that, whilst the Association is willing to unite with the Federation of Local Associations in any action which is calculated to assist the Pharmaceutical Council in its attempt to unite the trade, at the same time it cannot take part in any organisation of chemists which would tend to militate against the success of the scheme for local organisation proposed by Mr. Newsholme. The Federation is requested, therefore, to defer any further action in the matter until the Pharmaceutical Council has expressed its opinion on the first formulated scheme.

Western Chemists' Association of London.—The ninth annual dinner of the Association will take place at the Café Royal, 67, Regent Street, W., on Wednesday next, November 15, at 6.30 for 7 p.m. The price of tickets is 7s. 6d. each (exclusive of wine), and they may be obtained of either of the hon. secs., Mr. Herbert Cracknell, 17, Craven Road, Westbourne Terrace, W., and Mr. W. J. I. Philp, 34, High Street, Notting Hill, W., not later than the 13th inst.

School of Pharmacy Football and Cricket Club. -The annual smoking concert in connection with the above club will be held in the Crown Room, Holborn Restaurant, on Thursday, November 30. The President of the Pharmaceutical Society has kindly consented to take the chair. A committee has been formed at the "Square," consisting of Messrs. W. Owen, T. Fox, and P. B. Gray, from any of whom tickets can be obtained.

North of England School of Chemistry and Pharmacy.—The students of this school, accompanied by the principal, Mr. F. R. Dudderidge, visited the Redheugh works of the Newcastle and Gateshead Gas Co. on Wednesday, November 1. The party was conducted round the works by the manager, Mr. Hardie, who fully explained all the processes in use for the manufacture of coal gas, and its bye products. First, the charging of the retorts both by hand and machinery was seen, the latter being driven by compressed air, and the red-hot coke from the upper row of retorts conveyed directly to feed the furnaces for heating. The various stages of purification of the gas were then described, tar and ammonia being removed in the condensing pipes and scrubbing towers, carbon dioxide and sulphuretted hydrogen taken out subsequently by passing the gas through purifiers charged with lime, which alone is used at these works for this purpose. The manufacture of ammonium sulphate from the ammoniacal liquor was then seen, the crude sulphuric acid used being freed from arsenic by sulphuretted hydrogen derived from the liquor, and the excess of the latter gas converted into sulphur in the Claus kiln. A hearty vote of thanks to Mr. Hardie terminated a most interesting and instructive visit.

Royal Society.—The following is a list of those who have been recommended by the President and Council of the Royal Society for election into the Council for the year 1900 at the anniversary meeting on November 30:—President, Lord Lister, F.R.C.S., D.C.L.; Treasurer, Alfred Bray Kempe, M.A.; Secretaries, Sir Michael Foster, K.C.B., M.A., M.D., D.C.L., LL.D., Professor Arthur William Rücker, M.A., D.Sc.; Foreign Secretary, Thomas Edward Thorpe, Sc.D., LL.D. Other members of the Council.—Horace T. Brown, F.C.S., Captain Ettrick William Creak, R.N., Professor James Dewar, M.A., Professor Edwin Bailey Elliott, M.A., Hans Friedrich Gadow, Ph.D., Professor William Dobinson Halliburton, M.D., Professor William Abbott Herdman, D.Sc., Sir John Murray, K.C.B., Sir Andrew Noble, K.C.B., Professor Arnold William Reinold, M.A., George Johnstone Stoney, D.Sc., George James Symons, F.R.Met.Soc., J. J. H. Teall, M.A., Professor Joseph John Thomson, M.A., Professor Edward Burnett Tylor, D.C.L., Sir Samuel Wilks, M.D.

Chemists' Assistants' Union.—We are informed by the treasurer of the Chemists' Assistants' Union that Mr. Hugh Lloyd, of Walton-on-Naze, has generously given £3 to the funds of the Union. This amount, it will be remembered, was given to Mr. Lloyd, who was then ill (but whose name was not mentioned at the time), it being the net proceeds of a smoking concert held early in the year. We have to congratulate Mr. Lloyd on his recovery, also the C.A.U. on account of this addition to their exchequer.

Royal Institution.—A general monthly meeting of the members of the Royal Institution was held on November 6, his Grace the Duke of Northumberland, K.G., President, presiding. The following were elected members: H. H. the Thakore Saheb of Gondal, Mr. G. F. Barrett, Mr. J. B. Broun-Morison, Mr. A. H. Savage Landor, and Mr. T. C. Porter. The special thanks of the members were returned to "A Lady Member" for her donation of £100, and to Mr. George Matthey, F.R.S., for his donation of £100 to the fund for the promotion of experimental research at low temperatures. The special thanks of the members were returned to Miss Elinor Busk and Miss Frances Busk, for a portrait of Mr. George Busk, F.R.S., treasurer of the Royal Institution from 1873 to 1886.

Manchester College of Pharmacy.—On Saturday, November 4, a smoking concert was held at the Manchester College of Pharmacy. The company was composed of students and a few of their friends, no invitations having been issued. The chair was ably taken by Mr. Fisher, of Preston. The students, who were in good form, gave excellent songs, recitations, violin solos, and instrumental pieces. Miss Marley, a well-known vocalist, kindly gave her services, and delighted all by her beautiful singing. Mr. Turner made good use of the lantern, groups of past and present students were thrown on the screen, also views of different places in the neighbourhood taken while botanising on the Saturday excursions; these brought to the mind many amusing and pleasant recollections of days gone by. Mr. F. B. Hirst, who for some time has been demonstrator at the M.C.P., was presented with a very handsome marble timepiece as a

wedding present. A silver plate bore the following inscription:—"Presented to F. B. Hirst, Esq., by the Principal and Students of the M.C.P., as a token of esteem, November 4, 1899." During the interval refreshments were handed round. At the close of the evening hearty cheers were given for Mr. and Mrs. Turner, Mr. Hirst, and for those who had organised the entertainment. Mr. G. L. Scott, Ph. C., who will be remembered by past students, has again undertaken the post of demonstrator.

A BUILDING DISPUTE: COOK *v.* HINDLE.—This case arose out of the building of a house and shop by the plaintiff, a builder of Yarmouth, for Mr. W. Hindle, chemist and druggist, of Gorleston. It was tried in May before the Yarmouth County Court Judge, who gave judgment for defendant with costs.—The plaintiff appealed, and was heard by Counsel last week before Mr. Justice Ridley and Mr. Justice Darling, sitting as a Divisional Court in the Queen's Bench Division of the High Court.—Mr. Cooper, who appeared for plaintiff, said the original action was brought by plaintiff to recover balance due under a building contract, and the claim was admitted. The defendant, however, sought to set off certain sums, amounting in the aggregate to £73, and he brought the balance, £6 17s. 8d. into Court. Defendant's set-off was made up of several items, but the only one that was material was one of £54 for nine weeks' time penalties at £6 a week, and the Judge ruled in his favour. The plaintiff now appealed, and contended the judgment should be varied, and defendant should not be allowed to set off these time penalties, because part of the delay in completing the contract was the fault of the stonemason employed by defendant, which made it impossible for the plaintiff to fulfil his part of the contract, and therefore he contended the contract had been varied, and defendant could not claim for delay.—Mr. Matthews supported the ruling of the learned Judge, and eventually their lordships dismissed the appeal with costs,

FOOTBALL.—The second match in connection with the Pharmaceutical Football League took place on Saturday, November 4, at Shepherd's Bush, the opposing teams consisting of students of the London College and those of Dr. Muter's. The game was keenly contested throughout, and good all-round play was witnessed. The London College, which were beaten by the Square eleven on the previous Saturday, combined far better than on that occasion, and considering the sticky state of the ground gave a good exhibition, and eventually won by five goals to two.

IRISH NEWS.

THE DEPARTURE OF THE ROYAL IRISH RIFLES from Belfast for the scene of the war was chosen by the populace for the pronouncement of a monster *au revoir*. The duty of doing the chief honours was assigned to the Queen's College students, who flourished forth with flambeau and fancy costume in all the dazzling wildness of the improvised. It fell to the lot of two students, well-known to local chemists, to harangue the vast multitude. Mr. W. Rice, B.A., (lately Botany teacher in Templeton's Pharmaceutical Classes) referred to "broken conventions" and the necessity for establishing the Queen as suzerain *de facto.* as Her Majesty was *de jure.* Mr. Whitla, who has graduated for a considerable period at the dispensing counter, and is related to Professor Whitla, enthused the crowds by declaring, as apposite to Sir George White and the Fusiliers, that Wellington was an Irishman who had led Irish soldiers victoriously through the Peninsula, etc., and the hearers roared their delight at these historical instances of Irish genius and Irish valour.

METHYLATED SPIRITS NOT A MEDICINE "UNDER THE ACT."—When anomalies are the growth of involved statutes their *raison d'être* is valid, but that they should be adopted on principle and with due precaution marks deep intellectual acumen. The Local Government Board will not refund half the cost for methylated spirits to the Armagh Guardians, although it is admitted that some is necessary for dispensing practice and should be procured for the doctors when requisitioned, so the Guardians, in order not to appear partial and to save trouble, decided not to purchase any spirits at all.

DAMAGE TO A MINERAL WATER MACHINE.—Dr. M. R. Whitla, James Rafferty, and James Brannigan, sought to recover £50 for injury alleged to have been done to a mineral water machine, the property of the Diamond Mineral Water Company, Monaghan. The evidence showed that paraffin oil had been put in the generator, and that consequently the material was spoiled. It took ten days to make good the repairs, and orders were withdrawn. His Honour, Judge Craig, held that there was no malicious injury, and dismissed the case on the merits.

THE MEDICAL HALLS of Mr. J. W. W. Agnew, Clifton Street, and Mr. J. A. Stewart, Dublin Road, Belfast, have each received an installation of electric light.

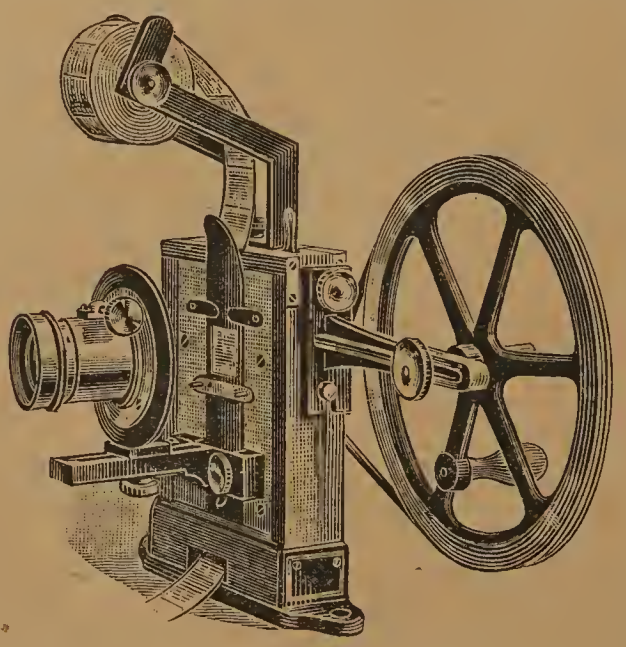
DISPENSARY DOCTORS REQUIRE PROPRIETARIES.—The Banbridge Guardians have been informed by the L.G.B. in reference to the use of patent medicines by medical officers, that the cost of articles not included in the Board's prescribed lists is not subject to recoupment out of the Local Taxation (Ireland) Account, and that the cost of patented or proprietary medicines is subject to disallowance by the auditor.

TRADE NOTES.

NOTICE OF REMOVAL.—Messrs. Francis Newbery and Sons announce their removal from King Edward Street to 27 and 28, Charterhouse Square, and 44, Charterhouse Street, E.C., where they have secured convenient premises for the transaction of their business, which has outgrown the present accommodation

LANTERN SEASON.—Mr. William Wyatt, pharmaceutical chemist, Lancaster, sends a copy of a lantern circular he is issuing in connection with his photographic department. The circular is neatly got up in pamphlet form, and contains a list and terms for hiring lantern slides, lantern and limelight apparatus etc.; also prices for developing, retouching, printing, enlarging, and mounting photographs.

CINEMATOGRAPH MECHANISM.—Messrs. W. Butcher and Son, Blackheath, send particulars of a new Cinematograph, which they are introducing for use with any ordinary lantern. This mechanism having stood the practical test of three seasons, is recommended by the firm with confidence. It is simple, reliable, well-made, and comparatively inexpensive, and is stated to give very satisfactory results. As already intimated, the machine can be used with all lanterns, either metal or wood bodies, where the base of the front does not project beyond the front tube. With metal body lanterns a base board should be provided long enough to accommodate the lantern and mechanism. The former can be fixed by means of ordinary wood screws, and the mechanism is provided with holes in the base by which it can be attached with an ordinary thumbscrew. With wood body lanterns the O.G. tube should be removed and the mechanism fixed in front to the base-board. The mechanism is the standard height to centre, viz:—5 to 5¼ inches. The cost of the mechanism (without lens) is £6 6s. complete; with front lens, 20s. extra.



FLAKE GUM.—Messrs. Potter and Clarke submit a sample of flake gum, which is claimed to be about 15 per cent. stronger than the ordinary natural gum in consequence of all impurities, having

been removed. The flake gum is intended for use in all cases in which the ordinary gum acacia can been used. It offers great advantages over the crude article, because of its freedom from all impurities, and the consequent ease with which a perfect mucilage can be prepared. In from fifteen to twenty minutes the B.P. mucilage can be made from the scales, with cold water only.

Paris Exhibition 1900.—Intending exhibitors at the forthcoming Paris Exhibition will be interested to know that Mr. C. Wilkes, 29, Ludgate Hill, Loudon, has been appointed general manager and sole agent for the British Empire (Canada excepted) for all English advertisements or publicity in the general official catalogue of the Exhibition; also for the French and English guides and other publications issued by Messrs. Lemercier and Co., official contractors to the French Government and Exhibition Board.

Beta-Eucaine *v.* Cocaine.—Messrs. A. and M. Zimmermann, 9 and 10, St. Mary-at-Hill, London, E.C., direct attention to beta-eucaine, which is claimed to be identical with cocaine in anæsthetic action, and to possess important advantages therapeutically and pharmaceutically. The chief advantage however, to which attention is directed is that in consequence of the growing scarcity of cocaine it is rapidly risiug in price, whereas beta-eucaine may be obtained at less than half the present cost of cocaine.

Xmas Mounts for Photographs.—Messrs. George Houghton and Son, 88 and 89, High Holborn, London, W.C., send a set of twelve Christmas cards for photographs, suitable for the coming season. Each mount is embossed with a pretty floral design, no two being alike. The lettering convcying the customary Christmas greetings is very pleasing, several of the cards being neatly printed in gilt, others with elegantly designed letters in

black with red initials on a white background, the dark-coloured mounts being printed in gilt and white. The mounts are in several styles and of various colours, some being of the usual folding pattern adopted for Christmas cards, others being more like the ordinary photographic mount, except as regards the floral desigu and lettering.

THE PURITY OF FOOD AND DRUGS.

Seidlitz Powders.—Dr. Bernard Dyer, analyst to the Leicestershire County Council, reported to that body at a meeting on Wednesday, November 1, that during the quarter twenty-seven samples of seidlitz powders had been submitted to him for analysis. Of these he found twenty genuine, and properly compounded in accordance with the directions of the British Pharmacopœia. Of the other seven samples two were unsatisfactory by reasons of errors in weighing, although composed of genuine ingredients, in two cases the alkaline portions of the powders were improperly compounded, and in three cases the acid portions were adulterated with alum. The Chief Constable reported that the vendors of the five adulterated samples were prosecuted and convicted, and fines and costs levied upon them to the amount of £9 13s. 6d. The vendors of the samples which contained improper quantities had been cautioned.

Camphorated Oil.—At Salisbury Police Court on Tuesday, October 24, George Williams, grocer, Shrewton, Wilts, was fined 10s. with costs, for selling as camphorated oil, a compound containing 10 per cent. of camphor only.

Lime Juice Cordial.—At Cork, on Tuesday, October 24, Joseph Haden, mineral water manufacturer, Maylor Street, was fined 10s. with costs, for refusing to supply an inspector under the Food and Drugs Act with a sample of lime-juice cordial. Defendant denied the charge, and pleaded that he could not serve the inspector at the time because the person who had charge of the keys of the store in which the lime-juice cordial was locked up, was then away.

Spirit of Nitre.—At Heanor Petty Sessions on Monday, October 23, Floreuce Gertrude Clay, grocer, carrying on business at Cromford Road, Langley Mill, was summoned for selling to the prejudice of the purchaser six ounces of sweet spirit of nitre 50 per cent. deficient in nitrous ether.—Mr. C. J. Jackson, solicitor, of Ilkeston, on behalf of defendant, admitted the sale of the article, and confessed it was for want of knowledge of such articles that the alleged error arose. Defendant had had the article in the shop for twelve months, and was not aware of the escape of the spirit, being ignorant of its nature and quality. He asked the Bench to deal leniently with his client.—The Bench imposed a fine of 1s. and £1 4s. costs, including the costs of analysis.

Camphorated Oil.—At Cwmbran Police-court, on Thursday, November 2, George Frederick Thorne was summoned for selling camphorated oil deficient in camphor to the extent of 50 per cent. Mr. Lloyd for the defence objected to the analyst's certificate on the ground that it did not set out the ingredients of the sample in order that the Bench might form an opinion upon it. He relied upon the case of Fortune *v.* Hanson. He added that the defendant had a warranty from the makers, Messrs. G. Turley and Sons, of Birmingham, who stated that no article was sent out from their establishment unless it was absolutely pure. In reply to the Chairman, Mr. Gustard, who appeared to prosecute, said a legal standard for camphorated oil was to be found in the British Pharmacopœia. The Magistrate's clerk, after reading the analyst's certificate, observed that in it the analyst did not state that he had analysed camphorated oil. He only said he analysed oil from a bottle marked "camphorated oil," and numbered "102." The case was adjourned for a month to give the justices time to consider their decision.

Copper in Peas.—Messrs. Grantham and Bryant, grocers, The Parade, Haven Green, Ealing, W., were summoned at Brentford Petty Sessions, under Section 3 of the Food and Drugs Act, for selling green peas containing 2·64 grains of copper sulphate per pound, thus being injurious to health; also under Section 6 for having sold green peas not of the nature, substance, and quality demanded by the purchaser.—The defence was that, under Section 5 of the Act, defendants had a good answer to the charge in that they had no knowledge that the article was "coloured or mixed so as to render it injurious to health."—The magistrates were of opinion, however, that "reasonable diligence," as required by the Act, had not been exercised. At the same time they felt that defendants were the victims of the wholesale people—Messrs. Petty, Wood, and Co.—and they regretted that the wholesale firm was not before them.—Fined £5 and costs.

Liquorice Powder.—Annie Conroy, herbalist, 92, Wakefield-road, was summoned at the Bradford City Police-court on Thursday, October 19, for selling compound liquorice powder below the standard quality. The Deputy Town Clerk, who prosecuted, said that an inspector purchased four penny packets of the powder from the defendant, who told him that she obtained them from a firm of chemists in the town. The powder was examined by the city analyst, and found to contain 23 per cent. of sulphur, 50 per cent. of sugar, and 26 per cent. of liquorice. One of the packets was prepared in accordance with the British Pharmacopœia.—The Stipendiary Magistrate ordered the defendant to pay the costs, which, he said, would be refunded to her by the chemists who supplied her with the powder. He also advised her to take back to them what remaining packets of it she possessed.

SACCHARIN VERSUS SUGAR.—The Society of Beetroot Manufacturers at the Hague, according to the *British Food Journal*, has called the attention of the Dutch Minister of Finance to the increased consumption of saccharin in Holland. In the Society's opinion, that will eventually have the effect of considerably reducing the receipts from duty payable on sugar. So long as saccharin was obtainable in the form of powder only, the prospect of a more general consumption was not very great, but it can now be obtained at almost any grocer's shop in tablet form, at low rates. Saccharin, the Society contends, has a great advantage over sugar, as it only pays 5 per cent. import duty *ad valorem*, whereas sugar has to pay about 200 per cent. on its value.

REPORTS OF PUBLIC ANALYSTS:—*Birmingham.*—During the quarter ending March 31 last, Dr. Alfred Hill, F.I.C., reports that 319 samples of food and drugs were examined. These consisted of 151 samples of milk, 1 of skimmed milk, 90 of butter, 26 of coffee, 12 of sugar confectionery, 10 of malt vinegar, 2 of white sugar, 2 of white pepper, 11 of compound tincture of rhubarb, 10 of sweet spirit of nitre, and 4 of margarine. 25 samples, or 8 per cent., were condemned because of the presence of preservatives, and 39 samples, or 12 per cent., were adulterated in other ways. With regard to the compound tincture of rhubarb, Dr. Hill points out that the British Pharmacopœia of 1898 orders one volume of glycerin to every ten volumes of the tincture. 8 of the 11 samples were correctly prepared, or nearly so, but the other 3 contained no glycerin, and agreed with the composition ordered by the 1885 Pharmacopœia. Of the sweet spirit of nitre, 3 of the 10 samples were deficient in 10 to 24 per cent. of the minimum amount of ethyl nitrite required to be present by the B.P. Fines to the amount of £88 6s. were inflicted, and the costs amounted to £14 10s.——*Chester.*—Mr. J. Carter Bell, F.I.C., reports that during the quarter ending June 30 this year, 219 samples were examined, consisting of 65 butters, 60 milks, 28 spirits, 7 coffees, 6 gingers, 5 arrowroots, 5 peppers, 1 oatmeal, 3 sugars, 1 cheese, 4 powdered rhubarbs, 4 tinctures of rhubarb, 5 camphor liniments, and 4 iodine liniments. Of these 4 were adulterated, viz., 2 camphor liniments, 1 iodine liniment, and 1 whisky.. The two camphor liniments were deficient in camphor to the extent of 4 and 15 per cent. ; the iodine liniment was deficient in iodine by over 7 per cent. ; the whisky contained 4 per cent. of water in excess. In regard to the four samples of powdered rhubarb submitted, they were all free from gamboge, starch and turmeric, but the analyst was not prepared to say that there was no evidence of the presence of English rhubarb in the samples. As no standards exist for powdered rhubarb, Mr. Carter Bell carried out a special investigation on the subject, and obtained from a drug grinder what was stated to be an absolutely pure sample of Chinese rhubarb for a standard of comparisou. There are many varieties of rhubarb which differ very much in percentage composition, and as the samples, microscopically and chemically, compared favourably with the pure sample, Mr. Carter Bell considered that he was bound to pass them all as genuine. A sample of ointment, said to be a most valuable remedy for curing warts, as it contained a large percentage of nitrate of silver, was examined and found to consist of—water, 11·95 ; oil, 3·45 ; sulphur, 81·80 ; oxide of iron, lime, etc., 2·80. There was not a trace of silver in the compound.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Aubrey T. Hill has been appointed successor to the late W. Lloyd Williams, as Assistant Manager of Messrs. Burroughs, Wellcome and Co.'s works at Dartford, Kent.

Mr. Frederick J. Oliver, chemist and druggist, 43, Gabriel's Hill, and 41, Stone Street, Maidstone, has purchased the business of Messrs. T. G. Stonham and Son, 70 and 71, Bank Street, Maidstone, and has taken into partnership Mr. H. B. Turney, who has been associated with Messrs. Stonham and Son for the past eight years. The three businesses will in future be carried on at the same addresses, and under the same names as herctofore.

Mr. Thomas G. Stonham, pharmaceutical chemist, Maidstone, has retired from business, owing to failing health, and as intimated above, has disposed of his business to Mr. F. J. Oliver, who will pay all outgoings as from September 30 last.

Dr. J. Norman Collie, F.R.S., Professor of Chemistry to the Pharmaceutical Society, has been appointed External Examiner in Chemistry at Victoria University.

Dr. A. P. Luff, M.P.S., Lecturer in St. Mary's Hospital, London, has been appointed External Examiner in Forensic Medicine at Victoria University.

Mr. Lawrence Priestley, M.P.S., pharmaceutical chemist, on Wednesday, November 1, was elected at the head of the poll as one of the two representatives for the East Ward of the Newark Town Council, securiug thirty-one more votes than the other successful candidate.

Mr. S. Scruton, of the firm of Messrs. Raimes and Co., York, was the chairman at a recent meeting of the York Chamber of Commerce, when Lord Charles Beresford, M.P., delivered a lecture on "China."

Deaths.

Paddock.—On September 22, Thomas Paddock, Chemist and Druggist, Liverpool. Aged 61.

Lyon.—Ou October 24, James Lyon, Chemist and Druggist, Dalstou, London, N.E. Aged 51.

Partnerships Dissolved.

(From the London Gazette.)

Thomas Henry Black and Thomas Winslow Hamilton, carrying on business as Chemists, Spice Merchants, and Dealers in Butchers' Supplies, at 44 and 46, Gill Street, Liverpool. Debts will be received and paid by Thomas Henry Black.

Frederic Walmsley Warrick and Joseph Harrison (trading as Warrick Brothers), Merchants and Wholesale Perfumers, 7, Portpool Lane, Holborn, London. Debts will be received and paid by Frederic W. Warrick, by whom the business will in future be carried on.

Jacob Hertz aud Percy Collingwood, Commission Merchants, 38 Leadenhall Street, London, E.C. Debts will be received and paid by Jacob Hertz.

John Whittington and Willian Borrett Whittington, Dental Surgeons, 4, Central Beach, Blackpool.

James Kay, Tom Rostron Kay, and Herbert Kay (trading as James Kay and Sons), Soap Manufacturers, Nuttall Lane Soap Works, Ramsbottom. Debts will be received and paid by Tom R. Kay and Herbert Kay, who will continue to carry on the busiuess under the same style as before.

Charles Rushworth, George Bilton Wood, and Charles Henry Hope Norris (trading as W. J. Norris and Brother), Chemical Manufacturers, Calder Chemical Works, Sowerby Bridge, Yorks. Debts will be received and paid by Charles Rushworth and C. H. H. Norris, who will carry on the business under the same style as before.

John Hughes Rees, Thomas Richards, and William Williams (trading as Rees, Richards, and Williams), Aërated Water Manufacturers, Pwll, Llanelly. Debts will be received and paid by John H. Rees and Thomas Richards, who will carry on the business as Rees and Richards.

Frederick John Taylor and James Henry Burnet, Veterinary Surgeons, 8, Moseley Street, Birmingham. Debts will be received and paid by James H. Burnet.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Charles Alfred Jones, chemist and druggist, lately carrying on business at 171 and 173, York Street, now at the Junction Pharmacy, York Street, and Marsh Lane, Leeds.

William Cornell, chemist and druggist, 8, Orwell Place, Ipswich.

Walter Storey (trading as Storey and Son), soap manufacturer, Chapel-en-le-Frith, Derby.

Bessie Stewart, homœopathist, 27, North Parade, Bradford.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

Thursday, November 9.

Business in the Drug and Chemical trade has been somewhat quiet during the past few days. There have been further advances in price of Camphor and Quicksilver. Thymol is also much dearer. Mercurials are so far unchanged. Bromides very firm. Iodides steady. Cod Liver Oil dearer. Glycerin steady. Quinine looks like going better. Opium and Morphine quiet. Codeine firm. Acid Carbolic decidedly firmer, and expected to be dearer. Higher prices are also asked for Orris Root. Acid Citric dull and weak. Tartaric and Cream of Tartar quiet, but steady. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE—Continues weak at 9¾d. to 11d. per lb., according to quantity and make.

ACID BORACIC—Is still quoted 25s. per cwt. for Crystals and 27s. for Powder.

ACID CARBOLIC.—In very active demand, the prices being for 35° to 36° C. ice crystal in large bulk, 7¼d.; the 39° to 40° C. fetching 7⅞d. per lb., and 8⅞d. for 39° to 40° C. detached crystals, B.P. quality. Crude: 60° F., 2s. 6d. per gallon; 75° F. 3s. per gallon. Liquid, 95 to 98 per cent. of pale straw colour, 1s. 3d. to 1s. 4d. per gallon in 40-gallon casks; ditto, 30 per cent. of dark colour, 11d. to 1s. a gallon.

ACID CITRIC—Quiet and somewhat weak at 1s. 3½d. to 1s. 4d. per lb. for Crystals in 5cwt. casks and for spot delivery.

ACID OXALIC—Is still quoted 3d. to 3¼d. per lb., free delivered, London.

ACID TARTARIC—Is unchanged at 1s. 1d. per lb. for English on the spot and 1s. 0¼d. per lb. c.i.f. for foreign.

ALOES.—Curacao are scarce, and prices are likely to be dearer. Socotrine: Good, in kegs, selling for export at 75s. cwt.

ALUM.—Loose lump, £5 7s. 6d. per ton; ground, in bags, £6 per ton, ex-store.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb.; Carbonate, 3d. to 4d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 32s. 6d. to 35s. per cwt.; ditto commercial, 28s. per cwt. Sal ammoniac, firsts, 40s. per cwt.; seconds, 38s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate steady. Gray, prompt, 24 per cent., London, £10 12s. 6d.; Hull, £10 10s.; Leith, prompt, £10 10s.; Beckton, prompt, £10 11s. 3d.; Beckton terms, prompt, £10 10s. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is quoted £39 to £40 per ton, and Japan crude (black sulphide) £23 5s. to £23 10s. per ton.

ARSENIC.—Powder, 20s. per cwt.; Lump, 34s. per cwt.

BALSAM CANADA—Has been exceedingly scarce, and price is 1s. 4½d. per lb. on the spot.

BALSAM COPAIBA—Firm at 1s. 9d. to 1s. 10d. per lb.

BALSAM TOLU.—Good quality is scarce at 1s. 5d. per lb, but inferior qualities can be had at 1s. 3d. to 1s. 4d. per lb.

BISMUTH—Is without change in price either for the Metal or for the Salts.

BLEACHING POWDER (CHLORIDE OF LIME).—English is still quoted £6 10s. per ton.

BORAX—Is unchanged at 16s. per cwt. for Crystals and 16s. 6d. for Powder.

BROMIDES—Are in good demand at firm prices.

CLOVES.—No Penang or Zanzibar were offered in auction. Privately, a moderate business doing in Zanzibar at about steady rates, compri ing January-March at 3 7/16d. to 3 13-32d., and March-May at 3 15-32d.

CAMPHOR.—The market for Crude is strong, and extravagant prices are quoted by importers. A re-sale of 200 piculs Japan, October-December shipment, has been made at 157s. 6d. c. f. and i. For the refined article makers quote Bells and Flowers 2s. per lb., tablets being charged higher in proportion and according to size.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon; pure, 2s. Benzole, 50 per cent., 11d. per gallon; 90 per cent., 10d. per gallon. Creosote, 3½d. per gallon. Crude naphtha, 30 per cent at 120° C., 5½d. per gallon; solvent naphtha, 95 per cent. at 160° C., 1s. 6d. per gallon; 90 per cent. at 160° C., 1s. 3d. per gallon; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene: A, 4¼d. per unit; B, 3d. per unit. Pitch, 34s. per ton f.o.b. Tar, refined and crude, 12s. 6d. per barrel; 2d. per gallon.

COCAINE.—There are still sellers of the Hydrochlorate from second hands at 19s. 6d. per oz., the makers quoting 20s. 6d. per oz. for 200-oz. lots in 25-oz. tins.

CODEINE—Is very firm at 12s. 11d. to 13s. 6d. per oz. for the pure and 1s. per oz. less for the salts.

COD LIVER OIL—Remains firm, the stock on the other side being apparently concentrated in the hands of a few strong holders, which augurs well for the future of the article. The agents here quote 75s. to 80s. per barrel, but without engagement, for best non-congealing Norwegian oil in 25-gallon tin-lined casks.

CREAM OF TARTAR.—First white crystals are quoted 74s. per cwt. on the spot; powder, 76s.; ditto., 95 per cent., 77s. per cwt.

GALLS.—Market continues very firm, but buyers will not take freely at prices asked. Small sales of Blues have been made at full prices.

GINGER. At auction moderate supplies of Cochin went off slowly at steady rates, good medium, cut and scraped, 56s. 6d.; small, some medium ditto, at 37s. 6d.; washed rough, small, rather wormy, at 23s.; Calicut rough bought in; fair medium at 27s. to 28s.; small and medium. rather shrivelled, at 25s. Jamaica: some sold at easier rates, good common at 51s. 6d. Privately: unassorted Calicut sold up to 29s.

GLYCERIN—Remains steady at 57s. 6d. to 58s. 6d. per cwt. for English, and 57s. 6d. to 65s. per cwt. for German, according to brand, for best white, double distilled, chemically pure 1260° quality, in tins and cases. Crude is also steady at nominally unchanged prices.

GOLDEN SEAL ROOT—Continues scarce on this side. To import the cost comes at 2s. 7d. per lb., landed.

GUM TRAGACANTH.—There has been a fair demand for the Persian kinds, and a good quantity has been sold at slightly irregular prices, in some cases being rather lower. Of Bagdad kinds stock is very small and selection poor, but the first arrivals of new are expected on the market at the end of this month, and for these a good demand is expected.

IODIDES—Are steady at unchanged prices.

IPECACUHANA.—A good business has been done this week in Rio at 14s. per lb., whilst Carthagena is held for 10s. per lb.

MENTHOL—Is firm at 8s. 6d. per lb. for best brands of dry white Crystals, and is stated to be likely to go dearer.

MERCURIALS.—Makers' prices are so far unchanged at 3s. 1d. per lb. for calomel and 2s. 9d. per lb. for corrosive sublimate. Other mercurials being quoted at corresponding figures.

MORPHINE—Quiet at 5s. per oz. for the hydrochlorate powder.

OILS (ESSENTIAL).—Star Aniseed is quiet at 6s. 4d. per lb. on the spot. Cassia firm at 4s. to 4s. 3d. per lb. as to quality. Lemongrass steady at 3¼d. to 3½d. per lb. Citronelle, 11½d. to 1s. 1d. per lb. Peppermint: H.G.H. firmer at 5s. 6d. per lb. on the spot. Japan, 40 per cent. steady at 5s. to 5s. 3d. per lb; dementholised, 3s. 7½d. to 3s. 9d. per lb. Sassafras dearer at 1s. 10d. per lb. Wintergreen dearer at 8s. per lb.

OILS (FIXED) AND SPIRITS.—Linseed flat; on the spot pipes, London, £22 5s.; in barrels, £22 10s. Hull closed steady; spot naked, £21 5s. Rape flat; ordinary brown on spot, £22 15s. to £23; Refined spot, £24 10s.; Ravison naked spot, £20 15s. to £21. Cotton dull; London Crude spot, £16; November-April, £16 2s. 6d.; Refined spot, £18 to £19, according to make. Hull Naked Refined spot, £15 15s.; Crude spot, £14 15s.. Olive steady; Mogador, £34; Spanish, £35; Levant, £34 5s. Cocoanut steady; Ceylon, on the spot, £25 10s.; October-December, £24, c.i.f.; Cochin spot £29 10s.; near, £27 10s., c.i.f.; Mauritius on spot, £25 10s. in hogsheads. Palm dull; Lagos on spot quoted £26 10s.. Castor Oil quiet; Belgian, first pressing, spot, £27; January to June, £25 10s., f.o.b.; Antwerp, second pressing, spot, £25 10s. per ton, ex wharf; Hull manufactured, guaranteed cold drawn, pure pharmaceutical oil, £30 per ton in barrels; 3⅝d. per lb. in cases; pure firsts, £27 10s.; seconds, £26 10s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3⅛d. ex wharf

London. Lubricating Oil: Pale American spot 7s. to 9s.; black, 6s. 3d. to 8s.; Russian black, 5s. 6d.; pale, 7s. to 8s. 6d. Petroleum Oil firm at again dearer prices; Russian spot quoted 5¾d. to 5⅞d.; American spot, 7 1/16d. to 7⅛d.; Water white, 8⅛d. to 8⅜d. Turpentine market opened steady, but there is no activity in the demand, and prices show a slight decline; American spot, 36s.; December, 36s. 1½d.; January-April, 36s. 9d.; July-December, 31s. 9d. to 31s. 10½d. Petroleum Spirit: American, 9¾d.; Deodorised, 10d.

OPIUM.—The market has continued generally quiet, and only unimportant sales have occurred, but prices are without alteration. Persian is firmly held at 12s. to 12s. 6d. for fine quality, but no business is reported.

ORRIS ROOT—Is very firm at nominally higher prices, as much as 70s. per cwt. having been asked for really fine picked Florentine.

PHENACETINE—Is still obtainable at 6s. 1d. per lb. down to 3s. 6d. for 2-cwt. lots for both crystals and powder, while Bayer's brand is quoted 3s. 3d. and Riedel's 5s. 7d. per lb., in original 1-lb. packing.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate spot, London, crystals, 3d.; powder, 3⅛d. Iodide, 10s. 6d. per lb. Permanganate quoted 52s. 6d. to 62s. 6d. per cwt., according to make; large crystals 5s. per cwt. more. Prussiate, yellow Beckton make, 7d.; other English makes, 7½d. to 7¾d.; red, 1s. to 1s. 2d. per lb., according to quantity, etc.

QUICKSILVER.—Rothschild again advanced his price 2s. 6d. per bottle, to £9 7s. 6d., second hand quoting £9 7s. per bottle. The idea appears to prevail that a further advance in price is not improbable.

QUININE.—The makers of the favourite German brands, B.&S. and Brunswick still quote 1s. 2d. per oz. for the Sulphate in 100-oz. tins, and for 1,000-oz. lots. To-day business has been done in these brands in the speculative market at 1s. 1⅜d. per oz. for December delivery, and there were still buyers at this price, but practically no sellers.

ROSIN—Dearer, strained being quoted 4s. 9d. per cwt. on the spot and 4s. 3d. to 4s. 4½d. for Nov.-Dec. and Jan.-March shipment per sailing vessel.

SEEDLAC.—At auction 10 cases Madras offered and bought in, including good pale, but small, at 95s.

SENNA.—Tinnevelly is inquired for, and a small business has been done from second-hands, at rather over last sales' rates. The demand is principally for the cheaper grades which, however, are very scarce. For Alexandrian grades there is a good inquiry, but stock is of poor quality. Business has been done in pods at 1s. per lb.—a sharp advance.

SENEGA ROOT—Very scarce, and spot holders ask 2s. 2d. to 2s. 3d. per lb.

SERPENTARIA ROOT.—Scarce and dearer at 1s. 4½d. per lb. on the spot.

SHELLAC.—There has been a fair demand since the auctions for both TN Orange and Button, resulting in moderate sales at fully the advance established there. 200 cases worked AC Garnet have also been sold at 64s. 6d. Futures remain quiet and inactive; there are buyers of TN Orange near at hand at 61s. 6d. c.f. and i. Moderate supplies were catalogued for the auctions to-day, and a fair demand prevailed for Second Orange, but the advance required by sellers checked business, and less than half found buyers at 6d. to 1s. above last sales' rates, making fair TN now 64s. Garnet neglected. Button all bought in above valuations. A total of 707 cases offered and 214 cases sold. Second Orange: Of 447 cases 204 sold, fair bright free at 63s. to 64s.; good bright cakey at 64s.; dull palish, rather flimsy, at 63s. to 64s.; bright red broken at 63s. Garnet: Of 141 cases offered only 10 cass block G sold at 55s.; the remainder, good ruby bought in, including blocky at 60s. Button: 119 cases offered and bought in, chiefly so-called pure lac, from 72s. 6d. to 87s.

SPERMACETI.—American is dearer at 1s. 3½d. per lb.

SPICES (VARIOUS).—Black Pepper: At auction, good bold Singapore was offered and sold at 5⅞d. Some bags Penang bought in, dust, 4·90 per cent., at 5¼d. Privately there has been a good demand for Singapore on the spot; some has been sold at 5¾d. For arrival the market is firm, but quiet. White Pepper: Nothing was offered in auction beyond some cases of fine Singapore, which were bought in at 1s. Privately, it is firm in the market, but no business of importance has occurred. Chillies: At auction 185 bags Japan were offered, and only 3 bags damages sold at 37s. Cinnamon Chips, etc.: 451 bags offered and 346 bags sold without reserve, quillings at 5¼d. to 8d., featherings 4d. to 4½d., cuttings at 2⅝d. to 3d., chips and bark at 2¼d. to 2⅞d. Mace quiet but steady: 2 cases Penang sold, good pale, part wormy, at 2s. 6d., fair reddish, little mouldy, at 1s. 0d. 16 cases Bombay bought in, fair, little wormy, at 1s. 6d. 71 boxes Singapore taken out at 1s. 6d.. 21 cases Bombay wild bought in at 6d. to 5½d. for ordinary to fair bright. West Indian: 59 packages sold, good pale at 1s. 7d., fair to good pale reddish at 1s. 4d. to 1s. 6d., ordinary to fair broken at 1s. 1d. to 1s. 3d. Nutmegs continue slow of sale, and of 35 cases Penang in auction only 4 cases sold, 184's, partly shrivelled, at 5½d; the remainder bought in, including 80's at 1s. 9d. and 89's at 1s. 6d. 7 cases Bombay bought in. West Indian: 17 cases and 95 barrels, etc., sold, 56's at 6s., 66's to 67's at 2s. 2d., 71's to 74's at 1s. 7d., 77's at 1s. 6d., 82's at 1s. 5d. to 1s. 6d., 87's to 89's at 1s. 3d. to 1s. 4d., 90's at 1s. 3d., 93's at 1s. 2d., 95's to 96's at 1s. 2d., 101's to 104's at 1s., 107's to 109's at 11d. to 1s., 132's at 7½d. to 8d., 137's, slightly wormy, at 6d., defective 110's at 9d., 154's at 6½d, wormy and broken from 3d. to 5d.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s.; bags, 57s. 6d. per ton. Ash, £5 5s. to £7 per ton, according to percentage, etc. Bicarbonate, landed, £7 5s.; Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic, 70 per cent. white, £10; 60 per cent., £1 less. Hyposulphite (Antichlor) 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate, on the spot, refined, £8 2s. 6d.; ordinary, £7 17s. 6d.

STROPHANTHUS SEEDS.—Green Kombé: Stock in first hands is exhausted, and second hand holders are asking 4s. to 4s. 6d. per lb. in original packages. Brown seeds are in limited supply, and are held for 1s. 2d. lb.

THYMOL.—In consequence of scarcity and dearness of the raw material (Ajowan Seed, or Wild Thyme), the price of this article has rapidly advanced. Very few of the makers are willing to sell, stating that they have no stock. Second-hand holders are offering in limited quantity at 9s. 6d. to 10s. per lb.

TURMERIC.—20 bags Cochin split bulbs offered and bought in, rather rough, at 11s. 6d. Privately prices remain very firm, but business is small. Bengal quoted 28s., Madras finger 32s. 6d. to 37s. 6d. for ordinary to good bright, and Cochin split bulbs at 12s.

SULPHATE OF COPPER—Is quoted £24 10s. to £25 10s. per ton according to brand and delivery.

SULPHONAL—Continues in an anomalous position, the makers quote 17s. per lb., while there are still sellers of both crystals and powder at 14s 6d. to 15s. per lb., according to quantity.

SULPHUR—Firm. English: Flowers, 10s. per cwt.; Roll, 7s. 6d. to 8s. per cwt. Foreign: Flowers, 6s. 9d. to 7s. per cwt.; Roll, 6s. 6d. per cwt.

VANILLA.—On Wednesday 600 tins were offered and, with good competition, practically the whole was sold. Seychelles: This kind formed the bulk of the offerings comprised of new arrivals. Prices realised were from 21s. to 30s. per lb., according to length and quality. Bourbon sold at 25s. to 27s. 6d. per lb. Tahiti bought in, but market privately is rather dearer.

Liverpool Market Report.

NOVEMBER 9, 1899.

During the week the price of Linseed has become easier, and in consequence that of Linseed Oil has come down a little. Lower prices are also to be noted for Spirits of Turpentine and Cotton-seed Oil. Improved rates are ruling for Canaryseed, Olive Oil, Potashes, and Caustic Soda and Nitrate of Soda.

AMMONIA SALTS.—Sulphate is lower and dull, £10 17s. 6d. per ton.

BEESWAX.—78 packages of Gambier sold at full prices.

CANARY SEED—Has revived both in demand and price. 36s. per 464 lbs. was offered for Turkish and refused early in the week, resulting in business being done later to the extent of 400 bags at 36s. 6d. 100 bags of Spanish made 45s.

CARNAUBA WAX.—35 bags sold at 42s. 6d. to 54s. per cwt., according to quality.

COPPER SULPHATE—Is dull at £25 per ton.

CREAM OF TARTAR.—Best white is selling slowly at 74s. to 80s. per cwt.

LINSEED—Has become quiet, with a corresponding drop in price, but buyers are not anxious for business. Calcutta seed on the spot is not offered, but forward November-December shipment is quoted at 49s. 6d. per 416 lbs. North American near at hand

46s. 6d. per 424 lbs.; forward November-December shipment, 46s.; River Plate (new crop), December-January, 43s. 6d.; January-February, 43s. 3d. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor Oils are in very limited demand, Calcutta at 3 1/16d. to 3 1/8d. per lb.; French, 1st pressure, 2 7/8d. to 3d.; 2nd French and Belgian, 2 5/8d.; 2nd Sulphur, 2 1/2d., and Madras, 2 7/8d. Olive, owing to considerable advances in the price abroad, Spanish oil, to arrive, is now quoted at £35 per tun, cost and freight, for Malaga, and £34 per tun, cost and freight, for Seville. Linseed oils of Liverpool make are easier and slow of sale at 24s. 6d. to 25s. per cwt. Cottonseed oils are a turn in buyers' favour, at 19s. to 19s. 6d. per cwt.

SPIRITS OF TURPENTINE.—There are sellers at the lower rate of 37s. 9d. per cwt., with a fair business doing.

POTASH SALTS.—Potashes are dearer at 23s. 6d. to 23s. 9d. per cwt. Pearlashes have also risen to 32s. per cwt., but inquiry is only small.

QUILLAZA BARK.—About 20 tons of Chilian sold at £12 15s. per ton.

BORAX.—£16 to £16 10s. per ton.

SODA SALTS.—Caustic Soda is dearer, 76 to 77 per cent., £10 per ton; 70 per cent., £9 5s. Crystals, £3 5s. per ton.

NITRATE.—Is in moderate demand at higher rates, 7s. 9d. to 8s. per cwt.

Manchester Chemical Report.

November 8, 1899.

The Board of Trade returns for the past month are rather disappointing, and do not support the sanguine estimates of the chemical trade for some time past. It is not difficult to account for this, seeing that the textile and dyeing industries in this centre have been enjoying a period of activity unknown for some years. The imports of chemicals, dye stuffs, and tanning substances, emphasises this to a great extent, seeing that the value of imports is £377,409, or 20·6 of an increase over the corresponding period of last year. Turning to exports of chemicals and chemical and medicinal preparations, we find the declared value to be £708,179, or an increase of 5·1 per cent. In alkali we find the quantity to be 319,838 cwts., or 14·8 decrease, and the value £88,221, a decrease of 14·1, and bleaching materials 102,670 cwts., a decrease of 0·5, and value, £25,290, a decrease of 10·0 per cent. There is an increase of about 4,000 cwts. in Bleach to the States, so that in this respect other countries must have been consuming a smaller quantity than usual. In this market, however, there are advances to record, in addition to those mentioned in our last, and merchants have had an intimation that caution must be exercised in offering forward. Bleaching Powder is now quoted £5 15s. per ton; soft wood casks, on rails, works, and Caustic Soda has had another rise of 10s. for this year's delivery, with 5s. added for next year, thus making 70 per cent., £8 15s. and £9 per ton respectively. Sulphate of Copper is rather better, and may be quoted £25 10s. to £26 per ton, best brands, delivered Manchester. Brown Acetate of Lime ranges from £5 12s. 6d. to £5 17s. 6d. per ton, Welsh and American, delivered Manchester. Acids generally are weak, except Carbolic. Alum is very firm at late rates, and an advance is daily expected. Arsenic is a trifle firmer at £19 5s. to £19 10s. per ton, ex ship, Garston. Yellow Prussiate and Cyanide of Potassium are very dull.

Newcastle-on-Tyne Chemical Report.

November 8, 1899.

Business in Chemicals here is still very strong all round, and makers are practically sold out of most of their articles for sometime forward. Caustic Soda has experienced another advance of 10s. per ton for home and export trades. Parcels of heavy goods held by middle hands are making a shade more money. Quotations are:—Bleaching Powder, £6 5s. to £6 10s.; Caustic Soda, 70 per cent., £9 to £9 5s.; Soda Crystals, in bags, 55s.; Soda Ash, 52 per cent., £4 10s.; Alkali, 52 per cent., £5 10s.; Sulphur, £4 17s. 6d. to £5 per ton.

Calendar for the Week.

Sunday, Nov. 12. 24th after Trinity. Sun rises 7.14, sets 4.14.

Monday, Nov. 13. Sun rises 7.16, sets 4.13.

Royal Geographical Society, University of London, Burlington Gardens, W., at 8.30 p.m.—Opening address by the President, Sir Clements Markham, K.C.B.; paper by Willy Rickmer Rickmers on "Travels in Bokhara."

Tuesday, Nov. 14. Sun rises 7.18, sets 4.11.

Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, London, W.C., at 8 p.m.—Evening Meeting, when papers will be read by Professor J. Reynolds Green on "The Biology of Yeast," and by Professor H. G. Greenish on "Spurious Alexandrian Senna."

Royal Photographic Society, 66, Russell Square, London, W.C. at 8 p.m.—General business meeting; Second Annual Traill-Taylor Memorial Lecture—"Teachings of the Daguerreotype," by Major-General J. Waterhouse.

Wednesday, Nov. 15. Sun rises 7.20, sets 4.10.

Royal Microscopical Society, 20, Hanover Square, London, W., at 7.30 p.m.—Exhibition of Foraminifera, by A. Earland.

Western Chemists' Association (of London), Café Royal, 68, Regent Street, London, W., at 7 p.m.—Ninth Annual Dinner.

Thursday, Nov. 16. Sun rises 7.21, sets 4.8

Chemical Society, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers by W. J. Sell and F. W. Dootson; W. R. Dunstan and H. M. Reed; H. M. Dawson and P. Williams.

Chemists' Assistants' Association, 73, Newman Street, London, W., at 9 p.m.—Short Papers by Members.

Linnean Society of London, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers by W. C. Wordsdell and W. T. Colman.

Midland Chemists' Assistants' Association, Exchange Rooms, Stephenson Place, Birmingham, at 9.15 p.m.—Remarks on Laboratory Chemicals, by F. H. Alcock.

Friday, Nov. 17. ○ 10.18m. Sun rises 7.23, sets 4.7.

Glasgow Chemists' and Druggists' Assistants' and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Entertainment.

Saturday, Nov. 18. Sun rises 7.24, sets 4.5.

Leeds College of Pharmacy, 19, Springfield Place, at 7.30 p.m.—Smoking concert. Mr. W. Shaw, Ph.C., of Huddersfield, in the chair.

Publications Received.

Semi-Annual Report of Schimmel and Co. (Fritzsche Brothers). October, 1899. Pp. 75. Leipzic and New York: Schimmel and Co. From the Publishers.

Lehrbuch der Chemie für Pharmaceuten. Mit Besonderer Berücksichtigung der Vorbereitung zum Gehilfen-Examen. Von Dr. Bernard Fischer. Fourth Edition. Pp. xiv. + 649. Price 15 marks. Stuttgart: Verlag von Ferdinand Enke. 1900. From the Publisher.

Extract from Heinrich Haensel's Quarterly Report on Essential Oils and Fruit Essences. Pp. 23. October, 1899. Manchester: William Poppelreuter, 54, Portland Street; London: 19, St. Dunstan's Hill, E.C. From the Publisher.

Year-Book of Pharmacy, 1899, with the Transactions of the British Pharmaceutical Conference at the Thirty-sixth Annual Meeting, held at Plymouth, July, 1899. Pp. xiv. + 517. London: J. and A. Churchill, 7, Great Marlborough Street. 1899. From the Publishers.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Green's Botany, Vol. I. Quite new.—Phenacetin, Westminster College, Borough, S.E.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Herbarium (Sale or Exchange) consisting of 174 specimens, arranged into 56 natural orders, correctly named. 2 guineas.—R. W. Tildesley, Parkgate, Rotherham.

What offers for Thompson's Gelatine Pill-coating Machine Pindar's Fig B. Pill Machine, with 2 rollers; 16 vols. "Pharmaceutical Journal," with index, 1 to 15?—Hasselby, St. Leonards.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

To Clear.—Iodoform Precip. 12/6 lb., Crystal 12/- lb.; Potass. Iodid., 2 lb. 19/-. 36 Tetlow's Swandown, 9/-; Gossamer, 12/-, assorted. Offers wanted for 24 Freeman's Chlorodyne.—Eastman, Forest Lane, Stratford.

Good Second-hand, Hand Painted Lantern Slides, to clear 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Formula suiting good toilet speciality purchased.—W. Lewis, 15, Shelden Street, London, W.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Old Druggists' Crockery-ware wanted. Blue and white Syrup Jars, Ointment Pots, Oil Vases, and other Pharmaceutical Antiquities.—John Austen, Pharmaceutical Chemist, Dore, near Sheffield.

A Complete Set, part-set, and odd volumes of the "Pharmaceutical Journal and Transactions," also vols. of "Chemical News," "Chem. Soc. Journal," "The Analyst."—Address offers, "Gentian," "Pharm. Journal" Office, 5, Serle Street, London, W.C.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Allen, Ball, Barker, Bell, Bennett, Burroughs, Butcher, Corfe, Cowap, Cowley, Cracknell, Dudderidge, Flint, Gardner, Gerrish, Gifford, Hamerton, Hasselby, Hebb, Hindle, Holt, Huntley, Johnson, Keltie, Kirkby, Kraemer, Lawson, Lescher, McCarthy, Marsden, Marshall, Michie, Middleton, Mitchell, Oliver, Pagan, Pegg, Pollitt, Poppelreuter, Sargeant, Seabury, Smith, Spurge, Tunnicliff, Turner, Twinberrow, Volans, Waterhouse, Weddell, Wellcome, White, Wilson, Wolstenholme, and Wright.

ENGLISH NEWS.

A Correspondent sends an interesting cutting from the *Peterborough Advertiser* to the effect that the borough engineer of Peterborough, failing to discover the address of Professor Wanklyn, had asked and obtained permission to retain Professor Sir *(sic)* John Attfield for the purpose of making an analysis of the town water supply. We were unaware that Dr. Attfield had received the honour of knighthood, though his services may have made such a distinction not undeserved; but perhaps our friends in the cathedral city may be in possession of information on this point, which has been withheld from some of the more intimate acquaintances of Dr. Attfield.

Royal Institution.—The annual course of Christmas lectures, specially adapted for young people, at the Royal Institution, will this year be delivered by Mr. Charles Vernon Boys, F.R.S. The subject will be "Fluids in Motion and at Rest." The lectures (which will be six in number) will commence on Thursday, December 28, at three o'clock. The remaining lectures will be delivered on December 30, and on January 2, 4, 6 and 9, 1900.

Midland Chemists' Assistants' Association.—This Association held a smoking concert in the Exchange Rooms on Wednesday evening last. Mr. J. Wakefield made an ideal Chairman, and the proceedings went merrily from beginning to end. There was a large number present, in spite of the unpropitious state of the weather, and a capital programme was provided. A collection in aid of the *Birmingham Daily Mail* Reservist Fund produced £1 7s. Messrs. Childs, Myer (sen.), Myer (jun.), Spear, Foster, Holland, and Taylor contributed songs, and Mr. Hebditch gave two recitations.

Students Visit the London Docks.—On Wednesday, November 8, the students of the Imperial College of Chemistry visited the London Docks, under the direction of their principal, Mr. Frederick Davis. The ivory floor was first visited, where many tusks were seen, some being valued individually at ninety pounds sterling. On the spice floors the students had facilities for examining every variety of cinnamon and cassia barks, cloves, mace, nutmegs, ginger, etc.; whilst the "bark floor" yielded good examples of every variety of cinchonas, including hybridised South American and Indian barks. In the essential oil department fine samples of rose, cinnamon, cassia pimento, santal, wintergreen, and other oils were inspected. On the iodine floors kegs of iodine, each bearing a distinctive mark and number, and valued at about eighty pounds sterling per keg, were seen stored in almost incredible numbers. Lastly the mercury vaults were visited, the quicksilver contained therein being the property of the Rothschilds, each bottle being valued at about twelve pounds sterling, the number varying between twenty and thirty thousands.

Plymouth Chemists' Association.—At the dinner of this Association last week, Mr. J. Davy Turney, Ph.C., recited Rudyard Kipling's poem, "The Absent Minded Beggar," after which the sum of £2 12s. 10d. was collected on behalf of the "*Daily Mail* South African Relief Fund." Songs, recitations, etc., were given by Messrs. H. J. Bailey, J. Balhatchet, J. Kinton Bond, J. Perry, and J. D. Turney Marshall.

Sheffield College of Pharmacy.—On Tuesday, October 14, the students of this College, accompanied by the principal, had a whole day botanising, the first place visited being the Sheffield Botanical Gardens, now under the control of the town trustees. The houses of Mr. Keeling, of Brownhill, received attention, followed by a visit to the conservatories at Encliffe Hall. The variety of specimens seen was instructive, among which were *vallisneua spiralis*, *trichomanes radicans*, species of carmichaelia from N.Z., Penang palm, sawaccma vanola tree ferns, Bambusa nigra, etc. Afterwards, botanical ramble was continued through Fulwood, Ringinglowe, and Eccleshall, returning at 4 p.m. after a most enjoyable day.

Valentine's Extract.—On Tuesday last, Mr. Justice Stirling, in the Chancery Division of the High Court, delivered his reserved judgment in the action brought by the Valentine Meat Juice Company, to restrain Valentine's Extract Company, Limited, from carrying on the business of manufacturers or vendors of any preparation or extract of meat, or meat juice, under any name or title of which the the word Valentine formed part. He said the plaintiff's business was started in 1871 by Mr. Valentine, who discovered a mode of making a preparation of meat juice, and on his death in 1892, the business passed into the hands of the plaintiff company, who carried on business in America. The meat juice, which was sold chiefly by chemists, was a liquid, and had always been sold in small bottles of one size and of a distinctive shape, bearing a triangular label with a trade mark. Until 1898 there was no other preparation of meat on the market connected with the name of Valentine. Towards the close of 1895 Mr. C. R. Valentine conceived the idea of putting up solid extract of meat in the form of globules, and the invention, having been patented, was sold to the defendant company. Since the commencement of the action these globules had been sold under the name of "Valtine," and it was stated that the defendants did not intend in future to use the word "Valentine." It was not unimportant to observe that the goods sold by plaintiffs and defendants were of a different nature; the plaintiffs' was a liquid and the defendants' solid; and he found, as a fact, that there was no substantial competition between the two articles. Both were prepared from meat, but they differed at least as much as one malt liquor did from another. Mr. C. R. Valentine, if honestly carrying on the business of selling meat globules in his own name, and on his own account, could not be restrained from using his own name in connection with the business; but then arose the question: Had he done something more than use his own name in such a way as to render him liable to be restrained? It appeared that in support of the application to register 'Valtine' as a trade mark Mr. C. R. Valentine had signed a declaration which contained more than one material statement which was untrue, and the only explanation given was that this statement was prepared by the patent agent and signed by Mr. Valentine without reading it. After referring to the evidence given at the trial, his Lordship said that though the case had many features of suspicion about it, he had come to the conclusion that want of good faith on the part of Mr. C. R. Valentine had not been established, and consequently the action failed and must be dismissed, but without costs.

Newcastle-on-Tyne and District Chemists' Association.—The usual monthly meeting was held on Wednesday evening, November 8, at the Hotel Metropole, Newcastle-on-Tyne, Mr. C. Ridley, the President, in the chair. An animated discussion took place on "The Question of Chemists' Titles," which was introduced by Mr. T. M. Clague, and taken part in by the President, and Messrs. Wright, Buckley, Merson, Kerse, Ellis, Whitehead, and the Secretary. The following resolution was unanimously adopted on the motion of Mr. Clague, seconded by Mr. Wright, "That this meeting expresses its conviction, that in the interests of the public, and of pharmacy, personal qualification of the responsible owner, or owners, and all persons having control of the business, is imperative. This meeting also expresses its opinion that bonâ fide pharmacists will be able to conform to the principle above laid down, without disadvantage to themselves, in such portions of their business as fall under the designation of 'Shops kept open for the retailing and compounding of medicines.'"—The next meeting will take place on Wednesday evening, December 6, when Mr. R. Buckley, North Shields, will open a discussion on "The Extension of Part II. of the Poison Schedule."

British Pharmaceutical Conference.—A meeting of the Executive Committee was held at 16, Bloomsbury Square, on Wednesday, November 8. Present: Mr. E. M. Holmes (President), in the chair, Messrs. Atkins, Bird, Peck, and White; Messrs. Warren and Cracknell (Hon. Local Secretaries), Messrs. Naylor and Ransom (Hon. General Secretaries), and Mr. Nightingale (Assistant Secretary). Letters were read from Professor Greenish and Messrs. Martin, Payne, Collier, and Turney, regretting their inability to be present. The minutes of the previous meeting were read and confirmed. On the motion of Mr. Atkins, seconded by Mr. Martindale, a resolution was passed expressing the loss that the Conference had sustained by the death of Mr. T. Greenish, and instructing the Secretary on behalf of the Executive to forward a letter of condolence to the family. On the motion of Mr. Hills, seconded by Mr. Martindale, a resolution was passed instructing the Secretary to send a similar letter to the family of the late Herr Dr. Anton von Waldcheim, formerly an honorary member of the Conference. The following members were appointed as a Sub-Committee to revise the Blue List:—The President, the Treasurer, Professor

Greenish and Messrs, Bird. White and Ransom. It was decided that the list, when revised, should be offered to the journals for publication, instead of being sent by post to each member individually. On the proposition of the Treasurer, seconded by Mr. Naylor, Mr. Siebold, F.I.C., F.C.S. was reappointed editor of the 'Year Book of Pharmacy.' Eight gentlemen, having been duly nominated, were elected to membership.

FOOTBALL.—The first Cup fixture of the Metropolitan College of Pharmacy F.C. in connection with the Inter-Pharmacy League was played against the "Pharmaceuticals" at Wormholt Farm, Shepherd's Bush, on Saturday, November 11. The game during the first part was mostly in the "Metros" half, and a number of shots were put in, but at half-time neither side had scored. After the usual interval the "Metros" with a sharp run, scored a goal, which was shortly after equalised by the "Pharmaceuticals." The game continued fairly even, both sides pressing hard at times. Finally the "Metros" secured two more goals, leaving them the winners by three goals to one.

SCOTTISH NEWS.

GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—At a meeting of this Association on Friday, November 10, the PRESIDENT (Mr. J. P. Gilmour) occupied the chair, and Mr. T. Maben delivered a communication entitled, "A Bottle of Soda-Water." Mr. MABEN gave an interesting description of the various machines for the manufacture of aerated waters, and spoke of the great strides made in the manufacture of these waters during the past twenty years, but pointed out that all machines were practically the same in principle as those originally used. The greatly-increased consumption had necessitated the erection of large factories till now there was practically very little room left for the individual chemist to go into the manufacture. He explained how, at the price waters were now sold, it was difficult to run a small manufactory at a profit, but gave some valuable hints to those of his hearers who might get a connection with such a place, how to work it to the best advantage. At the conclusion of his lecture, Mr. Maben showed the various styles of bottles in use, and was awarded a hearty vote of thanks. Mr. Maben also referred to the address delivered by the President of the Association at a recent meeting (see *ante*, p. 461), and to the company pharmacy problem. In the latter connection he said that he hoped the effort to secure their title for themselves would soon be realised, though even then they would not be able to regulate the companies in the way they would like, much less to suppress them. It was a poor look out for them if after all their years of hardwork, trouble, and expense to call themselves chemists and druggists, they found the legal right to the name was only a fiction. He differed from Mr. Gilmour with regard to the effect the spread of secondary education would have on the future apprentice. Many of the young men who could be kept by their parents at school till they were of an age to pass the examinations were not going to remain behind the counter. They would go on to the University, so that for a long time to come they would not be troubled with too many apprentices.

IRISH NEWS.

CHEMISTS' AND DRUGGISTS' SOCIETY OF IRELAND (NORTHERN BRANCH).—A meeting of the committee of the above Society was held on Monday last in Belfast, Mr. Wm. Jamison, who was recently elected on the Council of the Pharmaceutical Society to represent the druggists, presiding. After some routine business had been transacted, the Chairman, in adverting to his recent election, urged those present to qualify for further representation. He stated that from personal observations at a recent meeting of the Council which he attended, he was perfectly satisfied that their representative would receive a most friendly welcome. He was received in a kindly manner, and nothing transpired to indicate anything but feelings of good will towards the druggists. He maintained that some recent prosecutions for infringement of the Pharmacy Act were with the object of conserving the interests of the licentiates of the Society and its members, and were taken against parties who were not qualified to fill prescriptions, they were therefore acting illegally. He did not believe that the Society would harass anyone. He hoped the druggists would endeavour by qualifying to secure full representation. Mr. Rankin supported the chairman, and said that the Council, he believed, entertained the most cordial feelings towards them. The committee afterwards adjourned.

PHARMACY ACT PROSECUTION.—At Athlone Petty Sessions on Tuesday last, 14th inst., before Captain Preston, R.M., and Mr. William Smith, J.P., a prosecution in which a good deal of interest was centred came on for hearing. Mr. William Doyle (of Messrs. W. Doyle and Co., druggists, etc., Athlone) was charged by Sergeant Connolly, local Inspector of Weights and Measures, on no fewer than six summonses, for breaches of the Pharmacy Act of 1875. The charges related to keeping open a shop which defendant did not manage and conduct for the sale of poisons without employing a qualified assistant or manager, for having in the shop an assistant or manager not qualified, not being a chemist and druggist, for selling arsenic without having made the purchaser sign the necessary entries; and the assistant was summoned for retailing and dispensing poisons—to wit, arsenic—to one George Campbell, contrary to the Pharmacy Act of 1875, not being a person properly qualified in that behalf. The offences occurred on the 11th and 13th September, and the case was adjourned for the last Court day.—The Police Sergeant said from a complaint or information made to him he visited the premises of Mr. Doyle and asked to be allowed to see the Sale of Poison Book, which it was necessary to keep. It was brought to him by the assistant, and he saw two entries made on September 11 and 13. They were not complete, inasmuch as they did not contain the signature of the purchaser or the introducer, if the purchaser had one. The assistant admitted he made the sale in the absence of Mr. Doyle. Mr. Doyle committed an offence by keeping his shop open and not personally managing or conducting the business, and by having a person managing who was not qualified; and he committed an offence by selling arsenic without complying with the regulations under the Act.—Mr. Gaynor, who appeared for the defendants, said it was the first prosecution of the kind brought in Athlone. Mr. Doyle conducted his business in a way that reflected credit on him. He had not the remotest idea he was guilty of a breach of the Pharmacy Act, but they admitted all the offences, and what he asked the Court to do was, if they pleaded guilty to one of them, the Court would ask the prosecution to withdraw the remainder. They were sorry for what they had done.—Sergeant Connolly said when issuing the summonses he got no instructions to insist upon convictions in each case, and he left it with the magistrates to direct him.—Captain Preston said they would accept a conviction in one case. It was the first prosecution brought in Athlone, and they were very merciful in proceeding on one of the sections which did not provide a heavy penalty. Fines to the amount of £75 could be imposed. They would impose a penalty of 20s., and 10s. costs.

TRADE NOTES.

MESSRS. RAIMES AND CO., wholesale druggists and manufacturing chemists, Micklegate House, York, announce that they have purchased the goodwill, stock-in-trade, plant, book debts, etc., of the firm of Messrs. Slinger and Son, York, which firm is reputed to have been one of the oldest, if not the oldest, in the kingdom, having a continued existence of over 200 years. Messrs. Raimes and Co., have secured, together with many valuable recipes, all the proprietary rights in the original "Slinger's Nutrient Suppositories," which they will continue to supply in their original form and integrity.

UMNEY'S CASCARA CHOCOLETTES.—Messrs. Wright, Layman and Umney, 48 and 50, Southwark Street, submit specimens of their Cascara Chocolettes, tablets of cascara extract, coated with chocolate. The tablets are made in two sizes, viz., two grains and four grains, have an elegant appearance, and are put up in metal screw-capped bottles. They possess many advantages over sugar coated tablets, being practically equally soluble, very pleasant to the taste, and the coating can be made so much thinner than is the case with sugar, that a four grain tablet coated with chocolate is no larger than the two grain tablet coated with sugar.

FOOD AND DRUGS ACT PROSECUTIONS.

Milk of Sulphur.—Harry Smurthwaite, grocer, Grove Street, Retford, on entering the business, took over the stock-in-trade of the previous occupier. This included some milk of sulphur, part of which was subsequently purchased by Inspector Crabtree, who had it analysed, and as a result, Mr. Smurthwaite was recently summoned at the local police-court for having sold milk of sulphur not of the nature and substance demanded. The manufacturers of the article, however, admitted responsibility, and on defendant undertaking to pay the costs of the case and to destroy the remnant of the article, the case was withdrawn.

Camphorated Oil.—Messrs. John Walton and Co., Limited, grocers, Marden, Bradley and Mere, Wilts, were charged at Warminster Petty Sessions on Thursday, November 2, with having sold camphorated oil containing 8 per cent. of camphor only. For the defence it was admitted that the article was sold as supplied by the maker, but it was contended that inasmuch as camphorated oil was a compounded drug, the summons had been issued under the wrong section, viz., Section 6.—The Bench upheld this view and dismissed the summons, but on the application of the prosecution, decided to state a case.

Spirit of Nitre.—At Wolverhampton Police-court, on Wednesday, November 8, Cornelius Charles Burnett, chemist and druggist, of 122½, Horseley Fields, Wolverhampton, was summoned for selling, on September 29, sweet spirit of nitre that was 30 per cent. deficient. There was a second summons for a similar offence committed on October 3, the drug then being 22 per cent. deficient.—Mr. R. A. Willcock, for the defence, pleaded carelessness, and contended that there was no intention to defraud. He admitted the facts.—On the first charge, defendant was fined 10s. and costs, and in the second case the summons was withdrawn on payment of costs.——At the same court, Thomas Pilbrow, described as a chemist, of 65, Bilston Road, Wolverhampton, was summoned for selling sweet nitre 60 per cent. deficient, and with selling paregoric not of the nature and substance demanded, inasmuch as it did not contain opium, one of the most important constituents.—[The name Thomas Pilbrow does not appear on the Register of Chemists and Druggists for 1899.—Ed. *P.J.*]—Inspector G. F. Allwood gave evidence as to the purchase and analysis of the articles in question, and said that in these cases an attempt had been made to sell articles which were not genuine.—Mr. E. W. T. Jones (public analyst), stated that in his opinion the sweet nitre had never been up to the proper standard. In the paregoric there was an entire absence of the tincture of opium.—Defendant admitted both charges, and said that he was not a qualified chemist.—The Stipendiary said that the case was the most fraudulent he had ever had before him, and there was no protection for the defendant in the label on the bottles. He would be fined £20 and 7s. 6d. costs in each case.—Defendant said he could not pay, and according to reports in the local newspapers, he was committed to prison for four months. Great surprise has been expressed in the neighbourhood at the sentence imposed, and it is stated that a petition is in circulation for presentation to the Home Secretary, asking for a remission of the sentence. Five hundred signatures are said to have been attached to the petition, including those of Sir Alfred Hickman, M.P., Mr. R. C. E. Plumptre, Councillors Gough-Allen, G. R. Thorne, E. White, Bull, Shepherd, F. Evans, Stevenson, Parkyn, Wilson, Steward, Hodgson, and Gibson, Dr. Scott, and others. Sir A. Hickman is reported to have consented to present the memorial to the Home Secretary.

PHOTOGRAPHIC NOTES.

Formulæ for Developers.—Most photographers who work on scientific lines will agree with the opinion expressed by one of the speakers at a recent meeting of the London and Provincial Photographic Association that, in introducing new developing agents, the makers seem to go out of their way to make the formulæ as complicated as possible. The speaker added that he had adopted ortol for his general negative work, instead of pyro, but in order to learn how to modify the ingredients of the developer so as to produce the class of negative he required, he had, first, to make an arithmetical calculation from the formula given of the quantity of the constituents to a definite amount of water that would make a negative of some kind or other, and then to rearrange the stock solutions, so that a developer containing the active principles in any proportion required might be mixed without entailing more than the simplest of calculations. He advocated the general use of 10 per cent. solutions. One would have thought in these advanced days of chemical science and commercial competition that when something new is introduced which is intended to fight its way into general use, for the credit of the chemist whose laborious experiments have brought it within our reach, and for the sake of the pockets of those who hope to repay themselves for the expense incurred and profit by their enterprise, something more than the inexact and often misleading general statements and the crude directions for its use, which are the usual accompaniment of a new developing agent, would be given. During the past few years there have been several, perhaps a dozen, of these new developers that have come under our notice, but in no case do we remember that the directions for use contained any information, or which was accompanied by a formula which would obviate the necessity for some method of procedure for the purposes of investigation, such as that referred to by the member of the London and Provincial whose remarks we have quoted. While we are on the subject of developing formulæ, we may refer to those given by plate makers. In the 'British Journal of Photography Almanac' may be found collected the formulæ for development of all the best-known brands of plates. In studying these one's impression is that a marvellous amount of ingenuity has been exercised by each maker to compound his stock solutions in a different way from anyone else. To take the pyro solution, a few, very few, adopt a 10 per cent. solution, but in the majority of cases the water to 1 oz. pyro is some odd amount—for instance, 1 oz. to 7 oz. 3 dr., 1 oz. to 7½ oz., 1 oz. to 16 oz., 1 oz. to 5½ oz., 1 oz. to 9 oz., 1 oz. to 20 oz. Sometimes even the same maker has quite different stock pyro solutions for soda and for ammonia; for instance, for ammonia pyro 1 oz. to 7 oz. 3 dr. of water; for soda pyro 1 oz. water to make 10 oz. Examples of this kind could be given almost *ad infinitum*. This want of system affects the dealer adversely in many ways. If standard solutions were generally used there is no doubt it would be the custom to buy solutions ready prepared. The photographer of to-day will do nothing for himself that he can avoid. Probably many of the extraordinary failures that beginners experience in development would not occur, or, at any rate, might be more easily explained if an account could be given of how the developer used was proportioned. Everyone who has been behind a dealer's counter has had experience of the failures the dealer is expected to account for because he happened to sell the plate. The question naturally is put: What developer did you use? When the reply is: I made it up according to the directions on the box and mixed two parts of A to one of B, or something of that kind, the thing is in a hopeless tangle at once.

Intensification of Platinotypes.—Workers in this branch of photography are often troubled by want of density in the picture, this being caused mostly by bad lighting, but also by moisture. To intensify such a picture it is treated with a solution of the following formula:—Sodium formate (10 per cent. solution), 50; platinum chloride (2 per cent. solution), 50; water, 50. The intensification proceeds slowly, and is easily controlled.—*Amat. Photograph.*, **13**, 151.

"Adurol," a New Photographic Developer.—The new developer "Adurol" is the chloro- or bromo-substitution product of the well-known and much used hydroquinone. The remarkable properties of these bodies for the development of plates has been discovered simultaneously by Hauff and Co. and Schering, who retain the manufacture in their hands, patents having been applied for in all countries. The former firm supply the chloro-substitution product, the latter, bromo-hydroquinone. Both are practically identical in their working. The chloro-substitution product is a white crystalline powder, much more easily soluble in water than hydroquinone. The following formulæ are recommended for its use:—(1) *Potash developer:* (A) Adurol, 25; sodium sulphite, 200; water, 1,500; (B) caustic potash, 100; potassium bromide, 2; water, 1,000. (2) (A) *Soda developer:* (A) Adurol, 25; sodium sulphite, 200; water, 1,500; (B) sodium carbonate, 250; potassium bromide, 2·5; water, 1,000. In the case of clear plates, the potassium bromide

may be omitted. For studio work take 30 pts. A, 20 pts. B; for landscape work, 30 A, 20 B; and for instantaneous work the same proportions, with the addition of 20 parts of water. The following concentrated developer in one solution may be employed:—Adurol, 25; sodium sulphite, 200; caustic potash, 100; potassium bromide, 2; water, 300. Take of this, for studio work, 10 parts; water, 50 parts; and for landscape and instantaneous work, 10 parts of the developer, and water 75. The picture normally appears in about 20 seconds, and is completely developed in four or five minutes. For under-exposure more of the developer should be used, and for over-exposure more potassium bromide is to be added to the fresh developer. The picture can also be forced by adding more potash solution. For developing bromide tints take A, 30; B, 20; water, 50; or concentrated developer, 10; water, 120. The potassium bromide should be used in this developer.—*Amat. Photograph.*, **13**, 151.

Publications Received.

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. By Dr. GEO. B. WOOD and Dr. FRANKLIN BACHE. Eighteenth edition (illustrated), thoroughly revised and largely rewritten, by H. C. Wood, M.D., LL.D., Joseph P. Remington, Ph.M., F.C.S., and Samuel P. Sadtler, Ph.D., F.C.S. Pp. xlv. + 1999, price 36s. Philadelphia: J. B. Lippincott Company. London: 36, Southampton Street, Covent Garden. 1899. From the Publishers.

MATERIA MEDICA LABELS. Adapted for public and private collections. Compiled from the British Pharmacopœia of 1898 and other sources. Labels, nearly 500 on gummed paper. Price 12s. 6d. net, post free. London: H. K. Lewis, 136, Gower Street, W.C. 1899. From the Publisher.

A MANUAL OF SURGERY. By CHARLES STONHAM, F.R.C.S. (Eng.), in three volumes. Vol. I.—General Surgery, pp. xiii. + 343. Vol. II.—Injuries, pp. xv. + 383. Price, 7s. 6d. each. London: Macmillan and Co., Limited. 1899. From the Publishers.

ORGANIC CHEMISTRY APPENDIX. By W. H. PERKIN, Jun., Ph.D. F.R.S., and F. STANLEY KIPPING, Ph.D., D.Sc. (Lond), F.R.S Pp. 543 to 618. Price 1s. London and Edinburgh, W. and R. Chambers, Limited. 1900. From the Publishers.

Deaths.

Crompton.—On November 3, William Crompton, Chemist and Druggist, Bury. Aged 65.

Hobson.—On November 9, Charles Hobson, jun., Chemist and Druggist, Beverley, Yorks. Aged (about) 40. Mr. Hobson was the son of Charles Hobson, Chemist and Druggist, a former Mayor of Beverley.

Towerzey.—On November 10, Alexander Towerzey, Pharmaceutical Chemist, Clifton. Aged 56.

Hodsoll.—On November 11, Thomas Henry Hodsoll, Chemist and Druggist, Shepherdess Walk, London, N. Aged 72,

Evans.—On November 9, John Evans, Chemist and Druggist, Dowlais. Aged 68. Mr. Evans, who was a member of the Pharmaceutical Society for many years, was one of the best known and most widely respected tradesmen in Dowlais, having been in business there for over forty years.

LIVER EXTRACT FOR DIABETES.—Roques thus prepares extract of liver for the treatment of diabetes by the method of Gilbert and Carnot, which, in certain cases, has given very good results. Fresh ox liver, after washing with sterilised water, is cut into small pieces, with aseptic precautions, and macerated for twenty-four hours in an equal weight of glycerin. The mixture is then filtered through sterilised paper, and 0·7 per cent. sodium chloride solution is added equal to half the weight of glycerin used. The brownish or rose-coloured solution thus obtained is put up in sterilised bottles. It is given by a rectal injection in doses of 60 Gm., after first washing out the bowel with an injection of tepid water. The temperature of the liver extract should be adjusted for each patient by warming on the water bath, so as to ensure its retention:—*L'Union Pharm.*, **40**, 445.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Alderman Allwood Simpson, J.P., M.P.S., has been elected Mayor of Stalybridge. The requisition asking him to accept the office was unanimously signed by members of the Town Council, and was cordially and generally approved by the townspeople. He is a Conservative in politics, but recognition of his abilities is not confined to his own party, for in 1895 he was appointed a borough justice by the Liberal Government. Mr. Simpson was elected to the Town Council in 1886, and became an Alderman in 1893. He was born at Chelmorton, near Buxton, in 1849, and at the age of fourteen years went to Stalybridge as a chemist's apprentice in a business where he speedily rose to be manager, partner, and finally proprietor. He and his brother, Councillor Simpson, also own an extensive drapery business in the town.

Alderman John Horsley, J.P., M.P.S., has been elected Mayor of Hartlepool for the seventh time. He is a Unionist in politics and joined the Town Council in 1870. He was first appointed Mayor in 1881, holding the office until 1885. In May, 1898, on the death of the late Mayor, he was again elected, and was re-elected in November of the same year. He is a native of Hartlepool, and son of the late Mr. Matthew Horsley, shipowner. In addition to being an Alderman of the Town Council, he is an Alderman of the Durham County Council, and holds various other important public appointments, being Chairman of the Hartlepool Pilotage Commissioners, a member of the Board of Guardians, and of the North-Eastern Sea Fisheries Board, and the Tees Salmon Fishery Board.

Mr. William Albert Wren, chemist and druggist, who has been elected Mayor of Taunton, has for several years been one of the most active members of the Corporation, and has for some time acted as Chairman of the Sanitary and Hospital Committees. He is a Conservative in politics.

Partnerships Dissolved.

(From the London Gazette.)

Robert Wilfred Donoghue, Charles Boothby, and George Boothby, Analytical and Manufacturing Chemists, Church Wharf, 10, Church Row, Limehouse, London, E., trading under the style of The British Boiler Fluid and Engineers' Stores Company. Debts will be received and paid by Robert W. Donoghue and Charles Boothby, who will continue to carry on the business.

George Herbert Lewis and Charles Lovell Smith, Mineral Water Manufacturers, South Quay, Worcester.

John Thomas Browne-Mason and Thomas Arthur Goard, Dental Surgeons, 6, Southernhay, Exeter.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

William Henry Frederick Bowman, Photographer and Electrical engineer, lately carrying on business at Heaton Street, now of 3, Foster Street, Gainsborough, Lincolnshire.

Frederick Wormald, Veterinary Surgeon, 20, Liverpool Road, Birkdale, Lancaster.

Dr. Victor Jagielski, 14, Dorset Square, lately residing at 54, York Terrace, London.

CITROPHENE.—Benario reports favourably (*Wiener Med. Press*) on the antithermic action of citrophene in cases of typhoid and influenza. Puiggera has also found the remedy of use in the fever of phthisis. It is given in doses of half to one gramme, and is not followed by any unpleasant after symptoms.—*Nouv. Rem.*, **15**, 421.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

Thursday, November 16.

Business has been fairly active during past week, there being also various changes in value in an upward direction to record. Acid Carbolic is much dearer, partly no doubt owing to demand for the manufacture of Picric Acid, which is said to be the principal component part of the destructive explosive, known under the name of Lyddite. Quinine is also somewhat better. Camphor is again tending upwards, and the same may be said of Quicksilver, and, as a consequence, also of mercurials. Higher prices are asked for best brands of Cod Liver Oil. Thymol is said to be likely to further advance in value, while Sulphate of Ammonia is also dearer. Acid Citric continues dull and weak. Acid Tartaric and Cream of Tartar quiet. Ipecacuanha in better demand and rather higher, especially for the Carthagena variety. Bromides are very firm. Iodides steady. Opium quiet. Morphine fairly steady. Codeine firm. Phenacetine expected to advance. Glycerin quiet. The following are the prices actually ruling for some articles of principal interest:—

ACETANILIDE—Continues dull and weak at 9¼d. to 11d. per lb., according to quantity and make.

ACID BORACIC.—Unchanged at 25s. per cwt for crystals, and 27s. for powder.

ACID CARBOLIC —Very firm at higher prices, the prices being 8½d. for 35° to 36° C. ice crystal in large bulk; 9½d. for 39° to 40° C. and 10½d. for 39° to 40° C. detached crystals, B.P. quality. Crude, 60° F., 2s. 9d. per gallon; 75° F., 3s. 6d. per gallon. Liquid, 95 to 98 per cent. of pale straw-colour, 1s. 3d. per gallon in 40-gallon casks; ditto 30 per cent. of dark colour, 11d. to 1s. per gallon.

ACID CITRIC—Quiet and dull at 1s. 3½d. to 1s. 4d. per lb. for crystals in 5-cwt. casks.

ACID OXALIC—Is still quoted 3d. to 3¼d. per lb. nett delivered free London.

ACID TARTARIC.—Unchanged at 1s. 1d. per lb. for English on the spot, and 1s. to 1s. 0¼d. c.i.f. for foreign.

ALOES.—Cape more in demand, but the extreme prices asked for the small supply available has tended to check business.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, 3d. to 4d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 32s. 6d. to 35s. per cwt.; ditto, commercial, 28s. per cwt. Sal ammoniac: Firsts, 40s. per cwt.; Seconds, 38s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate dearer. Gray, prompt, 24 per cent., London, £10 12s. 6d. to £10 15s.; Hull, £10 12s. 6d. to £10 15s.; Leith, prompt, £10 12s. 6d. to £10 15s.; Beckton, prompt, £10 10s.; January-March, £10 17s. 6d.; Beckton, terms prompt, £10 8s. 9d. to £10 10s. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is still quoted £40 per ton and Crude Japan (Black Sulphide) £23 10s. to £24 per ton.

ASAFETIDA.—Some 90 cases Persian Gulf Gum of good quality, but wet with sea water, will be offered next week. The market is very quiet.

ASHES.—Pots, 25s. Pearls, 32s.

ATROPINE firm, the scarcity and dearness of Belladonna root pointing to the improbability of any alteration in price, unless it be in an upward direction. Makers' present prices are 15s. 6d. per oz. for the sulphate B.P. and 17s. 10d. per oz. for the pure alkaloid.

BELLADONNA ROOT.—Really good root is very scarce. Price is nominally 42s. 6d. to 45s. per cwt., but it is practically impossible to obtain offers.

BISMUTH—Is unchanged both for the metal and the salts.

BLEACHING POWDER (CHLORIDE OF LIME).—English still quoted £6 10s. per ton.

BORAX—Is still quoted 16s. per cwt. for crystals, and 16s. 9d. for powder.

BROMIDES—Are in good demand at firm prices, which are, however, unchanged at 1s. 10½d. per lb. for Potassii Bromid., the other sales being quoted in proportion.

CAMPHOR.—The market for Crude continues firm, and prices are again higher, but, with few sellers, little business has been done. On the spot Japan sold at 170s., China rather buyers at 162s. 6d. For arrival buyers of Japan at 165s., and China at 160s. c.f. and i. Refined is very firm at the lately advanced price of 2s. per lb. for English Bells and Flowers in ton lots, and everything would appear to point to a probable further advance in price in the near future.

CASCARA SAGRADA.—New Bark is quoted 26s. to 27s. 6d. per cwt.; while for Old Bark 30s. to 32s. 6d. per cwt. is asked.

CHAMOMILES.—Good Belgian are quoted 75s. to 80s. per cwt.

CINCHONA BARK.—The supplies at auction were larger than for some time past, amounting to 4,063 packages of all descriptions, as against 975 packages at the previous sale. Fully two-thirds of the offerings were East Indian descriptions, chiefly Crown Bark, including 406 bales from the Neilgherry districts. An active demand prevailed at the opening, but became quieter towards the close, about three-fourths finding buyers, the remainder being bought in above values. Higher prices were paid, the average advance established on the last Dutch sales being about 10 per cent., the unit averaging 1 5/16d. to 1⅜d., against 1⅛d. at the last London auctions, and 1¼d. at the sales in Holland. Ceylon: 410 bales offered and 352 bales sold, according to analysis. Succirubra, natural stem chips, ordinary to good, at 2½d. to 4⅞d.; fair shavings at 3¼d.; branch, 2½d.; root, 3½d. to 3¾d.; fair red quill, 4⅛d. Officinalis, natural stem chips, fair to good at 3¾d. to 5½d. East Indian: 2,738 bales and 4 cases offered, and 2,067 packages sold. Red, natural stem chips and shavings, ordinary to fair, at 2¾d. to 3¾d.; root, 3¼d. to 3⅝d.; quill, 2½d. to 4d.; renewed chips and shavings, 3⅛d. to 4¾d. Officinalis, stem chips and shavings, ordinary to good, at 3d. to 6⅞d.; good root at 3⅞d. to 4½d.; renewed chips and shavings, ordinary to good rich, at 2⅛d. to 8⅜d.; broken quill and chips at 2d. to 7⅝d.; stem chips, 5⅛d. to 6d. Ledger natural stem chips, fair to good, at 3⅜d. to 6⅜d.; ditto, branch, at 3¼d., and root at 3⅞d.; hybrid, natural chips, at 2¾d.; renewed ditto, 2¼d. to 3¼d. Java: Of 370 bales 321 sold. Ledger stem chips at 3¾d. to 5¾d.; root at 4⅛d. to 4½d. South American: 373 bales Bolivian cultivated Calisaya offered, and 291 bales sold. Fair quill at 7¼d. to 8⅞d.; flat at 9⅜d. Of 76 packages soft Colombian 48 sold at 1¾d. to 2d. 64 bales Cuprea and 20 bales Carthagena bought in. The following dates have been fixed for the sales next year: January 16, February 20, March 13, April 10, May 15, June 19, July 17, August 14, September 11, October 9, November 13, and December 18.

CLOVES.—At auction 100 bales Zanzibar, fair, but rather stalky, sold at 3¼d., with a few bales at 3⅜d., being rather easier. Penang quiet: 35 bales were sold out of 53 bales offered, good bright, picked, fetching 8d., small dark 5⅝d. to 5¾d. Privately, Zanzibar have remained very quiet. Small sales comprise January-March delivery at 3 5/16d., and March-May also at 3 5/16d.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 3d. per gallon, pure 2s. Benzole: 50 per cent., 10½d. per gallon; 90 per cent., 10d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 6d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 190 C., 1s. 3d. per gallon. Anthracene A, 4½d. per unit; B, 3d. per unit. Pitch, 34s. per ton f.o.b. Tar, refined and crude, 12s. 6d. per barrel, 2d. per gallon.

COCAINE.—Makers are firm at 20s. 7d. per oz. for the Hydrochlorate in 25-oz. tins, and for 200-oz. lots; while second hand offers at 19s. to 19s. 6d. per oz., according to brand and quality.

CODEINE—Is very firm at 12s. 11d. to 13s. 6d. per oz., according to quantity, for the Pure, and 1s. per oz. less for the Salts.

CREAM OF TARTAR—Quiet at 74s. per cwt. for First White Crystals on the spot, 76s. per cwt. for powder, and 77s. per cwt. for 95 per cent. ditto.

CUTCH—Remains quiet, with only small sales at previous rates.

GALLS.—The supplies of China on the spot are practically exhausted, and extreme prices are asked; for ordinary shape there are buyers at 62s. 6d.; Japan, for arrival, still quoted 56s., c.f. and i.

There has been a continued good demand for Persian, but the firmness of sellers restricts business, and only retail sales of Blues have occurred at full prices; Blue quoted 65s. to 67s. 6d., Green 57s. 6d. to 60s., and White 52s. 6d. to 53s. 6d.

GAMBIER—Remains very quiet, and for arrival no sales have occurred; Nov.-Jan. steamer quoted nominally 13s. 9d. On the spot whole bales quoted 13s. 9d.

GINGER.—At auction moderate supplies of Cochin were firmly held, and only a small portion sold at dearer rates for all kinds. Of 799 bags and 186 cases offered, 218 bags and 50 cases sold. Good bold cut and scraped fetched 80s. medium, with little bold cut and scraped 65s. 6d. medium, some small at 61s. to 61s. 6d., small and medium at 45s., medium and small little bold native cut, much limed at 46s. 6d. small and ends slightly mouldy at 28s. to 30s. washed, rough, small, and medium, but fairly plump, part shrivelled and wormy at 26s. Calicut medium and small plump bought in at 30s.

GLYCERIN.—Crude is somewhat quiet at nominally unchanged prices. Refined is also rather quiet, quotations being nominally about the same as those given last week.

GOLDEN SEAL ROOT—Is dearer, being now worth 2s. 8d. per lb. landed.

HYPOPHOSPHITES.—Makers still quote 3s. 3d. per lb. for the lime, soda, and potash salts.

IODIDES—Are steady at unchanged prices.

IPECACUANHA.—Rio is very firm at 14s. 3d. per lb., and prices are expected to advance, as nothing is arriving. Carthagena is dearer at 10s. 9d. per lb., good sales having been made this week at 10s. 3d. to 10s. 6d. per lb.

LITHIA SALTS—Are unchanged at 10s. 8d. to 11s. per lb., according to quantity, for the carbonate, and 6s. 9d. to 7s. 6d. per lb. for the citrate crystals and powder.

MENTHOL—Is firm at 8s. 6d. per lb. for good dry white Crystals in five-case lots (12×5lb. tins in a case).

MERCURIALS—Are very firm, in sympathy with Quicksilver. The makers, however, so far made no alteration in prices, which remain 3s. 1d. per lb. for Calomel and 2s. 9d. per lb. for Corrosive Sublimate.

MORPHINE—Quiet and nominally unchanged, makers' price being still 5s. per oz. for the Hydrochlorate Powder and 2d. per oz. more

OILS (ESSENTIAL).—These are generally quiet. Star Aniseed is barely steady at 6s. 3d. per lb., but for shipment importers quote high prices. Cassia is neglected, but prices are unchanged at 4s. to 4s. 3d. per lb as to quality. Citronelle quiet, 1s. per lb. Lemon-grass firm at 3¼d. to 3½d. per oz. Sassafras is inquired for; 1s. 10d. per lb. is nominal quotation. Peppermint H.G.H. firm at 5s. 6d. to 5s. 7½d. per lb.; Japan, dementholised, 3s. 9d. to 3s. 10½d. per lb.; 40 per cent., 5s. to 5s. 3d per lb.

OILS (FIXED) AND SPIRITS.—Linseed dull earlier but firmer later, the prices now being—On the spot, pipes, London, £22; barrels, £22 5s.; December, £22 5s.; Jan.-April, £22; May-Aug., £21; Hull, spot, naked, £21 5s.; Dec., £21 5s.; Jan.-April, £20 10s. Rape easier; ordinary brown, on spot, £22 10s.; Dec., £22 10s.; Jan.-April, £22 10s.; refined, spot, £24; Ravison, naked, spot, £20; Nov.-Dec., £20. Cotton dearer; London crude, spot, £16 7s. 6d. to £16 10s.; refined, spot, £18 to £19, according to make; Hull, naked, refined, spot, £16 10s.; crude, spot, £15 5s. Olive: Mogador, £34; Spanish, £35; Levant, £34 5s. Cocoanut quiet but steady, Ceylon, on the spot, £25 10s.; Cochin, spot, £29 10s. to £30; afloat, £27 5s., c.i.f.; Mauritius, on spot, £25 10s. to £26, in hogsheads. Palm dull; Lagos, on spot, quoted £26. Castor Oil quiet; Belgian, first pressing, spot, £27; Jan.-June, £25 10s., f.o.b.; Antwerp, second pressing, spot, £25 10s. per ton, ex-wharf; Hull manufactured, guaranteed cold drawn, pure pharmaceutical oil, £29 10s. per ton, in barrels; 3 9/16d. per lb., in cases; pure firsts, £27 per ton, in barrels; firsts, 3 3/16d. per lb., in cases, ex-wharf, London; seconds, 3⅛d., ex-wharf, London. Lubricating Oil: Pale American, spot, 7s. to 9s.; black, 6s. 3d. to 8s.; Russian black, 5s. 6d.; pale, 7s. to 8s. 6d. Petroleum Oil steady; Russian, spot, quoted 5 11/16d. to 5⅞d.; Dec.-March, 5 13/16d. to 6d.; American, spot, 7d. to 7⅛d.; water white, 8⅛d. to 8⅜d. Turpentine dearer; American, spot, 37s. 9d.; December, 37s. 10½d.; Jan.-April, 38s. 3d.; July-Dec., 32s. 3d. Petroleum Spirit: American, 9¾d.; deodorised, 10d.

OPIUM.—The market remains quiet, without change, and business in both "Druggists'" and "Soft Shipping" has been of a restricted character. Persian has met more inquiry, and sales of fair extent have been made at full rates, including fine quality at 12s. to 12s. 6d. per lb.

ORRIS ROOT—Remains firm. There are, however, offers of quite limited quantity at 53s. to 55s. per cwt. c.i.f. for good Florentine.

PARAFFIN WAX.—Crude is still quoted 2¾d. to 3d. per lb. Refined, 3¼d. to 4d.

PHENACETINE—Is steady at 3s. 6d. per lb. for both Crystals and Powder. Higher prices are expected.

POTASH COMPOUNDS.—Bicarbonate, 32s. 6d. to 35s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, spot London, crystals, 3d. per lb.; powder, 3⅛d. Iodide, 10s. 6d. per lb. Permanganate quoted 52s. 6d. to 62s. 6d. per cwt., according to make; large crystals 5s. per cwt. more. Prussiate yellow: Beckton make, 7d.; other English makes, 7½d. to 7¾d.; red, 1s. to 1s. 2d. per lb, according to quantity, etc.

QUICKSILVER—Is exceedingly firm. Rothschild refuses to sell this week, and is expected to advance his price on Monday. From second hand it might be possible still to buy a few bottles at £9 10s.

QUININE.—The market for best German brands opened quiet, but showed more firmness after the Bark sales, prices closing at an advance. Only a small business has been done, barely 25,000 oz. comprising B&S and or Brunswick December delivery, at 1s. 1⅞d. to 1s. 2⅛d., and March at 1s. 2⅜d. to 1s. 2½d., closing at the best. To-day sales have been made at 1s. 2¼d. to 1s. 2⅜d. per oz. for B & S and or Brunswick for December delivery.

ROSIN.—Strained is quoted on the spot 4s. 9d. per cwt. and 4s. 4½d. per cwt. for January-March and February-April shipment per sailing vessel.

SANTONINE—Is firm at 11s. 3d. per lb. in 2 cwt. lots from the makers, and 11s. per lb. from second-hand.

SCAMMONY.—Virgin: A new parcel of Firsts have arrived, but are not yet on the market. There is no demand for Seconds, for which quotations are 19s. to 22s. per lb. Nominal value of Firsts 30s. per lb. Roots: The market has been cleared except for a small lot, which is held for 22s. per cwt.

SENNA.—There has been a good demand this week for Tinnevelly from second hands, but very little is now to be had, and buyers await next week's auctions. The market for Alexandrian continues firm. Leaf has been sold at 9d. per lb., broken leaf at 6¾d. per lb., and siftings at 3¾d. per lb. Pods, fine, are held for 1s. per lb.

SHELLAC.—Demand on the spot is slow, and only limited sales have been effected at previous prices. The market for futures is also without alteration; for March delivery, Second Orange, basis fair average TN has been done at 66s. per cwt.

SODA COMPOUNDS.—Crystals: Barrels, quoted 60s., bags 57s. 6d. Ash, £5 15s. to £7 per ton, according to percentage, etc. Bicarbonate, landed, £7 5s. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic: 70 per cent., white, £10; 60 per cent., £1 less. Hyposulphite (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate, on the spot, refined, £8 2s. 6d.; ordinary, £7 17s. 6d.

SPICES (VARIOUS).—Black pepper: At auction 293 bags Singapore were firmly held, and all bought in; 125 bags good Tellicherry all bought in at 6d., and 43 bags fine heavy Penang at 6d. White pepper quiet. In auction 54 bags were bought in, fine at 11d. to 11½d.; 150 bags brown limed Penang also bought in at 8⅜d. Chillies firm and dearer. In auction 90 bags Japan sold, fair to good bright at 39s. to 41s. 6d. Capsicums: At auction 1 bale Natal bought in, good bright red at 105s. Cinnamon slow of sale, and of 256 packages in auction 20 bags sold, fair quillings at 5½d., broken quill at 4d. Pimento quiet, and of 143 bags offered 25 bags sold, ordinary to good fair 3⅛d. to 3⅜d. Mace dull of sale, but fine steady. Of 19 cases Penang offered, only 4 cases were sold. Good bold pale, part wormy, at 2s. 3d. to 2s. 4d. 23 cases Singapore were bought in. Nutmegs: A small supply of 20 cases Penang sold: 108's at 1s., being easier. 6 bags wild Singapore, in shell, sold, without reserve, at 1¼d. Cassia lignea: At auction, 168 cases, season 1895-96, were sold at 43s., this being cheaper.

SULPHATE OF COPPER—Quiet at £24 10s. to £25 10s. per ton

SULPHONAL—Appears to be still offering from quasi-second-hand at 14s. to 14s. 6d. per lb. for both Crystals and Powder, the two official makers maintaining their price of 17s. per lb.

TAR.—Stockholm, 25s. 6d. to 26s. Archangel, 18s. to 18s. 6d.

THYMOL—Remains very firm, with practically the certainty of higher prices ruling in the near future. Scarcely any of the makers are able to offer; from second hand, however, limited quantities are obtainable at 9s. 6d. to 10s. per lb., according to make and holder.

TURMERIC—Continues firm for all descriptions, but only a restricted business has been done at previous rates, including Bengal at 28s., Madras finger, good bright, at 37s. 6d., and fair Cochin split bulbs at 12s.

VALERIAN ROOT—Dearer, and as much as 35s. per cwt. is asked for good root on the spot.

Liverpool Market Report.

November 16, 1899.

The chief alterations in prices will be found among oils, which have been somewhat irregular. Potashes still continue scarce, and are higher in price since last week. Good sales of Carnauba Wax have been effected at full rates, and a little business has been done in first quality Chilian Honey, and also in Chilian Quillaya Bark. Chemicals are generally firm in price, with a scarcity in Caustic Soda, one large firm having been quite cleared out.

AMMONIA SALTS.—Carbonate is quiet but firm at 3¼d. to 3½d. per lb. Sal ammoniac steady at 38s. to 40s. per cwt. Sulphate is lifeless, £10 13s. 9d. per ton.

CANARY SEED.—Turkish seed is in slow demand at 36s. 6d. to 37s. per 464 lbs.

CARNAUBA WAX.—1 ton of ordinary yellow sold at 67s. 6d. per cwt., and 100 bags of grey at 43s. to 43s. 6d. per cwt. Holders now ask 45s.

COPPER SULPHATE—Is in better demand and a shade higher, £25 to £25 10s. per ton,

COPPERAS—Is very firm, 37s. 6d. per ton.

HONEY.—Pile X Chilian has been selling at 30s. per cwt.

LINSEED—Has dropped considerably in price for arrivals and spot lots. Calcutta is not offering, but River Plate is to be had at 40s. 3d. to 40s. 9d. per 416 lbs. to arrive.

OILS (FIXED) AND SPIRITS.—Castor oils generally are dull, and a shade easier in price, demand being irregular. Calcutta, 3 3/32d. to 3 1/16d. per lb.; French, 2 13/16d. to 2 7/8d.; Madras, 2 13/16d. per lb. Olive oil continues at extreme prices; on the spot Spanish, £35 10s. to £36 10s. per tun, for shipment, £34 10s. to £35 10s. terms cost and freight. Linseed oil, owing to the sudden drop in the price of seed, quotations for Liverpool makes of oil are 23s. 6d. to 24s. per cwt. Cottonseed oil is quiet at 19s. to 19s. 6d. per cwt. Spirits of Turpentine has recovered and advanced to 39s. 6d. per cwt.; and is very firm.

POTASH SALTS.—Bichromate, 3½d. per lb. Chlorate, 3½d. to 3¾d. per lb. Cream of Tartar is steady but quiet at 74s. to 80s. per cwt. Pearlashes are slow of sale at 32s. per cwt. Potashes continue scarce at the higher rate of 24s. 6d. to 24s. 9d. per cwt. Prussiate, 7¾d. per lb.

QUILLAYA BARK.—5 tons of Chilian went at £12 15s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax, £16 to £16 10s. per ton. Caustic is very scarce, 76 to 77 per cent., £10 per ton; 70 per cent., £9 5s. per ton. Crystals, £3 5s. per ton. Nitrate is in fair demand at 7s. 9d. to 8s. per cwt.

Newcastle-on-Tyne Chemical Report.

November, 17, 1899.

Business in the Chemical line continues very brisk. Stocks have run almost out making it difficult to readily comply with pressing orders. Caustic Soda is specially scarce. The rising prices of coal and other necessary articles in the manufacture of chemicals are causing forward quotations to be made on a higher basis. Present prices are: Bleaching Powder, according to markets, £6 5s. to £6 10s. Soda Crystals in bags, 55s. to 57s. 6d. Caustic Soda, 70 per cent., £9 5s. to £9 10s. Soda Ash, 52 per cent., £4 5s. to £4 10s. Alkali, 52 per cent., £5 5s. to £5 10s. Sulphur, £4 17s. 6d. per ton.

Manchester Chemical Report.

November 15, 1899.

There is no appearance of any lull in the heavy chemical trade but, on the other hand, there are no further advances to report. Consumers are more inclined to book forward for next year's wants, but makers will only do this at an advance of some shillings, as there is every prospect of dearer fuel and no diminution in the wages bill. Caustic Soda is firm, and 98 per cent. has been quoted £11 10s. per ton, on rails. Bleach is unchanged at £5 10s. per ton, on rails. Brown Acetate of Lime continues in steady request at £5 12s. 6d. to £5 17s. 6d. per ton, Welsh and American, Manchester. Glycerin has been a trifle easier, and local manufacturers are quoting chemically pure at £55 per ton, tins and cases; £52, naked, and crude, £30 10s. per ton, all on rails, or f.o.b. Salt Cake is unchanged and firm. Recovered Sulphur is in more request, and ranges from £4 15s. to £5 2s. 6d. per ton, according to quantity and delivery. Lead Salts are steady, with an upward tendency. Alum and Sulphate of Alumina are very firm. Yellow Prussiate is dull at 7½d. to 7⅞d. for Lancashire make. Sulphate of Copper is in more request at £25 10s. to £26 per ton, best brands, delivered Manchester. Arsenic unchanged at £19 5s. to £19 10s. per ton, ex ship Garston.

Calendar for the Week.

Sunday, Nov. 19. 25th after Trinity. Sun rises 7.26, sets 4.4.

Monday, Nov. 20. Sun rises 7.28, sets 4.3.

Dewsbury and District Chemists' Association.—Town Hall, Dewsbury, at 8.30 p.m.—W. S. Glyn-Jones on the P.A.T.A. and its Defence Fund.

Tuesday, Nov. 21. Sun rises 7.30, sets 4.2.

Bradford and District Chemists' Association, County Restaurant, Bradford, at 9 p.m.—W. S. Glyn-Jones on "The Chemists Defence Fund."

Royal Photographic Society, 66, Russell Square, London, W.C., at 8 p.m.—"Architectural Photography," by W. H. Bennett.

Wednesday, Nov. 22. Sun rises 7.31, sets 4.1.

Thursday, Nov. 23. Sun rises 7.33, sets 4.0

Chemists' Assistants' Association, 73, Newman Street, London, W., at 9 p.m.—Paper on "The Relation of the Wholesale to the Retail Trade," by F. Curry.

Leicester Chemists' Social Union, Grand Hotel, Granby Street, at 8.45 p.m.—Smoking Concert.

Midland Pharmaceutical Association, Great Western Hotel, Birmingham, at 8.45 p.m.—W. S. Glyn-Jones on the P.A.T.A. and its Defence Fund.

Friday, Nov. 24. Sun rises 7.34, sets 3.59.

Glasgow Chemists' and Druggists', Assistants', and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Councillor Wm. Martin, on "John Ruskin: The Man and His Teaching."

Saturday, Nov. 25. ☾ 6.35m. Sun rises 7.36, sets 3.58.

ITEMS OF INTEREST.

A Fraudulent Emulsion of Cod Liver Oil and Hyposulphites.—Harst (*Nederl. Tijdsch. voor Pharm.*) states that he failed to find a trace of hypophosphites in a certain proprietary preparation sold on the Continent. It consisted of cod liver oil, 240 Gms.; powdered gum arabic, 40 Gms.; glycerin, 20 Gms.; water, 100 Gms.; essential oil of almonds, 1 drop.

A Universal Antidote.—Crouzel recommends the administration of five centigrammes of tartar emetic in hot water repeated three or four times a day at short intervals, followed by cold milk containing 5 per cent. of borax. The fat of the milk protects the mucous membrane of the stomach from the corrosive action of acids or bases. The borax combines with the mineral bases to form insoluble products. As a stimulant the author uses equal parts of strong infusion of coffee and of cinchona bark, sweetened with one gramme of Hoffmann's anodyne added.—*Zeit. Oest. für Pharm.*, **53**, 550.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

O'Brien's check-tills, practically as good as new, 30s. each.—Chambers & Son, Dunstable.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Pharmaceutical Journal. A complete set, from 1841. First 29 volumes bound, perfect condition; remainder unbound, quite clean. Offers.—Elliott, Chemist, Gateshead.

Overstocked.—Iodoform Precip., 12s. 6d. lb.; Crystal, 12s.; Potass. Iodid., 2 lb. 19s., 4 lb., 37s.; 24 Freeman's Chlorodyne, 14s.; 2 oz. Morph. Hydroch., 10s.—Eastman, Forest Lane, Stratford.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Formula suiting toilet or other speciality.—W. Lewis, 15, Shelden St., London, W.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Old Druggists' Crockery-ware wanted. Blue and white Syrup Jars, Ointment Pots, Oil Vases, and other Pharmaceutical Antiquities.—John Austen, Pharmaceutical Chemist, Dore, near Sheffield.

Wanted, clean copies of the following Pharmaceutical Journals:—1883, Jan. 7th, Oct. 27th; 1884, Nov. 1st; 1885, March 28th, June 6th; 1887, July 9th; 1892, Jan. 16th; 1893, Jan 14th; 1895, Feb. 23rd, July 20th, 27th., Oct. 26th; 1897, Jan. 16th, May 22nd, Sept. 25th, Oct. 2nd, Dec. 25th; 1898, Jan. 1st; 1899, Jan. 7, 14, 21, 28, Feb. 4, 11, July 8th, Aug. 19th, Sept. 23rd. Full price will be paid by the Secretary, 17, Bloomsbury Sq., W.C., for unmutilated copies.

Advertisements.

(Received too late for Classification.)

STUDENT, whole or part time, 24, 9 years' experience, photography. North preferred; disengaged. — WILKINSON, 28, Finsbury Rd., Leeds.

Rectification of the Register

In Accordance with the Pharmacy Act, 1868.

Extract from Sect. X. of the Pharmacy Act, 1868.

To enable the Registrar duly to fulfil the duties imposed upon him, it shall be lawful for the Registrar to write a letter to any registered person, addressed to him according to his address on the Register, to inquire whether he has ceased to carry on business, or has changed his residence, such letter to be forwarded by post as a registered letter, according to the Post-Office regulations for the time being; and if no answer shall be returned to such letter within the period of six months from the sending of the letter, a second of similar purport shall be sent in like manner; and if no answer be given thereto within three months from the date thereof, *it shall be lawful to erase the name of such person from the Register.*

WE are requested by the Registrar appointed under the Pharmacy Acts to publish the following list of persons whose names will be erased from the Register of Chemists and Druggists, or the Register of Pharmaceutical Chemists, as the case may be, unless they communicate their addresses to the said Registrar on or before December 30 next :—

Those marked with an asterisk are Pharmaceutical Chemists.

Abbot, Joseph	125, Neville Road, Upton Park, London, E.
Alexander, Adam	68, Holburn Street, Aberdeen.
Alexander, Ernest Glover	Opposite Carlisle Hotel, Manningham, Bradford.
*Appleton, Robert	Hawthorn, near Melbourne, Victoria.
Ashford, Francis	Deptford High Street, London, S.E.
Atkinson, George John	1, Baxter Gate, Doncaster.
Baillie, Janet	Tranent, Haddingtonshire.
Baines, Joseph Charles	55, Blackman Street, Borough, London, S.E.
Banfield, Harold	26, Urswick Road, London, N.E.
Barrett, Allan Lifton	10, Brecon Road, Hay, Breconshire.
Beesley, Thomas	203, Clapham Road, London, S.W.
Beynon, Benjamin	125, High Street, Swansea.
Bland, Henry	93, Falsgrave Road, Scarborough.
Booth, William Smith	Hoyland Nether, near Barnsley, Yorks.
Botterill, Frederick William	20, High Road, Kilburn, London, N.W.
Bowden, Ambrose	13, Charles Street, St. James, London, S.W.
Bridger, Thomas	Middletown, New York.
Buck, Charles Burton	8, Lower Brook Street, Ipswich.
Burnham, Charles John, jun.	11, Axe Street, Barking.
Campbell, Alfred	13, Lordship Lane, Dulwich, London, S.E.
Casey, Edward	55, Little Lever Street, Manchester.
Chadwick, Arthur Geoffrey	10, Upper Borough Walls, Bath.
Challis, Frank	66, Lowth Road, Denmark Hill, London, S.E.
*Chapman, Joseph George	P.O., Boston, U.S.A.
Clark, John	17, Bryantwood Road, Holloway, London, N.
Clark, John Jeffrey	34, The Triangle, Bournemouth.
Cockerill, Thomas	81, North Street, Ripon.
Cocking, Frederick John	The Hawthorns, Alvingham, near Lough.
Coleman, Friend	44, Wood Vale, Lordship Lane, London, S.E.
Cookson, Joseph	115, Bridge Street, Bradford, Yorks.
Coombs, William Thomas	Brentford, Middlesex.
Cooper, Edwin	Bracebridge, Simcoe, Canada.
*Cornish, William, jun.	101, Hoddle Street, Collingwood, Melbourne, Australia.
Craig, Henry Riddell	527, W. 125th Street, New York.
Crompton, Benjamin	2, Fern Bank, Moston Lane, near Manchester.
Cross, Robert	15, Drake Street, Rochdale.
*Cule, Taliesin	Dynevor House, Pontypridd, Glamorganshire.
Dalby, Robert Eastham	21, Howick Street, Monkwearmouthshore, Sunderland.
Davies, Daniel Evan	34, Oxford Street, Mountain Ash, S. Wales.
Davies, Samuel	187, Kensington, Liverpool.
Dickinson, William	1, Queen's Gardens, Bayswater, London, W.
Dismorr, Henry	42, Windmill Street, Gravesend.
Drabble, Frederick Pearson	Clifton Lane, Rotherham.
Drummond, John Alexander	9, Corn Market, Belfast.
Duckenfield, Joseph	Winnipeg, Manitoba, Canada.
Earee, Edwin Thomas	High Street, South Croydon.
*Edwards, William	Pleasley Hill, Mansfield, Notts.
Elliott, Dyson	Trafalgar House, Tweedale Street, Rochdale. Lancs.
Elliott, George Henry	10, Ilbert Street, Plymouth.
Ellisson, Charles	Aire Street, Knottingley, Yorks.
Endall, Edward Albert	5, Southwater Road, St. Leonards.
Evans, Barrow	Curzon Street, Derby.
Evans, Thomas	22, Brunswick Street, Swansea.
Fletcher, Isaac Brackstone	Totton, near Southampton.
Fletcher, William	Todmorden.
Fowles, Frederick William	94, Edinburgh Road, Liverpool.
Franciosi, Eugène Auguste de	11, Rue d'Armaille, Paris.
Francis, George	Market Place, Romsey, Hants.
Gant, Robert Boddy	39, Artillery Place, Woolwich.
Garrett, John	22, Essex Road, Acton, London, W.
*Garrett, John Henry	8, Torrington Place, London, W.C.
Gibson, James Edward	107, London Street, Reading.
Gibson, Mary	Redcar, Yorks.
Gosden, James	Abergavenny, Mon.
*Goucher, John	21, Beaconsfield Villas, Brighton.
Grant, John	West Street, D'Urban, Natal, South Africa.
Green, Robert	23, Hare Street, Woolwich, London, S.E.
Green, Sidney Herbert	61, Trinity Square, Borough, London, S.E.
Grey, John Elston	St. Michael's Villa, Purbeck Rd., Bournemouth W.
Hamilton, John	81, Oxford Street, London, W.
Hanbury, William	84, Westgreen Road, S. Tottenham.
Hancock, Fred	1, Edward Street, Sheffield.
Hanna, George Henry	27, East Preston Street, Edinburgh.
Harper, Joshua Henry	Uitenhage, Cape Colony.
Harrison, William Dale	Perth, Western Australia.
Hart, Thomas	27, South Bridge, Airdrie.
Hayes, Frederick	Duckworth Street, Over Darwen, Lancs.
Henderson, John George	11, Promenade, Lordship Lane, East Dulwich London, S.E.
Hill, Robert Bryden	15, West Richmond Street, Edinburgh.
Hindle, John	Oulton Broad, Near Lowestoft.
Holt, John	83, Clowes Street, West Gorton, Manchester
*Hornby, Alfred	96, Chetwynd Road, London, N.W.
Howard, Henry	Colkirk, Norfolk.
Hughes, George	50, Paddington, Liverpool.
Hughes, John Edward	12, Medway Street, Westminster, London, S.W.
Hughes, William Charles	151, Hoxton Street, London, N.
James, John	35, Trinity Square, London, S.E.
Jeffrey, Elias	94, Richmond Road, Barnsbury London, N.
Jeffries, Benjamin	2, Heaton Place, Peckham Rye, London, S.E.
Jeffries, Gilbart	39, Victoria Road, Peckham, London, S.E.
Jelley, Stephen John	26, Ogle Street, Fitzroy Square, London, W.
Johnson, Frederick	142, Kingsland Road, London, N.E.
Jones, Thomas	Accra, West Coast of Africa.
*Jones, William	The White House, Lyth Hill, near Shrewsbury.
Jones, William Nathanael	62, Albion Road, Stoke Newington, London, N.
Kay, John	Corner of Workman Street and Hawkins Street, E. Los Angeles, S. California.
Kenward, Robert	63, Arundel Street, Landport.
Kerr, George Jobling	Derby Road, Huyton, Liverpool.
Kilkenny, Andrew	1, Well Street, Wellclose Square, London, E.
*King, Arthur	8, West Parade, Norwich.
Knaggs, Aaron	High Street, Loftus, Yorks.
*Lacy, Henry	4, Heslington Terrace, York.
*Lance, Henry	West Street, Durban, S. Africa.
*Leake, Thomas Whaplate	151, Uxbridge Road, London, W.
Lee, Thomas	116a, Mottram Road, Hyde, Cheshire.
Lewis, Edward Prosser	Sydney, New South Wales.
Lewis, William Spencer	Castle View, Castle Street, Kendal.
Lightfoot, John	43, Strand Street, Cape Town, South Africa.
Lindley, Henry	57, South Street, Moor, Sheffield.
Lingard, Joseph	Cheadle, Cheshire.
Lockhart, John	23, Regent Place, Shawlands, Glasgow.
Lomas, Charles Benjamin	Bogantan, Queensland.
Lunn, Arthur	13, Onslow Road, Richmond, Surrey.
McBeath, John William	Exeter Street, West Hartlepool.
McMillan, James	69, Dombey Street, Toxteth Park, Liverpool.
McMillan, James Laker	Calcutta.
McNicol, John	362, Hamilton Place, Partick, N.B.
Mansergh, William	451, Stockport Road, Manchester.
Melhuish, Thomas Boucher	King William Street, Sydney, N.S.W.
Messer, Frederic	49, Berners Street, London, W.
Millar, James Herd	121, Almack Road, Clapton, London, N.E.
Moffet, William Emslie	52, Mount Pleasant, Barrow-in-Furness.
Moody, William Morton	6, Queen Street, Louth.
*Morgan, William Ellis	Normanhurst, Llandudno.
Nayler, Joseph	56, Jefferson Avenue, Jersey City, U.S.A.
Newton, John Titus	202, Moseley Road, Birmingham
Nicholson, Charles	Bootham, York.
Nicholson, John Head	Poplar House, Flimby, Maryport.
Nicholson, Walter Joseph	29, Congreve Street, Birmingham.
Nicholson, William Ostler	13, Granville Square, London, W.C.
Norton, Anthony	Longnor, Staffordshire.
Ockenden, Joseph Kent	Toronto, Canada.
Ogilvie, William Ogilvie	Myna Tal, India.
*Olliver, George Edward	Shillington, Hitchin.
Onion, Hannah Maria	Poyntington, West Hill Road, Bournemouth.
Osmond, Henry Lincoln	Castle Cottage, Totnes.
Padley, William	170, Clarendon Street, South Melbourne, Australia.
*Parker, Charles	Melbourne, Victoria.
Parker, Charles	Main Street, Kirkby Lonsdale.
Parker, Henry George	Dalkeith Place, Kettering.
*Peacock, William Henry	52, Ivanhoe Road, Denmark Park, London, S.E.
Pearce, Alfred John	54, East Hill, Wandsworth, London, S.W.
Pearce, Edward Edwin	2, Mary Street, Southwick, Durham.
Peters, John	2, Newland, Northampton.
Phillips, George Henry	5, The Pavement, Merton Road, Merton.
Pickard, James	Leeds Road, Bradford, Yorks.
Pirie, James Mather	17, Buccleuch Street, Glasgow.
Pool, George	5, Honor Oak Rise, London, S.E.
Pratt, Francis	39, Alexandra Road, Selhurst, London, S.E.
Preston, William	152, James Street, Burnley.
Pridgeon, Henry Pacey	151, Grove Green Road, Leytonstone, London, N.E
Priestley, John Andrew	Napier Street, Bradford, Yorks.
Priestley, William	Poonah, India.
Ray, Frederick James	5, Peckam Rye, London, S.E.
Reedman, William Henry	404, Monument Road, Birmingham.
*Richards, Thomas	Station Road, Porth, Glam.
Rishforth, Henry	Aberford, Yorks.
Robbie, Charles Thain	7, Corn Market, Belfast.
Roberts, Frederick Lancelot	224, Sebert Road, Forest Gate, London, E.
Robertson, George Farrie	134, Montgomery Street, Edinburgh.
Robins, John	Framlingham, Suffolk.
Robotham, George Henry	54, Dale End, Birmingham.
Sampson, Nicholas Mackey	18, Pomona Place, Walham Green, London, S.W.
Sanders, Basil Stanley	63, Stow Hill, Newport, Mon.
Sanderson, James Boyer	Barnack, Northamptonshire.
Saunders, William John	34, Surrey Square, London, S.E.
Schofield, Harry	3, High Park Road, Southport.
Schuller, Walter Joseph	7, Carisbrooke Road, Walthamstow.
*Schweitzer, Julius	1022, Main Street, Kansas City, Missouri.
Sclater, John George	15, Livingstone Place, Edinburgh.

Scott, Malcolm	45, South Clerk Street, Edinburgh.
Seward, George Halifax	St. Marylebone Infirmary, Rackham Street, London, W.
*Sharp, David Blakey	Tavistock Place, Borough Road, Sunderland.
Silverwood, Joseph	Elm House, Shelley, near Huddersfield.
Simpson, Thomas	3, Park Cottages, Brighton Road, Croydon.
Smith, Alfred	Johannesburg, South Africa.
Smith, David A.	Bristol, Quebec Province, Canada.
*Snell, Charles Henry	Campinas, Sao Paulo, Brazil.
Snell, Charles Henry	East House, Church Street, Stoke Newington, London, N.
Sollitt, Arthur	Shipton Street, Clifton, York.
Southam, Stanley	92, Upper Lloyd Street, Moss Side, Manchester.
Stamford, Frederick	Manor House, Skidby, Hull.
Stanfield, Francis Parkin	Sheffield.
Stephens, Thomas Fowle	49, Wells Street, Oxford Street, London, W.
Stephenson, Francis	Market Place, Kirkby Moorside, York.
Stewart, Robert	Rangoon, British Burmah.
Stewart, William	Melbourne, Australia.
Sutton, Allan	80, Holt Road, Liverpool.
Tabberer, WilliamFrederick	1, Fieldslea, Lower Poole Road, Parkstone, Dorset.
Thacker, Henry Ransley	164, St. Anne's Well Road, Nottingham.
Thomson, George William	Brighton, near Melbourne, Victoria.
Thornhill, Ernest	3, The Promenade, Ealing Dean.
Tomlinson, George	Waddingham, Lincolnshire.
*Trask, Thomas	1, Vernon Chambers, London, W.C.
Tucker, William Tyley	Byculla, Bombay.
Turner, John Arthur	1, Argyle Street, Bedford.
Turner, Joseph Kitchen	Madelia, Watonwan Country, Minnesota, U.S.A.
Waddy, Ernest Alfred	Dover.
Walker, George	Athol House, Milward Road, Hastings.
Wallis, John	"Collingbourne," Christchurch Road, Boscombe.
Watson, Thomas Bell	West Street, New Alresford, Hants.
Wheeldon, Edwin	1, Summerhill Terrace, Warrington.
Whitewood, John	127, Algernon Road, Lewisham, London, S.E.
Whyte, James	33, Rosemount Viaduct, Aberdeen.
Wickham, William	509, New Cross Road, London, S.E.
Wilson, John Hart	54, Hudleston Street, Cullercoats.
Wine, John Alfred	Hospital for the Insane, Yarra Bend, Melbourne, Victoria.
Wright, William Robinson	High Street, Chatteris, Cambs.

THE CHEMISTS' DEFENCE FUND.

It was decided at the last Council meeting of the Proprietary Articles Trade Association that the ten retail members of the Council should be asked to provide the signatures to the memorandum of association of the newly-formed Chemists' Defence Association (Limited). The Retail Committee was called together for this purpose on November 13. It had been decided to leave the drawing up of the prospectus until this meeting, and we give below the draft prospectus which was submitted to the Committee:—

The Chemists' Defence Association (Limited) is an association having the following among its immediate objects, as quoted from a circular issued by the provisional directors:—

1.—The providing of legal advice for its members upon all matters pertaining to the business in which they are engaged.

2.—To provide legal defence for any of its members who may be prosecuted under various Trade Acts affecting them in their business.

3.—To indemnify its members against loss arising from mistakes in dispensing or retailing occurring in their places of business.

4.—To supply information to its members in reference to any new Acts of Parliament affecting their business, or any change in existing laws.

5.—To watch such legislation in the interests of its members.

The following is a copy of the rules under which the Association is governed, and will form the basis of any agreement between the Association and its members:—

1.—Any member requiring legal advice shall submit the subject in writing to the secretary of the Association, who will forward to the member the information given on the matter by the Association's solicitor.

2.—Members shall be entitled to legal defence to an amount not exceeding £10 when prosecuted under any of the following Trade Acts:—

Apothecaries Act (1815).
Dentists Act (1878).
Veterinary Surgeons Act (1881).
Sale of Food and Drugs Act (1875 and 1879).
Weights and Measures Act (1878 and 1889).
Petroleum Acts (1871 and 1879).
Explosive Acts.
Shop Hours Act (1892).
Excise Laws affecting the trade
Pharmacy Acts, subject to Rule 17,

and any others which may be added at the discretion of the directors to this list.

3.—The Association shall appoint a legal adviser and analytical chemist.

4.—That where, in the discretion of the directors, such is desirable, legal defence shall be personally conducted by the Association's solicitor, but that in cases where the directors think such a course advisable the defence shall be conducted by a local solicitor, acting in conjunction with the solicitor of the Association.

5.—That in the event of a prosecution members shall send full particulars of the alleged offence, and all documents connected therewith, to the secretary.

6.—That it shall not be compulsory on the directors to identify the Association with the defence of any particular case, but that, should they think such a course desirable in the interests of the Association, they may, in lieu of conducting such defence, hand to the member the sum actually expended on such defence, not exceeding £10.

7.—In the event of conviction the Association will not pay any fine incurred or costs of prosecution.

8.—That the directors have power to appeal against any conviction given against any particular member. That such appeal be in no way compulsory, but if undertaken such appeal shall be at the cost of the Association, who may, nevertheless, use the name of the member convicted, and the latter shall afford the Association all possible assistance in connection therewith.

9.—That members be indemnified to an amount not exceeding £500 in the event of their being liable for damages due to any mistake incurred in dispensing or retailing in any of their shops for which a subscription has been paid.

10.—That in the event of a retail member being mulcted in damages in a case in which a third party is responsible, the member be indemnified only against actual loss, not exceeding £500, after deducting the amount he may recover, or which the Association may recover for him, from such third party.

11.—That every member shall hold at least one share of £1 in the Company.

12.—That members shall be required to pay to the Company an annual subscription of £1 1s. for each shop or place of business to which the benefits of membership of the Association shall apply, but that the subscription for members who are at the same time members of the Proprietary Articles Trade Association shall be 10s. 6d. only for each shop or place of business.

13.—That subscriptions shall run for one year from date of payment, and that members whose subscriptions are more than one calendar month in arrear shall forfeit all benefits.

14.—Members will not be entitled to receive any benefit until after the expiration of three months from the date of their becoming members, and in the event of a member ceasing his subscription, he shall not be entitled to such benefits till the expiration of three months from the date of renewing his subscription.

15.—All the directors of the Association shall retire at the general meeting in each year, but shall be eligible for re-election.

16.—The directors may, without assigning any reason, refuse to admit any person or firm to membership of the Association whom they shall consider would be an undesirable member, and may, in like manner, refuse to allow any person or firm to continue a member after the expiration of any year for which such member's subscription shall have been paid.

17.—The Association will in no case defend, or assist in the defence of, any of its members against proceedings taken by the Pharmaceutical Society for the enforcement of the Pharmacy Acts, nor shall any member have any claim, for compensation, costs, or otherwise, in relation to any such proceedings.

18.—Shares in the Association shall only be held by, and issued or transferred to, registered chemists, and the directors shall have the like power of refusing to register a transfer as they have under Clause 16 hereof of refusing membership.

19.—The profits of the Association shall be applied first in the formation of a reserve fund, which shall be invested at the discretion of the directors, and may be used by them at their discretion for any of the purposes of the Association. When such reserve fund shall amount to £1,000, but not before, the directors may apply all or such part of the profits as they shall think proper to distribute in any year in payment of a dividend at a rate not exceeding 5 per cent. for the then current year on the paid-up capital of the Association, and the balance of the profits (if any) shall be credited to the members in proportion to the amount of their respective subscriptions for such year.

20.—No alteration shall be made in these Rules, except at the annual general meeting of the members of the Association, or at a special general meeting called for that purpose.

TRADE NOTES.

"Vinolia" and the Transvaal War Fund.—The Vinolia Company, Limited, Malden Crescent, London, N.W., in reply to the numerous inquiries from customers as to the means adopted to secure payment to the Transvaal War Fund of the ½d. on each tablet of Vinolia Soap sold by them from stock during the period covered by the company's offer, announce that the company will be glad to credit the ½d. on each tablet sold from stock between November 6 and December 5 if friends will advise immediately after the latter date of the quantity disposed of. If they can see their way to hand to the firm an order during the above period, however, it will help all the more to make the contribution a substantial one. Advantage is taken of this opportunity to thank the trade for the generous support extended to the company, whereby it has already been enabled to remit £1,000 to the Lord Mayor.

Davis's 'Domestic Year-Book and Calendar,' 1900.—Mr. John Davis, publisher, 24, Queen Victoria Street, London, E.C., directs attention to his 'Domestic Year-Book,' which is illustrated and compiled expressly for chemists' circulation. It is tastefully got up with high-class illustrations and interesting and useful literary matter, and possesses a number of advantages over the usual almanacs offered to chemists, which are generally compiled to suit all trades. It is larger in size and contains much more useful matter of a nature important to the chemist's customers, and calculated to improve his business. A large amount of space is reserved for the display of chemists' own announcements, while the price quoted is comparatively low, the wrapper being inclusive. Mr. Davis also directs attention to his Miniature Calendar for 1900. This is a dainty little production of very attractive appearance, and, notwithstanding the fact that the literary matter on each page may be completely covered by two penny stamps, its contents are of a most useful character. Space is reserved for the distributor's own advertisements, while the publisher's advertisements are all such as apply to articles usually sold by chemists. Only one person in each district is supplied with these publications, so that chemists who distribute an annual almanac will do well to apply for particulars at once.

Winter Printing.—Messrs. James Townsend and Son, medical label printers, Little Queen Street, Exeter, and 2 and 3, Stonecutter Street, London, E.C., are issuing a set of winter printing samples, suitable for chemists' use. These include folding boxes for bottles, lozenges, soap, etc., which may be made to order in any special sizes and of various materials. Striking and attractive handbills in assorted colours—pink, primrose, and blue—and medical labels. A set of samples will be sent to any chemist on application.

Dahl's Sterilised Pure Cream and Milk.—Messrs. Herbert Francis and Co., fruit merchants, 8, Arthur Street West, London, E.C., submit a sample of Dahl's sterilised cream. This is put up in 6 oz. and 12 oz. tins, which can be kept unopened for months ready for any emergency, the contents on opening being as sweet and wholesome as when packed. The milk is said to be obtained from the finest cows grazing on some of the richest pastures in Norway, and is absolutely pure and free from bacteria or tuberculosis. No preservatives or chemicals appear to be used, the method employed for the sterilisation being regarded by experts as quite satisfactory. Both the cream and the milk may be used for all ordinary purposes, and the cream is especially suitable for use with strawberries and fruits, and for making ice-creams and pastries. It is well spoken of by yachtsmen, and is in constant use in the Channel Squadron, and on South African Liners, where it gives general satisfaction. The tins are sold at 6½d. and 10½d. per tin.

"Clove Pink" Sachets.—Messrs. Potter and Clarke, 60, 62 and 64, Artillery Lane, London, E., have introduced a very good line of sachets for the coming season, under the name of "Clove Pink." These sachets are very pretty in appearance, exquisitely perfumed, and packed in an attractive box. The "Sweet Kiss" sachet introduced by this firm two years ago is said to have had an enormous sale, and this new packet is likely to be quite as popular. Chemists who require something to give away at Christmas time might do worse than consider the advisability of securing a few gross of "Clove Pink" sachets with their own name printed on. The printing is done free by the firm on lots of five gross and upwards.

Toilet Soaps, Perfumery, Etc.—Sharp Brothers Soap and Perfumery Co., Ltd., 18 and 19, Red Lion Square, London, W.C., the makers of Bentley's Old Musk Brown Windsor Soap, according to the original recipe, which was first made in 1796, and for the past forty years has been used by Her Majesty the Queen, now manufacture so great a variety of toilet soaps that they are putting in new mills in order to cope with their expanding trade. Their White Rose and Cucumber Soap is one of the most popular of the day, and quite merits the title of the "Queen of Soaps"; Sharp's New Buttermilk Soap and their Japanese Rose Soap are also excellent articles, and the same might be said of the seventy or eighty other soaps manufactured by the firm. These milled and superfatted toilet soaps are quoted at reasonable prices, while their quality, richness, and persistency of perfume and elegance of presentment combine to make them both satisfactory and profitable stock. In regard to perfumes, the firm has a large assortment of fancy bottles and cases for Christmas trade on view in the show-room, including the "Russian Violet" series, a lovely new perfume put up in very pretty bottles ornamented with flowers. The series, which is in the P.A.T.A. list, comprises "Brilliantine," smelling salts, tooth-powder, face-powder, soap, shaving cake, sachets, and Cologne. Sharp's Concentrated Perfumes are also put up in bulk, in ¼, ½, and 1lb. original bottles, and include over thirty varieties. Their Musk and Mitcham Lavender Perfume is a specialty that has hit the popular taste. A novelty that has been introduced for the coming season is a cheap line of Union Jack sachets in four odours. In view of the wave of patriotism that is just now affecting the country, it is extremely probable that there will be a great demand for these sachets. The price is 16s. for four dozen, including a show box. Another novelty is a series of prettily-dyed straw boats fitted with bottles of perfume. Chemists who have the opportunity will do well to visit this firm's show-room when purchasing their Christmas stock.

Harrington Brothers' Photographic Chemicals.—Messrs. Harrington Brothers, Oliver's Yard, 53A, City Road, London, E.C., manufacturers of chemicals used for research, laboratory, technical, and educational purposes, are making a specialty of photographic chemicals, bottled or packed ready for retailing. This method of packing saves loss by deliquescence or efflorescence in chemicals which would suffer by exposure if kept in bulk; another important advantage is the time saved in retailing these goods, being always ready for handing out to customers, who are therefore not delayed. The bottles are in different sizes, from 1oz. to 16oz., and the packages, up to 1lb., and can be had with plain or chemists' own labels, the prices being based on the wholesale list.

Carnigen.—Messrs. Leete and O'Connell, St. Dunstan's Buildings, St. Dunstan's Hill, London, E.C., are the sole agents for Great Britain for Carnigen, a meat powder, said to be prepared from the purest and best meat, to be entirely assimilable, and possess the highest nutritive properties. It has an agreeable taste, and is distinguished from all other preparations by the astonishing rapidity with which it dissolves. Carnigen has been used in various hospitals, and is highly recommended by medical men, not only as a nutritive for invalids, but also as a strengthening medium for weaklings, youthful or adult, it effecting a perceptible increase in weight soon after use. It is given in doses of one to two table-spoonfuls taken thrice daily, dissolved in milk, soup or water.

Wernicke Elastic Book and Show Cases.—Messrs. Thomas Turner (Leicester), Limited, 44, Holborn Viaduct, London, E.C., are the sole agents for the Wernicke system of bookcases, and, on application being made by anyone interested, will send, free of charge, a copy of a dainty booklet, which explains the many and varied uses to which the system may be adapted. The principle of the system is summed up in one word, "elasticity." It consists of a series of small compartments, with dust-proof glass doors, each ingeniously designed to interlock with another in vertical and horizontal arrangement. These, with suitable tops and bases, are the "units" of the system, and are of different depths and heights to suit all sizes of books. The field to which this system can be adapted is almost limitless; the bookcase units being suitable for use by physicians and surgeons for their instruments, etc., by chemists for showing proprietary articles and all kinds of fancy goods, and in fact for innumerable other purposes.

TABLETS.—Messrs. Wright, Layman, and Umney, Limited, Southwark Street, London, S.E., appear to be considerably extending their fields in the manufacture of tablets. We have previously commented on their bath tablets, which are effervescent, dissolve readily in water, and emit the most pleasant perfumes characteristic of the different varieties. Their sugar-coated tablets appear to be nearly perfection, and their latest departure in the way of chocolate-coated cascara tablets, referred to last week, which they are selling under the name of "Cascara chocolettes," constitutes one of the most attractive forms for taking unpleasant medicine that we have had the opportunity of examining. A perusal of the firm's complete tablet list, as well as the "packed pharmaceuticals" list, would repay any of our readers.

MUSICAL BOXES AND CLOCKS.—In view of the coming Christmas season, it may interest those readers of the Journal who may be considering what kind of a present to make to their friends to know that Messrs. Nicole Freres, Limited, 21, Ely Place, Holborn Circus, London, E.C., are prepared to send to any reader who makes application for the same a beautifully printed catalogue giving exquisite photographic reproductions of some of their musical boxes and clocks, several of which are very suitable for presents.

UNIVERSAL KNEADING AND MIXING MACHINES, ETC.—Messrs. Werner, Pfleiderer and Perkins, Limited, Engineers, 117, Queen Victoria Street, London, E.C., the well-known makers of machinery for the chemical and pharmaceutical industries, send a copy of their catalogue, which gives a short description of their productions and the uses to which they may be put. As pointed out in the preface the chemical industry, in contrast to many others, mainly owes its wonderful development to chemists themselves, but the increasing competition and greater requirements of the present day, and the necessity for careful study of economy in every operation, make it necessary for manufacturing chemists to be keener to recognise the advantages to be secured by the employment of machinery specially adapted for their purposes. Hence they will do well to obtain a copy of this firm's catalogue.

MAGGI CROSS-STAR SOUPS AND CONSOMME.—Messrs. Cosenza and Co., 95, Wigmore Street, Cavendish Square, London, W., are the sole agents for the United Kingdom and British Colonies for the Maggi Cross-Star Soups and Consommé. These products were invented on the initiative of the Société Suisse d'Utilité Publique, with a view to the improvement of rational alimentation in Switzerland, and are still made under the official patronage of the Société, the manufacture being under the constant supervision of the leading State chemists, whose efforts are directed towards improvements in the processes and the invention of new specialties. The preparations which have become exceedingly popular in the United Kingdom within the last few years include the Consommé which is a properly made and clarified clear soup solidified in gelatine capsules, which require only to be dissolved in boiling water to be ready for use. No seasoning or addition is necessary. The Cross-Star Soups, forty in number, are, both in variety and character, different to any other productions on the market. They include all the finest creams and purées of the French cuisine, and are said to be the only ready-made soups having the quality of the productions of a first-rate cook. These preparations are not only convenient in the household but are of great value in the invalid dietary. For travellers and soldiers in the field they are especially serviceable, from their portability, ease of preparation, and nourishing qualities. The War Office has recently ordered a large supply for the troops under orders for South Africa. They were largely used in the Egyptian campaign, and in the provisioning of the Jackson-Harmsworth, Borchgrevink, and all recent expeditions. It may also be mentioned that the Central British Red Cross Committee has accepted a gift of two cases (about 3,000 rations) of Maggi's Consommé, from Messrs. Cosenza and Co., for the use of the sick and wounded in South Africa.

EFFERVESCENT SALICYLIC ACID TABLOIDS.—Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., have recently made an addition to their list of effervescent preparations in the form of tabloids. This is effervescent salicylic acid (gr. 3) and has been introduced as a pleasant means of administering the drug. Physiologically pure salicylic acid alone is used in the production of these tabloids, which are wonderfully compact, portable and convenient, and in effervescent properties are all that could be desired.

NEW PREMISES AND CHRISTMAS NOVELTIES.—Messrs. F. Newbery and Sons, who for some twenty years past have carried on their extensive business as a proprietary medicine and druggists' sundries house, in King Edward Street, Newgate Street, E.C., have been obliged, owing to the expansion of their trade, to take more commodious premises, the front entrance of which is in Charterhouse Street, one of the side entrances being in Charterhouse Square. These premises are situated near Smithfield Meat Market, within a few minutes' walk of the old warehouses in King Edward Street, and easily accessible from all parts of London by rail, 'bus, or tram. The building, including the basement, is six stories in height, and is open to the roadway on three sides, thus affording an abundance of light and air. The interior of the building has undergone thorough reconstruction; everything being done with a view to speedy dispatch of business, the convenience of customers, and the safety of the employés. The floorage comprises some 20,000 square feet; the basement is capacious, well lighted and ventilated, and is devoted to the receiving, checking, packing, and despatching departments; the ground floor contains the town order department, showroom, the private rooms of the principals and manager, and a spacious counting house. On the first, second, and third floors, stocks of some 15,000 different varieties of patent medicines and proprietary articles, besides druggists' sundries are stored; a most ingenious system of pigeon-holes being employed for the purpose. The fourth floor is to be devoted to manufacturing purposes. Every part of the building is connected by lift and telephone, and a broad stone staircase runs from top to bottom. The building is lighted throughout by electricity, and the sanitary arrangements are excellent. It is not too much to say that Messrs. Newbery and Sons now possess one of the largest and most convenient warehouses connected with the British drug trade. Amongst the firm's novelties are the "Happy Omens" series of St. Paul's perfumes, intended as souvenirs for the coming season. This series may be had in 1s. bottles, with appropriate label, at 7s. per dozen; also put up in fancy caskets, containing three varieties of perfume, at 30s. per dozen, to retail at 3s. 6d. each. The labels and caskets each bear a representation of St. Paul's Cathedral, partly surrounded by a horseshoe with bells and slippers attached, for good luck.

X-RAYS AND THE WAR.—At a recent visit to Messrs. Harry W. Cox and Co., Ltd., the well-known manufacturers of X-Ray apparatus at 10, 11, and 28, Cursitor Street, Chancery Lane, London, E.C., a Journal representative had the opportunity of inspecting several complete X-Ray outfits which have been specially designed by Mr. Cox for the field and hospital ships in connection with the war now progressing in South Africa. The set for the Princess of Wales' Hospital Ship is one of the most complete and compact sets of apparatus yet produced. It is mounted on a specially constructed table with wheels fitted for convenience in moving the apparatus from one part of the ship to another; the coil has been specially made, and stands on the top with the tube holder in front. The drawer takes half-a-dozen tubes, screen, and extra wires, the complete outfit presenting a very neat and compact apparatus. Mr. Cox's apparatus is now too well known to need comment here, but it is interesting to know that the Government is not only providing the very best apparatus for its wounded soldiers, but that it has placed its orders in the hands of competent English manufacturers.

LIQUID MALT AND GLYCEROPHOSPHATES.—Messrs. Duncan, Flockhart and Co., Edinburgh, are making a useful new preparation, with the object of realising Dr. Robin's original idea of prescribing the glycerophosphates in conjunction with diastase and other digestive ferments. They have found it impossible to produce an honest preparation of that nature in the form of a syrup, that is to say, a satisfactory syrup strictly in accordance with the original formula. The new preparation contains only one-fourth of the proportion of the glycerophosphates in the original syrup, and the syrup made by Messrs. Duncan, Flockhart and Co. also differs somewhat from the original formula. In the liquid extract, pure caffeine is introduced in place of the kola suggested by Dr. Robin, being a therapeutical equivalent and of greater uniformity and reliability. It is an admirable preparation and should meet with great success. The liquid extract is put up in bottles for retailing at 15s. per dozen; also in 1lb. and 2lb. original bottles for dispensing purposes at 2s. per lb. The syrup prepared from the modified formula is sold in bulk only at 4s. per lb.

ENGLISH NEWS.

Prescribing Druggists are attacked by a correspondent of the *Lancet*, who has written to that journal asking "if there is any society in London which takes any notice of the following:—A chemist in this town visits people and prescribes for them, and two other chemists prescribe for their customers. Medical men are not allowed to employ unqualified assistants, but chemists do far worse." Unhappily, replies the *Lancet*, there is no society which has any power in this matter. "Anyone, however ignorant, may prescribe for, visit, and treat a patient should he find anyone fool enough to let him do so. Only the 'practitioner' must not give out or use any title implying that he is a qualified medical man."

The Izal Trade Mark.—On Thursday, November 16, the action of Newton Chambers and Co. *v.* Nicholls, was mentioned to Mr. Justice North by Mr. Schiller, who appeared for the plaintiffs. He said the action was brought to restrain infringement of the plaintiff's trade mark "Izal" by the defendant, who carried on business at Heelington, Lincolnshire, under the style of the Isolo Company. An arrangement had been made by which the motion was to be treated as the trial, and a perpetual injunction granted restraining the defendant from infringing the trade mark in question, and from using the word Isolo in connection with the sale of pills, ointment, or other medical preparations, or any word colourably differing therefrom. The plaintiffs did not ask for costs. Counsel for defendant consenting, his lordship made the order as asked.

Memory Training.—A special class for Pharmaceutical Students has been formed for the purpose of taking the Pelman course of Memory Training lessons by correspondence tuition. The fee for the course is one guinea. Those of our readers who wish to avail themselves of the opportunity, should make early application to the Secretary, 70, Berners Street, London, W.

Hot Water in Sewers.—At North London Police-court, last week, Messrs. W. J. Bush and Co., Limited, manufacturing chemists, of The Grove, Mare Street, Hackney, appeared, by Mr. George Elliott, barrister, to answer seven summonses, charging them, under the London County Council's General Powers Act, 1894, with allowing water to flow into the common sewers of a greater heat than 110° F. Mr. Blaxton appeared for the London County Council. Mr. Elliott said that the offence was admitted, and the defendant company very much regretted that there had been any infringement of the Act. The escape of hot water into the sewers had been caused by a defective attachment on a boiler. The defendants were willing to adopt any suggestion to remedy matters which might come from the London County Council, cost what it might. Mr. Blaxton said Sir Alexander Binnie, chief engineer to the London County Council, had recommended this prosecution because the sudden flow of hot water into the sewers was a danger to the health and lives of the men whose duty it was to go down into the sewers, besides which, hot water was calculated to injure the sewers themselves. Mr. Paul Taylor said he looked upon this as a serious matter, and he imposed fines of £5 on each of the seven summonses, with £10 10s. costs—£45 10s. in all.

Football.—The second Cup match of the Metropolitan College of Pharmacy in connection with the Inter-Pharmacy Football League, was played on Saturday, November 18, at Homerton Marshes, against the Westminster College. The latter College was poorly represented, and within ten minutes of the start the "Metros" secured their first goal, and on re-starting a second quickly followed. During the first half the ball was mostly in the Westminster quarter, and shot after shot was put in. At half time the "Metros" were leading by eight goals, two of which were from penalty kicks. After the interval the game still remained in the Westminster half. One or two attempts were made for the "Metros" goal, but were of no avail, the ball being returned quickly. The "Metros" still continued to increase their number of goals, and when the whistle blew six more had been added to their score, leaving them winners by fourteen goals to nil.

Chemist Freemasons and the Soldiers' Widows' and Orphans' Fund.—The *Daily Telegraph* of Friday, November 17, announced that the editor had received from the Galen Lodge, No. 2,394, per the Treasurer, Mr. M. Carteighe, the sum of 210 shillings in aid of the Fund for the relief of the widows and orphans of the soldiers killed during the present war in South Africa.

Nottingham and Notts. Chemists' Association.—The winter session of this association will be inaugurated by a smoking concert and social evening, to be held on Wednesday, November 29, at 8.30 p.m. prompt. The council of the association hope that members will endeavour to make the opening meeting a distinct success, and will cordially welcome any friends whom members may introduce.

Leeds College of Pharmacy.—On Saturday last the students attending this college held their half-yearly smoking concert. The large lecture room was decorated in the manner most compatible with present feelings, there being a profusion of flags, shields, and instruments of warfare on the walls. Mr. Bracewell opened the concert in a masterly manner by a selection on the piano, after which an excellent programme followed. During an interval refreshments were handed round and then the concert proceeded. Several toasts were proposed, amongst them "The British Forces in South Africa," by Mr. Mackay, in a humorous speech, after which Mr. Jackson very ably sang "Soldiers of the Queen," and Mr. Brier recited "An Absent-minded Beggar," a collection being made for the Patriotic Fund. The party concluded amid much enthusiasm a little before midnight. The large number of students present testifies to the popularity of this comparatively modern college.

'Oysters and Disease,' by W. A. Herdman, D.Sc., F.R.S., and Rubert Boyce, M.B., is the title of a publication just published (demy 4to., 68 pp., with eight plates. Price 7s. 6d. nett.) as No. 1 of the Lanceshire Sea-Fisheries Memoirs, giving an account of certain observations upon the normal and pathological histology and bacteriology of the oyster and other shellfish. The publishers are Messrs. George Philip and Son, 32, Fleet Street, London, E.C., and Messrs. Philip, Son and Nephew, 45—51, South Castle Street, Liverpool.

Prosecution of "Madame Frain."—On Monday, November 20, at the Central Criminal Court, before Mr. Justice Darling, William Brown, Abraham Emanuel Abrahams, Harriet Annie Cross, Philip Perron, and James Armitage Fox, all of whom were on bail in their own recognisances, were indicted for conspiring together and with other persons unknown to incite women who should read and become cognisant of pamphlets and circulars published in the name of Madame Frain to attempt to administer to themselves noxious things with intent to procure a miscarriage.—The defendants pleaded "not guilty."—The Attorney-General, who opened the case, said that the magistrate who heard it at the police-court dismissed the summons on a view which he took of the law. He should submit that the view of the law which the magistrate took was erroneous. The jury would be directed upon the law by the judge. There was carried on in the Hackney Road a business named Madame Frain's Herbal or Medical Institute, and as to what that business was and the class of medicine sold the jury would have to form an opinion. That was a business with which all the defendants had been connected one way or other over a period of time. The business apparently was an extremely lucrative one, the profits being considerable. Advertisements of the business were issued wholesale, and notices were delivered by the hundred and thousand by women who were dressed as nurses, literature was sent out, and mixtures and pills were supplied. It was stated that the mixtures and pills were not to be used for an illegal purpose, and women who wished to purchase them were required to fill up a form stating that they were not pregnant. It was suggested, on the part of the defendants, that the mixtures and pills were only supplied for ordinary female complaints. As far as the mixture was concerned, it was not a medicine which ordinarily would produce miscarriage, but he should contend that that was immaterial. The pills were extremely dangerous for pregnant women to take.—The case was adjourned, and was before the Court on Tuesday and Wednesday. Evidence for the prosecution having been given, counsel for the defence submitted that there was no case to go to the jury against the defendants.—Mr. Gill, for the defendants, contended that in order to constitute the offence charged it was necessary that

a woman should take something which in itself was noxious—not that she believed that she was taking something which was noxious—and it must be a drug capable of procuring abortion. In this case the evidence was that the medicines would not procure abortion. He contended (1) that if a woman, believing that she was taking a noxious thing, did with intent to procure abortion take a harmless thing she did not attempt to procure abortion; and (2) that a person who supplied a harmless thing to a woman who took it in the belief that it was a noxious thing did not incite her to commit the crime and did not commit an offence.—The Attorney-General submitted that there was a case to go to the jury. It was, he contended, immaterial that the medicines were not capable of procuring abortion. The contention that there could be no offence unless the drug would bring about abortion was, he argued, not in accordance with law.—Mr. Gill, in reply, said that the real question in cases of alleged incitement was the state of mind of the inciter—if the inciter knew an offence could not be committed he did not commit an offence.—Mr. Justice Darling: This raises a very difficult question in a form in which it has never been raised before. I, will therefore, reserve my decision upon the point.

SCOTTISH NEWS.

ARBROATH CHEMISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION.—The fortnightly meeting of this Association was held in the Y.M.C.A. Rooms on Tuesday, November 14, the President (Mr. Bennet) in the chair. The subject for the evening was a lecture by Dr. Duncan entitled "Remarks on Drugs Used in the Treatment of the Insane." Dr. Duncan in a very interesting discourse referred to the various forms of insanity mania, kleptomania, pyromania, etc., remarking that cerebral derangement often was the result of bodily disease. He also gave a detailed account of the physiological action of the various stimulants, sedatives, and hypnotics, as tobacco, bromides, paraldehyde, cannabis indica, etc., used in relieving patients suffering from mental diseases. At the conclusion of the lecture Dr. Duncan was awarded a very hearty vote of thanks.

IRISH NEWS.

MEDICINE IN WHISKY BOTTLES.—It will be remembered with what indignation the Parish Beadle in 'Oliver Twist' related the rejection of some stuff in a blacking bottle intended for a sick woman. *Nous avons changè tout cela,* but there still remain a few features of the ancient system, which have lately been responsible for a poisoning fatality. An old woman, Mary Mullin, of Limavady, had been attended by Dr. Higgins, dispensary medical officer, for over a year for an affection of the knee-joint. Some time ago she got a lotion which contained poison. A few days after he was called in to attend Mrs. Mullin, as she had taken the lotion in mistake for whisky. She had marked irritation on the pupils of the eyes, characteristic of belladonna poisoning. The usual antidotes were applied without avail. A verdict of "Death from misadventure."

HONEY GALORE.—Mr. David Hamilton, station-master, Limavady, has discovered under the flooring of a bedroom eleven sections of fine honey, weighing seventy pounds. The bees entered this unique habitation last summer, having toiled assiduously in amassing this hoard, which has been confiscated.

MEDICINE CONTRACTS.—At the last weekly meeting of the Guardians of the Killarney Union a letter was read from the Local Government Board stating that the Guardians should call upon the medicine contractor to the union to replace articles unfavourably reported upon by the analysts, and to furnish an explanation as to its quality. An order was made that the drugs unfavourably reported upon be returned to the contractor. On the same subject the following letter was received from the Cork Chemical Drug Company:—We beg to acknowledge receipt of your post card informing us that the Guardians have ordered a bond with Mr. Crowley for the supply of medicines, etc., to be signed. Be good enough to convey to them that in accepting the higher tender they are liable to be surcharged by the auditor, and we mean to see the matter through to the end with the Local Government Board."

FOREIGN NEWS.

TO AID THE BOERS.—Our Paris correspondent visited the Latin Quarter last week to obtain information about the Committee of Students formed to send reinforcements to the Boers. On arriving at the address given, he found that the Committee had moved to the Café Procope, where a student was receiving names—all minors being rigorously rejected. There were about 250 names on his list, Frenchmen, Luxemburgers, Belgians, Greeks, and Danes—men belonging to all classes of the great army of *déclassés*. Monsieur Landry, the promoter of the enterprise, explained that his committee was continuing the work begun in Germany, Russia, Belgium, and Holland. They meant to arm a company of free-lances, and send them to the Transvaal. A clothier had promised forty outfits, and the owner of a steamer, which could make nine knots an hour, would take them out for the cost of the coals. But it appears that they have no money, and are looking to Colonel Monteil. "What we want above all," said Monsieur Landry, "is that France should continue her generous traditions and not remain silent in the face of such an aggression. We also want to keep in our race the taste for adventure and the love of heroic enterprises. And then, is not our action a sort of revenge for Fashoda?" Evidently wearied of waiting for additional volunteers who fail to swell his list, Monsieur Landry hit upon the idea of having posters printed. This idea he put into practice on Friday last, and is now occupying his latent energy in disfiguring the columns of the Arcade in the Rue de Rivoli and other places with his blazing orange-coloured "affiche," the contents of which is as follows:—

COMITE D'ACTION DE LA JEUNESSE FRANCAISE EN FAVEUR DU TRANSVAAL.

SUS A L'ANGLAIS.

Au peuple français.—Au moment même où toute l'Europe continentale proteste hautement contre les agioteurs anglais qui ont fait entreprendre à leur pays la guerre la plus injuste que notre siècle ait vue, au moment où la capitale de l'Angleterre impuissante et désarmée est à la merci de 20,000 hommes, decidés, les croiseurs anglais à l'instigation d'un gouvernement provocateur pratiquent la politique du *Bluff* et s'arrogent le droit de visite dans les eaux neutres.

Ils viennent de tirer sur un navire français, montrant ainsi leur mépris pour nous.

Le coup de canon tiré sur le "Cordoba" coûtera cher aux anglais.

Nous sommes déjà plus d'un millier de français résolu à aller soutenir la liberté d'un peuple héroïque contre la cupidité anglais.

A l'heure où les Chambres politiquaillent, où les chancelleries commettent les crimes de silence et d'inaction, c'est à toi que nous nous adressons, grand peuple de France.

Viens en foule protester au siège de notre comité, 31, Rue de l'Ancienne Comédie; inscris-toi contre l'anglais. Que ceux qui sont libres viennent avec nous faire le coup de fer contre lui et que les autres nous aident de leur obole. Genereuse France, réveille-toi!

Le Président du Comité,
LANDRY.

Whilst it is regrettable that the authorities should permit the posting up of such inflammatory and hostile nonsense, seeing that Paris lives for the most part upon the money spent by the people it so readily "cries down," it is only fair to Parisians as a whole to add that this affair is not taken seriously, and that they are rather more inclined to pity the poor, deluded individual who is gaining cheap publicity than to become partisans of the campaign he with such facility would fain advocate. Perhaps this youth has Presidential aspirations.

LABORATORY ACCIDENT.—While the students at the Industrial Institute of Lille were engaged in the determination of chemical salts in the Laboratory on Wednesday last, Monsieur Beaubois, aged twenty-two, opened the apparatus in which the sulphuretted hydrogen was being prepared, and immediately fell suffocated to the ground. He was, however, able to get up in a few seconds, went out into the fresh air, and soon felt better. M. Beaubois had hardly left the laboratory when M. Giraud, aged eighteen, also fell to the ground, although, as it appears, he was standing several yards away from the apparatus. His fall was so violent that it was thought that he had been killed, and he was carried out into the courtyard, where, however, he soon regained consciousness. During more than an hour he walked about the court with the help of his friends, and appeared to have quite recovered. Towards three o'clock in the afternoon, however, he fainted again, and remained unconscious, apparently asleep. The doctor was sent for, and ordered his removal to the hospital, where his case received the greatest attention. He failed, however, to regain consciousness, and died at one o'clock on Friday morning.

Feminine Enterprise.—Women have in recent years adorned many spheres of activity. We have had lady doctors, lady lawyers, lady journalists, but, curiously enough, very few women seem to have gone into the industries. Yet there are some who are admirably fitted for this class of work, which requires not only energy and business capacity, but a spirit of enterprise and tact, qualities quite as strongly developed among the gentler sex as amongst men. The announcement that Madame Blanche Leigh, an English lady, had started an important soap factory in Paris, was received with much interest, not only by those who are watching the daily progress of the feminist movement, but also by the public to whom soap, this essential article of daily use, has always had a great attraction. When we think that there are few things about which the average woman is more particular than the soap she uses, and that nobody is better qualified than a woman to know women's requirements in this direction, it is surprising that up to the present there should never have been a lady manufacturer of soap. Yet, who is so well fitted to realise what delicate skins most need, especially when we take into consideration that nearly all the better soaps are made almost expressly for women. It is here that Madame Blanche Leigh has seen and seized her opportunity. An authority on skin treatment, as all Paris knows, she always found a difficulty in obtaining a soap which would not neutralise the beneficial effects of her creams and lotions, but, on the contrary, would materially aid their effects. She has, however, at last discovered a means of introducing into her specially-prepared paste a subtle something, best known to herself, which is the means of producing a soap superior to any yet on this market. Fired with the ardour of patriotism, she has responded to the "Hospital Ship Fund" demand for help, and her contribution has taken the form of 2,000 kilos of her excellent soap, whose merits are to be testified to by our brave soldiers now engaged in settling an account not of their own contracting. Lady Randolph Churchill, who knows both the soap and its giver, has requested it in bar form, and Madame Blanche Leigh has set to work to turn it out in the shape most acceptable upon this occasion. This is an example which many other soap firms might do well to follow. Not content with supplying the wants of the delicately-nurtured richer classes, she has thought of the woman of the people and of the tender skin of the infant, and is manufacturing soap that will benefit both rich and poor. From the lowest to the highest price there is no difference whatever in the purity or in the beneficial qualities of her soap.

Madame Blanche Leigh's Factory,

situated in the Rue de Lorraine, with its admirable and improved machinery by Messieurs Beyer Frères, is well worthy of a visit. Here our correspondent saw the blocks of rough soap subjected to the action of the so-called planing machine, which throws off the soap in the shape of very thin shavings, which then undergo the drying process. And it is here where may be seen in process of manufacture the bars of soap which ere long will be on their way to Tommy Atkins in South Africa. The grinding-machine next attracts attention. It is a machine of ingenious design, wherein the same paste is passed as many times as may be necessary between the cylinders, and at every passage a toothed cutter is made to divide the mass so as to secure a more perfect and thorough mixture. This same machine stretches and draws out the paste, prepares it for the "press," where it receives the shape into which the soap is to be moulded and the cakes receive the imprint, "Blanche Leigh Soap." Now the latter are taken to the packing-rooms, where rows of young girls in linen overalls are busy wrapping these dainty little cakes in delicate coverings, and placing them in boxes which will soon be on their way to all parts of the globe. And it may be remarked here that Madame Blanche Leigh, instead of employing the soft Japanese paper, which does not retain the perfume, envelopes each cake in thin parchment, a faithful reproduction of the writing paper used by Queen Marie Antoinette—a graceful tribute to the French Queen. In such skilled hands, and started under such favourable auspices, there is no doubt that before long "Blanche Leigh Soap" will become as popular in the palace as in the cottage—invaluable to rich and poor.

Formalin in Otorrhœa.—A. G. Cipriani finds that an injection of a one or two per cent. solution of formalin into the suppurating cavity affords the most successful means of treating otorrhœa. He reports a large number of cases, in which suppuration entirely disappeared, usually in about ten days, and did not recur. In some cases, the injection gave rise to pain. These were first anæsthetised with cocaine.—*Therapist*, **9**, 260.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. A. Sidney Campkin, J.P., M.P.S., will open the discussion on the Federation suggestion *re* "Company Pharmacy" on Friday, December 1, at a meeting of the Cambridge Pharmaceutical Association, to be held at the Bull Hotel, at 9.15 p.m.

Mr. George Seivwright, M.P.S., who has been elected—or rather re-elected after a time—to the office of Bailie in the Royal Burgh of Cullen, served his apprenticeship with the late Mr. Alexander, Aberchirder, subsequently serving for six years with Messrs. James Sim and Co., Aberdeen, and with Messrs. Barron, Harveys, London. About the year 1867 he took over the business of the late Mr. Lumsden, of Cullen, which he has since carried on. In 1878 Mr. Seivwright entered the Town Council and has served almost continuously up to the present time. For many years he was a member of the Parochial Board, and also the Harbour Board, and is still a member of the Parish Council.

Bailie Young, chemist, of Elgin, at a meeting of the Town Council on November 10, was unanimously elected to the Provostship.

Mr. Robert Hall, M.P.S., of Woodside, Aberdeen, was appointed one of the Justices of the Peace, at the creation of Aberdeen as the county of a city, on November 15 last, by reason of his connection with, and services to, the City of Aberdeen.

Mr. G. J. Shepherd, wholesale druggist, Aberdeen, was also appointed a Justice of the Peace at the same time and for similar reason.

THE PURITY OF FOOD AND DRUGS.

Calcined Magnesia.—At Tottenham police-court on Thursday, November 15, Charles Shepherd, 128, Myddleton Road, Bowes Park, was summoned for selling as light calcined magnesia an article which consisted of 50 per cent. of light calcined magnesia, and 50 per cent. of light carbonate of magnesia. For the defence it was stated that the defendant, who was the manager of the business, did not dispute the analysis. The business, with a small portion of stock, was purchased last February from a Mr. Morris, and this magnesia was a part of the old stock. Having no reason to doubt that there was anything wrong with it, he had not had it analysed. He, therefore, claimed to have the summons dismissed under Section 5 of the Act. The Bench said that Section did not apply to the case, and imposed a fine of 5s. and costs, including the analyst's fee.

Reports of Public Analysts:—*Durham.*—The Chief Inspector under the Food and Drugs Act reports that during the past quarter 181 samples of food and drugs were submitted to Mr. W. Keating-Stock, public analyst for the county. In two prosecutions for adulterated camphorated oil the full penalty of £20 and costs was inflicted in each case.——*Gloucestershire.*—Mr. G. Embrey, county analyst, reports that he has examined forty-three samples of perishable foods in order to ascertain how many contained preservatives and the nature of such preservatives. Mr. Embrey states that in his opinion the best method for preserving milk and cream is to observe the greatest cleanliness in regard to the vessels used in storage. As to chemical preservatives, salicylic acid is undoubtedly bad, and boric acid should only be used in small quantities, and even then it is objectionable. Formalin is very efficient even in small quantities, but very little is known as to its effect on digestion.——*West Riding of Yorkshire.*—In his quarterly report, Mr. Alfred H. Allen, F.I C., states that during the quarter ending March 31, 686 samples of food and drugs were examined by him. Of 37 samples of camphorated oil, 20 were deficient in camphor to the extent of 17.5 per cent. In several of the samples mineral oil had more or less replaced olive oil. Mr. Allen is of opinion that the numerous variations from the standard quality are intentional, or due to gross carelessness in the preparation of

the article, and that there is no foundation for the statement sometimes urged in mitigation of the offence that the preparation is liable to deteriorate on keeping, owing to the volatility of the contained camphor. Of sixteen samples purchased as milk of sulphur only three were genuine, the remaining thirteen containing from 57 to 79 per cent. of hydrated calcium sulphate. Of six samples of Gregory's powder three were adulterated, the calcined magnesia being replaced by magnesium carbonate. Two samples of spirit of sal volatile were adulterated. One of the samples contained only two-thirds of the amount of active ingredients (ammonia and ammonium carbonate) required by the B.P. In this case it was pleaded for the defence that the sal volatile had lost its strength by repeated openings of the bottle containing it, and that this was indicated by the lower specific gravity (0·8859) which had been reported in the certificate, as compared with the specific gravity (0·888 to 0·893) required by the B.P. But as Mr. Allen points out, any accidental or unavoidable loss of either alcohol or ammonia caused by opening the bottle would obviously tend to increase the gravity instead of diminishing it, so that the explanation put forward for the defence had no foundation. However, the magistrates dismissed the summons.

POISONING CASES.

CARBOLIC ACID.—On Tuesday, November 14, William Edward Bainting (aged one year and seven months), son of William Bainting, fisherman, of 10, Hamilton Street, Grimsby, died from the effects of carbolic acid poisoning. Deceased got a glass jar containing carbolic acid and drank some of the contents.——At Banbury, on Friday, November 17, an inquest was held with respect to the death of Mrs. Louisa Clarke, wife of Mr. Francis Clarke, seedsman, and daughter of a member of the Banbury Town Council. It appears that deceased, who was separated from her husband, went to a chemist's shop and asked for a bottle of carbolic acid, but as she had asked one of the assistants in an undertone how much it would take to kill a person, the chemist refused to supply her. She then went to another chemist and purchased a ten ounce bottle of the acid. She then went home and drank nearly the whole of the contents.—A verdict of "Suicide while of unsound mind" was returned.——In the case of Elizabeth Barker (55), wife of Richard Barker, schoolmaster, Caerphilly (Glamorgan), at an inquest held at the local police station on Tuesday, November 14, it was stated that she had been in the habit of drinking on and off for twenty years, and that on the previous Saturday she was drunk all day, and on the Sunday stayed in bed, as she felt ill. During the afternoon her son went into the bedroom and saw what he took to be carbolic acid in a jug by the bedside. He also noticed a brown bottle standing in a position from which he had previously removed a whisky bottle. As his mother appeared to be very ill, he sent for a doctor, but in spite of all efforts she died the same evening.—Dr. William Thomas stated that the cause of death was carbolic acid poisoning. He thought it should be stated that carbolic acid is one of the most virulent poisons. He made that statement because of the indiscriminate manner in which it is sold.—The jury found that deceased met her death by misadventure.——Another case of carbolic acid poisoning occurred at Hopkinstown (Glamorgan) on Saturday, November 11. It appeared from the evidence given at the inquest that Mrs. Mary H. Bodger (42), wife of a police constable in the town, taking advantage of her husband's absence at a funeral, sent a child to Pontypridd for carbolic acid. Soon after the child's return the other children in the house became alarmed at the pains which their mother was apparently experiencing, and ran to a neighbour's house for help. It then transpired that the woman had swallowed the carbolic acid with a fatal result.—The jury returned a verdict of "suicide committed whilst in a state of unsound mind."

Birth.

St. Cyr.—On October 25, 1899, the wife of E. L. Nelvil St. Cyr, M.P.S., pharmaceutical chemist, Aux Cayes (Hayti), West Indies, of a son.

Partnerships Dissolved.

(From the London Gazette.)

Stanley W. Marshall and Charles Rathbun, trading under the style of Stanley W. Marshall and Company, Dental Requisite Manufacturers, 57, Weymouth Street, London. Debts will be received and paid by Stanley W. Marshall.

William Henry Davidson and John McKerlie, Veterinary Surgeons, Hungerferd, Berks.

Charles Howard Strong and William Henry Hartley, Electro Medical and Surgical Institute, 18, Pall Mall East, London.

Receiving Order in Bankruptcy.

(From the London Gazette.)

Walter Williams, Veterinary Surgeon, George House, George Hill, Llandilo, Carmarthen.

Publications Received.

THE MEDICAL ANNUAL SYNOPTICAL INDEX TO REMEDIES AND DISEASES. (For the twelve years 1887 to 1898) Pp. xxiv + 411. Price 7s. 6d. net. Bristol: J. Wright and Co., 1899. From the Publisher.

CAVE'S CYLINDER REGISTER BOOK, by which at a glance the quantity of gas in stock may be ascertained. Price 4s. 6d. Southport: J. R. Cave, M.P.S., 52, Nevill Street, 1899. From the Publisher.

WELLCOME'S PHOTOGRAPHIC DIARY AND EXPOSURE RECORD, 1900. Price 1s. London: Burroughs, Wellcome and Co., Snow Hill Buildings, E.C. 1990. From the Publishers.

DER THERAPEUTISCHE WERTH DES CITROPHEN IN DER BEHANDLUNG GEWISSER NERVENKRANKHEITEN. Von Dr. J. W. FRIESER. Pp. 15. Reprinted from the 'Wiener Medizinische Presse.' 1899. Wien: Urban and Schwarzenberg, Maximilianstrasse 4. 1899. From the Publisher.

THE STORY OF THE WANDERINGS OF ATOMS. By M. M. PATTISON MUIR, M.A. Pp. 192. Price 1s. London: George Newnes, Limited, 7 to 12, Southampton Street, Strand, W.C. 1899. From the Publishers.

Calendar for the Week.

Sunday, Nov. 26. 26th after Trinity. Sun rises 7.37, sets 3.57.

Monday, Nov. 27. Sun rises 7.39, sets 3.56.

Tuesday, Nov. 28. Sun rises 7.40, sets 3.55.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION, Blackburn.—Address by Dr. Riley Cunliffe on "Druggists and Drug Distribution."

ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—"Practical Three-colour Lantern Slide Making."

Wednesday, Nov. 29. Sun rises 7.42, sets 3.54.

NOTTINGHAM AND NOTTS. CHEMISTS' ASSOCIATION, Albert Hotel, Derby Road, at 8.30 p.m.—Smoking Concert and Social Evening.

PHARMACEUTICAL SOCIETY, 36, York Place, Edinburgh, at 8.30 p.m.—Evening Meeting; Inaugural Address by the Chairman of the North British Branch.

Thursday, Nov. 30. Sun rises 7.43, sets 3.53.

CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Paper by H. Hymans.

Friday, Dec. 1. Sun rises 7.45, sets 3.53.

CAMBRIDGE PHARMACEUTICAL ASSOCIATION, Bull Hotel, at 9.15 p.m.—A. Sidney Campkin will open the discussion on Company Pharmacy.

GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—"Ambrose Pare and His Times," by Dr. J. Grant Andrew.

Saturday, Dec. 2. Sun rises 7.46, sets, 3.52.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

Thursday, November 23, 1899.

Business in Drugs and Chemicals has been somewhat disappointing during the past week, and there have been many complaints that so few orders were passing. Acid Carbolic continues very firm, with a further upward tendency, while it is expected that Salicylates and Salol will also follow the course of price of the raw material. Camphor is very firm, and a further advance in makers' quotation for the refined article would appear more than probable. Quicksilver has also been advanced in price, but so far, the makers of Mercurials have not followed suit. Thymol is very firm. Menthol excited at dearer price, and likely to still further advance. Cod Liver Oil firm. Quinine steady. Opium and Morphine quiet. Codeine very firm. Acid Citric dull. Acid Tartaric and Cream of Tartar steady. Bromides and Iodides unchanged. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE—Dull and weak at 9½d to 11d. per lb.

ACID BORACIC.—Crystals, 25s. ; powder, 27s. per cwt.

ACID CARBOLIC.—Very firm at the advanced price, the quotations being for 35° to 36° C. ice crystal in large bulk, 8¾d. to 9d. ; for 39° to 40° C., 9½d. to 9¾d. ; and 10½d. to 11d. for 39° to 40° C. detached crystals, B.P. quality ; and even at these high figures it would be difficult to place larger orders, especially for prompt delivery, some makers being sold out for months ahead. Crude, 60° F., 2s. 9d. per gallon ; 75° F., 3s. 6d. per gallon. Liquid, 95 to 98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon in 40-gallon casks; ditto, 25/30 per cent. of dark colour, 10d. to 11d. a gallon.

ACID CITRIC—Dull at 1s. 3d. to 1s. 3½d. per lb. for crystals, in 5 cwt. casks.

ACID TARTARIC—Is still quoted 1s. 1d. per lb. for English on the spot, and 1s. 0¼d. c.i.f. for foreign.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. ; Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. ; ditto commercial, 30s. per cwt. Sal Ammoniac: Firsts, 40s. per cwt. ; seconds, 38s. ; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate dearer. Gray prompt 24 per cent. London, £11 5s. Hull prompt, £11 2s. 6d. ; January-March, £11 7s. 6d. Leith prompt, £11 2s. 6d. Beckton prompt, nominally, £11. January to March, £11 7s. 6d. Beckton, terms prompt, £11. Sulpho-cyanide, 1s. 1d. to 1s. 2d. per lb.

BORAX.—Crystals, 16s. ; powder, 16s. 9d. per cwt.

CAMPHOR—Continues firm, but quiet. On the spot 200 cases Japan crude have been sold at 170s., China sellers at 160s. For arrival there are sellers near at hand of Japan at 165s., and China at 160s. c.f. and i. For refined makers prices remain unchanged at 2s. per lb. for Bells and Flowers in ton lots. An advance, however, is expected

CLOVES.—Privately Zanzibar dearer and in good demand, sales comprise spot at 3⅜d. ; Oct.-Dec. delivery at 3⅜d. ; Jan.-March, 3 7/16d. to 3½d. ; March-May, 3½d. At auction 81 bales Zanzibar offered, of which 75 bales sold at higher prices, middling rather dark at 3⅜d. Penang dull and easier, of 29 cases offered 19 sold, without reserve, good fair small picked at 5½d., ordinary small mixed dark 4⅛d. to 4¼d., good bright bought in at 7½d.

COCAINE.—There is a report that a further advance in makers' price for this article is impending. Their quotation remains, however, so far unaltered at 20s. 7d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins ; while second hand still offers in limited quantity at 19s. 6d. per oz. for some packing.

BROMIDES—Are firm at unchanged prices.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon ; pure, 2s. Benzole, 50 per cent., 10½d. per gallon ; 90 per cent., 8d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon ; 90 per cent. at 160°C., 1s. 4d. per gallon ; 90 per cent. at 190°C., 1s. 3d. per gallon ; 90 per cent., 9d. per gallon. Creosote, 3½d. per gallon. 34s. per ton, f.o.b. Tar, refined and crude, 12s 6d. per barrel, 2d. per gallon.

CODEINE—Very firm at 12s. 11d. to 13s. 6d. per oz. for the pure, and 1s. per oz. less for the salts.

CREAM OF TARTAR—Is still quoted 74s. per cwt. for first white crystals, 76s. for powder, and 77s. per cwt. for 95 per cent. ditto.

COD LIVER OIL—Continues steady at nominally unchanged price from last week.

CUBEBS—Are well held, and 24s. per cwt. is asked for fair quality.

GALLS.—The market for China remains firm ; spot scarce, and prices nominal. For arrival ordinary quoted 61s. 6d., and plums 66s. c.f. and i. Japan dearer, at 57s. 6d. to 59s. c.f. and i. Persian continue to be firmly held, which checks business ; blues now quoted 65s. to 70s. ; greens, 57s. 6d. to 60s. ; and white, 52s. 6d. to 53s. 6d. Morea and Smyrna quiet and unchanged.

GINGER.—Cochin, in moderate supply, was firmly held, and the small lots sold fetched better prices ; of 894 packages 140 sold, bold, some medium, roughly cut and scraped at 82s. ; small medium ditto, 50 to 50s. 6d. ; washed bright medium and small part lean at 27s. ; ditto but mouldy, 25s. ; dull, small, and medium, part shrivelled, rough and wormy, at 22s. ; good cuttings at 19s. Jamaica : 119 barrels offered and all bought in, except 3 barrels, which sold at 64s. for good middling.

GUM TRAGACANTH.—Fair sales of Persian kinds have been made at full prices. Medium qualities especially are in demand. Of Bagdad kinds the stock is very small, and the selection poor. The recent arrivals are not yet on the market.

MENTHOL.—Market is excited, and 10s. is asked for good dry white crystals, it being reported that an even higher price has been paid in Hamburg.

MERCURIALS.—So far the makers did not follow the advance in price of Quicksilver ; they still quote Calomel 3s. 1d. per lb., and Corrosive Sublimate 2s. 9d. per lb.

OILS (ESSENTIAL).—Peppermint: H. G. H. is quiet at 5s. 6d. per lb., whilst from the other side it is reported very firm. Japanese dementholised quoted 4s. per lb., and 40 per cent. 5s. 6d. per lb. Star Ainseed barely steady at 6s. 3d. per lb. Citronelle is dearer for arrival ; firm on the spot at 1s. per lb. Lemongrass firm, 3¼d. to 3⅜d. per oz. Santal. flav., 11s. 6d. per lb. Cubeb is firm and likely to be dearer ; present quotation 3s. 6d. per lb. Clove steady at 2s. 5d. per lb. Caraway: The English oil is very firm at the late advance to 6s. per lb. Lavender: English oil, 40s. per lb. Sassafras is wanted, and 2s. 2d. per lb. is nominal value.

OILS (FIXED) AND SPIRITS.—Linseed is lower. On the spot, pipes, London, £21 10s. to £21 15s. ; barrels, £21 15s. Hull, spot, naked, £21 5s. ; December £21 ; Jan.-April, £20 5s. ; May-Aug., £20 5s. Rape very firm, ordinary brown, on spot, £22 10s. ; December, £22 10s. ; Jan.-April, £22 10s. ; refined, spot, £24 ; Ravison, naked spot, £20 10s. ; Nov.-Dec., £20 10s. Cotton firmer ; London crude, spot, £16 12s. 6d. to £16 15s. ; Nov.-April, £16 12s. 6d. ; refined, spot, £18 5s. to £19 5s., according to make. Hull, naked, refined, spot, £16 7s. 6d. ; Nov.-April, £16 7s. 6d. ; crude, spot, £15 5s. ; Nov.-April, £15 5s. Olive—Mogador, £34 ; Spanish, £35 5s. ; Levant, £34 5s. Cocoanut quiet. Ceylon, on the spot, £25 10s. ; Cochin, spot, £29 10s. to £30 ; Mauritius, on spot, £25 10s. to £25, in hogsheads. Palm—Lagos, on the spot, quoted £26. Castor steady ; Belgian, first pressing, spot, £27 ; Jan.-June, £25 10s., f.o.b., Antwerp, second pressing, spot, 25 10s. per ton, ex-wharf. Hull, manufactured, guaranteed cold-drawn pure pharmaceutical oil, £29 10s. per ton in barrels, 3 9/16d. per lb. in cases. Pure firsts, £27 per ton, in barrels ; firsts, 3 3/16d. per lb., in cases, ex-wharf London. Lubricating Oil—Pale American, spot, 7s. to 9s. ; black, 6s. 3d. to 8s. ; Russian black, 5s. 6d. ; pale, 7s. to 8s. 6d. Petroleum Oil dearer ; spot Russion quoted 6¼d. to 6½d. ; American unchanged ; spot, 7⅛d. to 7¼d. ; water white, 8⅜d. to 8½d. Petroleum Spirit—American, 9¾d. ; deodorised, 10d. Turpentine dull ; American ,spot, 36s. 9d. to 36s. 10½d. ; July-Dec., 32s.

OPIUM.—The demand has continued slow, and little business has occurred, but holders are firm. A few sales have been made in "Druggists" and Soft Shipping at previous rates. Persian

remains firm at 12s. 3d. to 12s. 6d. for fine, with a small business passing.

OXALIC ACID—Is still quoted 3d. to 3⅛d. per lb. nett, free London, for spot delivery.

PHENACETINE—Unchanged at 3s. 3d. to 3s. 6d. per lb., according to quantity for both powder and crystals.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt. Bichromate, 3½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, spot, London crystals, 3¾d; powder, 3⅞d. per lb. Iodide, 10s. 6d. per lb. Permanganate, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, Beckton make, 6⅞d.; other English makes, 7½d.; red, 1s. to 1s. 2d. per lb., according to quantity, etc.

QUICKSILVER.—Rothschild on Monday advanced his price 2s. 6d. per bottle to £9 10s. A still further advance in price is considered not unlikely. Second hand does not offer.

QUININE.—The market for best German brands is quiet, and no business of importance has occurred to-day, B&S and or Brunswick December delivery closing sellers at 1s. 2d., and March at 1s. 2¼d. The makers of these brands will only sell in quite limited quantity, and only to regular customers at 1s. 2d. per oz. for the sulphate for 1,000 oz. lots in 100 oz. tins.

SALICYLATES (ACID AND SODA)—Are so far unchanged in price, but in view of the altered position of acid carbolic an advance in makers' prices for Salicylates is considered inevitable.

SALOL—Is so far unchanged in price, and advance is, however, expected in consequence of the rise in price of acid carbolic.

SHELLAC.—The market in all positions remains quiet. On the spot moderate sales have been effected in TN Orange, ex the auctions, on a basis of 63s. to 64s. for fair to good, cash terms. Futures continue lifeless, and prices are nominal. At auction to-day the small supply was uninteresting, and with sellers holding for extreme prices only a few cases sold, Standard TN remaining at about 64s. for fair. A total of 383 cases were offered, and 23 cases sold. Second Orange: Of 177 cases 7 sold, fair bright worked at 63s., fine pale bought in at 76s., ditto block sold at 70s. Garnet: 17 cases common weak flat ruby bought in at 56s. Button: 189 cases offered and 16 sold, blocky BL1 at 65s. to 66s., the remainder (chiefly so-called pure) bought in.

SODA COMPOUNDS.—Crystals: barrels quoted 60s., in bags, 57s. 6d. Ash, £6 to £7 per ton, according to percentage, etc. Bicarbonate, landed, £7 5s. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic, 70 per cent. white, £10; 60 per cent., £1 less. Hyposulphate (Antichlor.) 6s. 6d. to 8s. 6d. per cwt., according to make, etc. Iodide, 11s. 10d. per lb. Nitrate on the spot, refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper: 361 bags Singapore bought in at 5¾d. to 5⅞d., also 60 bags Tellicherry at 6d.; 4 bags Ceylon sold, fair at 5½d. White Pepper: 280 bags Singapore bought in, fair to fine at 8⅞d. to 10d.; 81 bags fair Siam bought in at 8⅞d.; 10 bags Ceylon sold, good to fine small at 8⅞d. to 9⅛dfl Chillies firmly held: 122 bags Japan bought in at 44s. Capsicums firm: 2 bales Natal sold at 98s. for good red. Cinnamon quiet: Of 164 packages 47 bags Ceylon sold, coarse bark at 2½d. Mace quiet: 7 cases Penang bought in, fair red, part wormy, at 1s. 7d.; 40 packages West Indian sold, good pale at 1s. 8d. to 1s. 9d.; fair to good red, 1s. 4d. to 1s. 6d.; broken and pickings, 1s. 2d. to 1s. 3d. Nutmegs dull: 84 cases of Penang bought in, 80's to 81's at 1s. 8d., 91's at 1s. 5d., 109's at 1s. 1d.; 168 packages West Indian sold, 65's 2s. 1d., 71's 1s. 9d., 78's 1s. 6d., 84's 1s. 5d., 91's 1s. 2d., 108's to 114's 11d. to 11½d. Pimento dearer: Of 1,110 bags offered 369 sold, ordinary to fair at 3¼d. to 3½d.

STRAMONIUM SEEDS.—These have been in good demand for the United States, and are now very scarce. Price comes at 50s. per cwt., c.i.f.

SULPHONAL.—While the two known makers maintain their price of 17s. per lb. for both powder and crystals, there are still sellers in the market at 14s. to 14s. 6d. per lb., according to quantity.

THYMOL.—Market remains very firm, and there is very little obtainable, even at 10s. 3d. to 10s. 6d. per lb.

TURMERIC.—At auction 27 bags dull Madras finger offered and bought in. Privately business continues restricted, but prices are firm. Bengal now quoted 30s., Madras finger, fair to good bright, 35s. to 37s. 6d., and Cochin split bulbs at 12s.

VALERIAN ROOT.—37s. 6d. per cwt. has been paid for good root, and very little is obtainable at the price.

THURSDAY'S DRUG SALES.

To-day's Drug Sales consisted of an unusually large number of lots. Sennas sold at full prices, Asafetida of good quality sold cheaply. Palembang Gum Benzoin sold somewhat dearer. Cardamoms were easier, while Ipecacuanha showed a decline in value. The following are the particulars as far as it has been possible to procure same up to time of going to press:—

ALOES.—7 cases softish Zanzibar, part rather dark, sold at 52s. 6d. per cwt.; 22 boxes black Curaçoa sold at 20s. per cwt., subject to owner's confirmation. 11 cases fair hard bright Cape sold readily at 27s. to 28s. per cwt.

BALSAM COPAIBAE—3 casks fair Maranham taken out at 1s. 7d. per lb.

BALSAM PERU.—Four cases taken out at 8s. per lb.

BALSAM TOLU.—6 cases good sold cheaply at 1s. 3d. per lb.

BUCHU LEAVES.—One bale brownish yellow rounds realised the high price of 1s. per lb., another lot of three bales selling even dearer at 1s. 0½d. per lb., 9 bales poor longs sold subject to owner's owner's approval at 9d. per lb.

CARDAMOMS.—Medium Ceylon. Mysores realised 2s. 4d. per lb.; lower qualities, 1s. 10d. to 2s.; while fine fetched 2s. 9d. up to 3s. 4d. per lb. 2 cases wild Ceylon fetched 3s 8d. and 3s. 10d. per lb. respectively. Fair seed sold at 2s. 1d. to 2s. 3d. per lb., good ditto being held for 2s. 6d., a bid of 2s. 4d. per lb. being declined.

CAMPHOR.—23 cases Refined Japan were all bought in at 1s. 11d. per lb for 4-oz. tablets and 2s. per lb. for 1-oz. ditto, 100 cases China Crude at 170s. per cwt.

CASCARILLA BARK.—10 bales sorts bought in at 60s. per cwt.

CASTOR OIL.—60 cases good Italian were taken out at 4½d. per lb. 7 cases fair Calcutta firsts at 3¾d. per lb.

CASTORUM.—2 boxes were taken out at 72s. 6d. and 75s. per lb. respectively.

CHILLIES.—46 bales good Zanzibar were bought in at 75s. per cwt.

CINCHONA BARK.—Four bales Carthagena bought in at 4½d. per lb.

CIVET.—Five horns of only fair quality bought in at 10s. per lb.

COD LIVER OIL.—5 barrels Norwegian of only fair quality were taken out at 65s. per barrel; for another lot of 39 barrels of good quality a bid of 68s. per barrel was declined.

CUC CUS ROOT.—9 bales good red bought in at 21s. per cwt., very sandy ditto at 8s.

DRAGON'S BLOOD.—Fair reed, thick fingers, bought in at £10 per cwt. (only £7 10s. being bid); thin reeds were held for £11; dull lump for £9 10s.; good dark bright for £16; seedy lump for £12 10s.; and fair saucers for £10 per cwt. Zanzibar drop bought in at 80s. per cwt.

ERGOT OF RYE.—7 cases fair but somewhat lean Spanish held for 2s. 3d. per lb.

ESSENTIAL OILS.—Eight drums Citronelle taken out at 1s. per lb., twelve cases at 1s. 1d., seven cases Commercial Oil Eucalyptus, somewhat dark in colour, were bought in at 10d. per lb. Twenty-eight cases Oil Lemongrass at 3⅜d. per oz, one case West Indian Oil of Limes at 3s. per lb., thirty-one cases Cajeputa at 3s., ten cases Dementholised Japan Oil Peppermint at 3s. 9d. per lb., another lot Kobayastic brand at 4s. per lb.

GAMBOGE.—11 cases sold at £8 2s. 6d. per cwt. for fair bright softish down to £7 for good pickings, and £6 7s. 6d. per cwt. for dull ditto. Another lot of medium bright pickings bought in at £8 15s. per cwt.

GUM ARABIC.—10 bales Turkey sorts bought in at 72s. 6d. per cwt.

GUM ASAFETIDA.—69 cases were all bought in at 22s. 6d. to 65s. per cwt. according to quality. Another lot of 70 cases all sold at 45s. to 50s. for good grey almondy block, up to 72s. per cwt. for good greyish blocky almonds.

GUM BENZOIN.—Fine Sumatra seconds were held for £9 to £9 5s. per cwt., fair ditto selling at £7 15s., common ditto at £5. Good small almondy Siam realised £12, down to 67s. 6d. per cwt. for dark seedy block.

GUM GUAIACUM.—1 case sold at 10d. per lb. subject to owner's approval.

GUM KINO.—3 cases good Cochin bought in at 2s. per lb., 1 case African at 2s. 6d.

GUM MYRRH.—17 packages were bought in at 30s. per cwt. for common pickings, and 25s. to 37s. 6d. per cwt. for common sorts.

HONEY.—24 cases Australian were bought in at 24s. per cwt. 26 packages Jamaica practically all sold at 27s. for fine white, down to 23s. for less desirable quality.

IPECACUANHA.—One bale Carthagena ICCD sold at 9s. 9d. per lb.; other lots sold cheaper at 9s. Rio also sold at a decided decline at 13s. down to 12s. 1d. per lb.

KAMALA.—6 cases very dusty dull bought in at 5d. per lb.

KOLA NUTS.—100 bags African bought in at 2½d. to 3d. per lb., a bid of 1¾d. per lb. for 20 bags being declined.

LIQUORICE ROOT.—1 bale rough decorticated was bought in at 30s. per cwt.

MENTHOL.—2 cases Kobayashi brand bought in at 10s. per lb., a bid of 9s. being refused.

ORRIS ROOT.—9 packages Mogador sold freely at 22s. to 23s. per cwt., 13 bags medium Florentine sorts bought in at 47s. per cwt.

OTTO OF ROSES.—2 Vases of only fair quality were bought in.

PATCHOULY LEAVES.—6 packages were bought in at 3½d. to 5½d. per lb., according to quality.

RHUBARB.—Fair round and flat Canton was bought in at 1s. 1d. per lb.; bold round ditto at 1s. 2d.; rough horny high dried at 5¼d. to 6d.; medium to good small ditto at 9½d. to 1s.; pale-coated round Shensi at 1s. 2d. to 1s. 5d.; flat ditto at 1s. 4d. to 1s. 6d.; ditto round and flat mixed, showing dark fracture, at 1s. per lb.

SARSAPARILLA.—35 bales Lima sold readily at 10d. per lb., 2 lots C., damaged, fetching 9d. and 9½d. per lb. respectively. 5 serons good Honduras taken out at 1s. 6d. per lb. 27 bales Jamaica sold freely at 1s. 8d. per lb. down to 1s. 5d. per lb. for the less desirable lots.

SENNA.—Of 57 packages Tinnivelly the greater part sold at prices varying from 3¾d. to 6d. per lb., according to quality, comparatively full rates being paid for only medium leaf.

SOY.—20 casks China taken out at 1s. 3d. per gallon.

TAMARINDS.—60 packages East Indian were taken out at 10s. 6d. per cwt. in cases and 8s. per cwt. in mats.

WAX.—Fair to good Zanzibar sold at £6 10s. to £6 17s. 6d. per cwt., fair to good Jamaica at £6 5s. to £7, fair Madagascar at £6 2s. 6d. to £6 5s., fair Australian at £6 15s. per cwt. 1 cask Mogador bought in, a bid of 75s. per cwt. being declined. 24 bags good grey Carnauba were bought in at 60s. per cwt., 5 cases Japan at 32s. 6d. per cwt.

WOOD OIL (GURJUN BALSAM).—Five casks bought in at 28s. per cwt.

Newcastle-on-Tyne Chemical Report.

November 22, 1899.

This market is still very firm. Makers of heavy goods are practically sold fully up to the end of the year for most articles of production, and quotations at present are merely nominal. For next year's contracts higher figures are ruling, owing to dearer coals and other crude produce. Quotations are:—Bleaching Powder, £6 5s. to £6 10s. Soda Crystals, 55s. to 57s. 6d. Caustic Soda, 70 per cent., £9 to £9 5s. Alkali, 52 per cent., £5 10s. to £5 15s. Soda Ash, 52 per cent., £5. Sulphur, £5 per ton.

Manchester Chemical Report.

November 22, 1899.

The upward movement in heavy chemicals continues, and the demand for finer qualities used in the textile industries is also especially good. This is greatly accentuated by the general state of trade in the district, and merchants have been again notified that firm quotations at present rates only hold good when accepted by the manufacturers. Bleaching Powder is now quoted at £6 per ton, soft wood casks, on rails at works, with usual addition for hard woods f.o.b. Liverpool. There is nothing new to note in the position of Glycerin, which continues rather dull. Ammonia Alkali, 58 per cent., is firm at £4 7s. 6d. per ton, on rails. Chlorates of Potash and Soda are quiet. Brown Acetate of Lime is in strong request at £6 5s. per ton, Welsh and American, Manchester. Yellow Prussiate has had a turn for the better, and is scarce at 8d. to 8¼d. Sulphate of Oopper is rather at £25 5s. to £25 10s. per ton, best brands, delivered Manchester. White Powdered Arsenic is firm at £19 10s. per ton, ex ship, Garston. There appears to be a better feeling in coal tar products, and the heavy advance in Carbolic Acid is well maintained. The direct oil trade with the Ship Canal is reviving, and a large part of one cargo consigned to the Manchester Corporation will be used for the purpose of gas enrichment.

Liverpool Market Report.

November 22, 1899.

Business has been good generally, with no great alterations in price to report, and an improved demand in certain articles. Seeds are better in tone as regards Linseed, which has become steadier, and easier in the case of Canaryseed, which has improved in demand, with fair sales effected. In Oils, the only alterations are higher prices for Olive, and a drop in Spirits of Turpentine. Chemicals still continue brisk, and Caustic Soda, Bleaching Powder, and Soda Crystals are very firm.

AMMONIA SULPHATE—Is dearer, £10 17s. 6d. per ton.

BEESWAX.—Six blocks of Sierra Leone, at £6 per cwt.

CANARYSEED.—A moderate business has been doing at easier but firm rates. 200 bags of Turkish, at 35s. 6d. per 464 lbs.; 100 at 36s.; and 280 bags at 35s. 9d. per 464 lbs.

CARNAUBA WAX.—50 bags of fine yellow made 71s. 6d. per cwt.

COPPER SULPHATE—Is very dull at £24 15s. to £25 per ton.

COPPERAS—Is firm. Welsh, 37s. 6d. per ton; Lancashire, 39s. per ton.

LIME, CHLORINATED—Very firm, £5 15s. per ton.

LINSEED—Has recovered in tone after the recent fall. River Plate is quoted at 40s. 9d. to 40s. per 416 lbs., forward December to February. Calcutta, 4 per cent., November and December, 45s. 6d. per 416 lbs. North American, 45s. 3d. per 424 lbs.

OILS (FIXED) AND SPIRITS.—Castor Oils are quiet with sales of 100 cases of Calcutta, ex quay, at 3d. per lb., and small sales, ex store, at $3\frac{1}{32}$d. per lb. French, 1st pressure, has moved off in small parcels at $2\frac{13}{16}$d. to 2⅞d.; 2nd pressure at 2⅝d. per lb. Madras, $2\frac{13}{16}$d. per lb. Olive is very high in price with a consequent small amount of business doing in Spanish oils at £36 to £36 10s. per tun on the spot. Linseed oils of Liverpool make are unaltered at 23s. 6d. to 24s. per cwt. Cotton-seed oil, Liverpool refined, is held firmly at 19s. to 19s. 6d. per cwt. Spirits of Turpentine have fallen in price to 38s. 3d. per cwt., with a fair business doing.

POTASH SALTS.—Cream of Tartar is steady with small sales of Oporto, 95 per cent., at 75s. per cwt. Potashes still firm at 24s. 6d. to 24s. 9d. per cwt. Pearlashes, 32s. per cwt.

SODA SALTS.—Bicarbonote, £6 5s. to £6 15s. per ton. Borax, £16 to £16 10s. per ton. Crystals, £3 5s. per ton. Caustic, 76 and 77 per cent., £10 per ton. Nitrate slow of sale, 7s. 9d. to 8s. per cwt.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

Articles and Reports sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

Correspondents should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for Illustrations should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Reprints of Articles cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Abram, Bartlett, Bennison, Branch, Carter, Cave, Cummings, Davy, Donald, Dunford, Eberlin, Edwards, Essam, Forster, Fraser, Gibson, Hall, Hill, Hogg, Jones, M'Intosh, Mackerith, Mason, Newsholme, Phillips, Reid, Ring, Rix, Sargeant, Thorp, Tilley, Walker, Wallace, Wallis, Weddell, White, Woods.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

What Offers? 9 years' *C. & D.* and 10 years' *P. J.*; or exchange for saleable patents.—Rowe, Chemist, Starcross.

Moulds.—Suppository, Pessary, Bougie, Capsule; Maw's patterns.—Warnes, 333, Gray's Inn Road, W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Pharmaceutical Journals: Volumes 17 to 25, inclusive, bound; 1895 to 1899, inclusive. P.J. posted weekly. Offers wanted.—Telescope cost £3, accept 30s.—Dunning, Ventnor.

Pharmaceutical Journal. A complete set, from 1841. First 29 volumes bound, perfect condition; remainder unbound, quite clean. Offers.—Elliott, Chemist, Gateshead.

Otto Roses, virgin, ounce bottle, original (gilt), 25s. Lavender Oil, Mitcham 1896, 1b. original bottle, capsuled, 25s., postage free.—Warnes, 333, Gray's Inn Road, W.C.

Christmas Decorations. Very best special White Glass Frost, 1 lb., full weight, posted, 1s. 7d.; 2 lbs., 2s. 11d.; 7 lbs., 9s. More satisfactory full weight.—Foster, 80, Navigation Street, Birmingham.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Formula suiting toilet or other speciality.—W. Lewis, 15, Shelden St., London, W.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

A set of "The Year Book of Pharmacy," also a set of "American Journal of Pharmacy" for the last ten years.—Moor, Analyst, Exeter.

Old Druggists' Crockery-ware wanted. Blue and white Syrup Jars, Ointment Pots, Oil Vases, and other Pharmaceutical Antiquities.—John Austen, Pharmaceutical Chemist, Dore, near Sheffield.

Advertisements.

(Received too late for Classification.)

MAIDSTONE. A competent ASSISTANT (indoors), age about 22.—Apply, stating age, height, references (2 last), and photo, to be returned, FARDON & Co., Maidstone.

ABROAD.—First-rate Minor Man wanted for eminent Wholesale and Retail house. Permanent engagement. Excellent opportunity for intelligent, energetic man. Liberal terms.—PRESCRIBER, "Pharm. Journal" Office, 5, Serle St., London, W.C.

THE COMPANY PHARMACY PROBLEM.

Since the beginning of October, when the winter session opened, a number of local pharmaceutical associations have passed definite resolutions on the subject of company pharmacy.

Restriction of Titles to Individuals.

The following twenty-one associations are agreed with regard to the necessity of restricting the assumption and use of chemists' titles to individuals registered under the Pharmacy Acts :—

Birkenhead Pharmaceutical Association,
Blackpool and District Chemists' Association,
Bradford and District Chemists' Association,
Bristol Pharmaceutical Association,
Burnley and District Chemists' Association,
Colchester Chemists' Association,
Derby and District Chemists' Association,
Dewsbury and District Chemists' Association,
Forfarshire and District Chemists' Association,
Great Yarmouth Chemists' Association,
Halifax and District Chemists' Association,
Newcastle-on-Tyne and District Chemists' Association,
North-East Lancashire Chemists' Association,
North Staffordshire Chemists' and Druggists' Association,
Nottingham and Notts. Chemists' Association,
Plymouth, Devonport, Stonehouse and District Chemists' Association
Preston Chemists' Association,
Sheffield Pharmaceutical and Chemical Society,
Swansea and District Chemists' and Druggists' Association,
Wolverhampton Pharmaceutical Association,
Wrexham and District Chemists' Association.

Restriction of Dispensing and Sale of Poisons.

The following fifteen associations would prohibit the retailing, dispensing, of compounding of scheduled poisons by companies of unregistered persons :—

Birkenhead.	Nottingham.
Blackpool.	North Staffordshire.
Bristol.	Plymouth.
Dewsbury.	Preston.
Forfarshire.	Sheffield.
Newcastle-on-Tyne.	Swansea.
North-East Lancashire.	Wolverhampton.

Wrexham.

The North-East Lancashire Chemists' Association would prohibit the retailing, dispensing, or compounding of poisons by *all* companies, whether consisting of registered persons or not. The North Staffordshire Chemists' and Druggists' Association would entirely prohibit the practice of pharmacy by companies of unregistered persons.

Registered Persons as Directors.

The following six associations would permit companies to retail and dispense scheduled poisons if the directors were registered persons :—

Bradford.	Derby.
Burnley.	Great Yarmouth.
Colchester.	Halifax.

The Bradford, Colchester, and Derby Associations stipulate, in addition, that each shop should be in charge of a registered chemist.

Associations not yet Decided.

The following thirty-one Associations do not appear to have passed any resolutions on the subject during the present session:—

Aberdeen and North of Scotland Society of Chemists and Druggists.
Bolton Pharmaceutical Association,
Bournemouth and District Pharmaceutical Association.
Brighton Association of Pharmacy.
Cambridge Pharmaceutical Association.
Chester Chemists' Association.
Dover Chemists' Association.
Dumfries and Maxwelltown Chemists' Association.
East Aberdeenshire Chemists' Association.
Edinburgh District Chemists' Trade Association.
Exeter Association of Chemists' and Druggists.
Glasgow and West of Scotland Pharmaceutical Association.
Grimsby and District Chemists' and Druggists' Association.
Hastings and St. Leonards Chemists' Association.
Hull Chemists' Association.
Inverness Chemists' Association.
Leeds Chemists' Association.
Leicester Chemists' Social Union.
Liverpool Chemists' Association.
Manchester Pharmaceutical Association.
Midland Pharmaceutical Association.
Newport and Monmouthshire Chemists' Association,
Northwich Chemists' Association.
Oxford Chemists' Association.
Scarborough Chemists' Association.
Southampton Chemists' Association.
Streatham and District Chemists' Association.
Sunderland Chemists' Association.
Tunbridge Wells and District Chemists' Association,
Western Chemists' Association (of London).
Windsor and District Chemists' Association.

Several associations in the last list have discussed the company-pharmacy problem at one time or another, and the Editor will be glad to hear from any which have recently adopted resolutions specifically dealing with the assumption and use of chemists' titles by companies, or the retailing, dispensing, or compounding of scheduled poisons by companies of unregistered persons.

Bristol Pharmaceutical Association.—A meeting of members was held at University College, on Friday, November 24, to discuss "the recent decision of the Council of the Pharmaceutical Society on the companies question," Mr. G. T. Turner, the President, in the chair, who reminded the meeting of resolutions passed in December, 1898, at which it was resolved to support the Pharmaceutical Society in its efforts to obtain legislation on the principle of personal proprietory of all retail shops and the abandonment of the Widows' Clause. Mr. Turner thought this was the most critical time in the history of their body. He contended that the whole foundation of the Pharmacy Act was that of personal qualification of the owner of the shop. They did not ask for monoply of trade, but having spent money and effort in obtaining a legal qualification, he thought it was monstrous to give away, as some seemed inclined to, their legal titles and position. He, for one, was prepared to fight for their rights and privileges.

Mr. Matthews thought that if the members of the trade throughout the country could be consulted there would be no diversity of opinion amongst them. He thought that some members of the Law and Parliamentary Committee were afraid to act upon the principle of the Act, which was that of personal qualification ; they were more anxious to please the legal profession than to act for the benefit of the whole trade. If chemists once recognised companies as legally entitled to call themselves chemists, etc., any advantage thus possessed as qualified men would be gone for ever. He also thought that if companies were allowed to take this position it would not be long before other unqualified individuals also would set up a chemist's department.

Mr. Plumley was strongly opposed to companies aping chemists' titles.

Mr. Allen thought there should be no compromise whatever with companies.

Mr. Ritchford alluded to the very limited control the assistant had in a company business. He believed that the public at large as well as the House of Commons would listen to representations made to them of the unreasonableness of companies of unqualified persons being able to do what was illegal for individuals to do.

After further discussion the following resolutions were unanimously passed :—

That the titles of registered chemists ought to be protected, and that it should be illegal for companies of unregistered persons to use the title of chemists, or keep open shop for retailing and dispensing of scheduled poisons, as in the case of individuals, and that this meeting deeply regrets the action taken by the majority of the Council, and thereby expresses its want of confidence in them.

In regard to any contravention of the Medical, the Dental, or the Pharmacy Act. . . . . a company or other corporation shall be deemed to be a person, and shall in all respects be subject to the liabilities attaching to a natural person who infringes the provisions of those Acts, or either of them.

Nottingham and Notts Chemists' Association.—The opening meeting of the session was held at the Albert Hotel on Wednesday evening, November 29, and took the form of a smoking concert. The chair was occupied by Mr. Councillor FitzHugh, J.P., who was supported, amongst others, by Messrs. Middleton, Gascoyne (Councillor Cook), T. Wilson, W. Gill. The Vice-President, Mr. R. H. Beverley, was unavoidably absent through indisposition. At the opening of the meeting nine new members were elected, and although the gathering was of a festal character, the time was felt to be an opportune one to pass a resolution relative to company pharmacy. Mr. W. Gill proposed, and Mr. F. Ross Sergeant (local secretary) seconded the following, which was unanimously carried :—

This meeting of the chemists of Nottingham and district is of opinion that a strong effort should be made to obtain in the Companies Bill the insertion of a clause which will protect chemists' titles, and make it illegal for companies of unregistered persons to keep open shop for selling and dispensing poisons as in the case of individuals.

The concert, which was a most enjoyable affair, was contributed to by the following gentlemen:—Messrs. Parkes, Clarke, Proctor, J. H. Wilford, Clarke, jun., Thompson, and Martin.

PHARMACEUTICAL CHEMISTS AND COMPANIES.—The following letter appeared in the *British Medical Journal* last week:—"SIR,—As one who has for some time taken a great interest in the difficulties that chemists have to contend with, I was pleased to read the article in the *British Medical Journal* of November 11 on pharmaceutical chemists and companies. Since the discussion on pharmacy and company law started great changes of opinion have occurred, not the least important of which has been the clearing away of the impression that chemists held—namely, that it was no good looking to the medical profession for any active assistance. Your article must banish that idea for ever, for, as you so ably put it, 'It is clear on all sides that the protection afforded to the public by preserving a proper significance to titles must not be weakened.' The fight for protection of title is as much medical as pharmaceutical. If gained at the expense of chemists it is but a lever with which to attack, first veterinary surgeons and dentists; then our own titles would become the object of capitalistic combinations. The only ground of dispute is, How should such titles be protected best? I have no hesitation in saying my opinion is with the minority of the Pharmaceutical Council. The Lord Chancellor says distinctly that individual qualification and company pharmacy will not cohere. Why, if this be true, should anyone attempt that which is impossible? If chemists cannot maintain their titles, rights, and privileges without giving up rights under the Limited Liability Acts, there is only one position they can logically occupy—that is, alongside of others who depend on qualification—to decline to avail themselves of the right to form limited liability companies. Hard as this position may seem to some, it is the only one which will adequately protect their title. Attempts in any other direction are foredoomed to failure. Questions of qualified directorate, or even of qualified shareholders, if admitted, are unworkable, and if attempted could only work for a few years; then by death the interest would be transferred to the unqualified, and the whole question would again crop up, to be dealt with at a greater disadvantage than even now. The great risk at the present time is that the Pharmaceutical Council should be inclined to barter away the rights of qualification. Should they do so a compromise might be forced upon them; but if chemists could be unanimous in declining to deal at all with company pharmacy I cannot believe that Parliament would force it on them in face of their opposition, backed up by strong expressions of opinion from the medical world.—RILEY CUNLIFFE, M.B., C.M., *Blackburn, November* 11, 1899."

THE LAY PRESS ON COMPANY PHARMACY.—The *Tonbridge, Tunbridge Wells, and Sevenoaks Free Press* of November 25 has the following pertinent comments on the company pharmacy problem:—"That 'the law is a hass' was the dictum of Dickens, and the truth of the saying is pretty constantly forcing itself upon one's attention. It has recently presented itself before the people of Tonbridge, for instance, in connection with the opening of a new chemist's shop by a company. With regard to that particular calling—than which no business or profession holds so much in its hands the health and life of its customers—the law allows a number of individuals, if they form themselves into a company, to do that which none of them individually may do. The compounding and sale of drugs and preparations which contain poison is rightly hedged about with many restrictions for the protection of life, and no man individually may sell poisons, or make up prescriptions which contain them, until he has been subjected to long and costly training, and has passed a series of severe examination tests. And yet—such is the stupidity of the law—if any number of unqualified individuals (seven is enough) choose to form themselves into a company, either bogus or real, and undertake in their corporate capacity the sale of drugs, they may with impunity do that which either of them individually would incur severe pains and penalties for doing. The company which has now honoured Tonbridge with its presence is a striking case in point. It consists of thirty-four individuals, many of them females and clergymen (and one of them a printer), but not one of the thirty-four is a qualified chemist. One of the original shareholders, when the company was formed in 1883, was a chemist and druggist, and had an eight thousand pounds' interest in the concern, but his name disappeared from the list three years later. And as far as management goes, the company is pretty well a one-man affair, an extraordinary meeting having been held two years ago to decide that 'two directors shall form a quorum.' We thought it would be of general interest just now to glean these particulars at Somerset House and the Pharmaceutical Society, because it does seem a scandal and a shame that the law should allow so delicate and dangerous a business to be carried on by unqualified men, if only they will constitute themselves into a company."

ENGLISH NEWS.

PHARMACY ACT CASE.—At the Mansion House, London, on Thursday, November 30, in the case of the Pharmaceutical Society *v.* Wrench and Co., Limited, three summonses were heard, viz., for (1) selling a poisonous vegetable alkaloid, called nicotine, contained in bottle not distinctly labelled with the name of the article and the word poison—penalty imposed £5, with 10 guineas costs; (2) not making the required entry in the poisons book—penalty 10s.; (3) the purchaser not being introduced to the seller by some person known to the latter—penalty 10s. Case granted for the High Court.

SHEFFIELD PHARMACEUTICAL SOCIETY.—The second annual smoking concert of this Society was held at the Wharncliffe Hotel, Sheffield, on Thursday evening, November 23, and was very successful and enjoyable. Mr. G. Squire presided over a good attendance, and a capital musical programme was presented, the contributors being Mr. Ernest Dale (character humorist), Dr. Sorley, Mr. Austen, Mr. J. C. Gibson, Mr. Hardcastle, Mr. Percival, Mr. Skinner, Mr. C. Ellis, and Mr. C. F. Carr, with Mr. Elliott at the piano.

METROPOLITAN COLLEGE OF PHARMACY.—The sixth annual dinner in connection with this College was held in the Royal Venetian Chamber, Holborn Restaurant, on Saturday, November 25, Mr. G. Claridge Druce, of Oxford, in the chair. The event was a complete success; there was a good dinner, genial company (numbering nearly 300), an excellent entertainment, an efficient chairman, and a generous host (Mr. W. Watson Will). Apart from the speeches, the programme was principally patriotic and Scotch, hence it goes without saying that there was no lack of enthusiasm.—After the toast of "The Queen," the Chairman in proposing "The Metropolitan College of Pharmacy," addressed his young brothers in the craft on the subject of pharmaceutical education. In the course of his remarks he alleged that in recent years the examinations had become more and more difficult, on account of the subordination of purely pharmaceutical subjects in favour of the scientific. He thought this was a mistake, as the real purpose of the examinations ought to be to produce as good pharmacists as possible, and in order to do this, greater attention should be given to technical matters, and less to the purely scientific. He then went on to advocate the desirability of a division of the Minor examination; touched upon the good work done by pharmacists in the past—such as Scheeley, Daniel Hanbury, and others—and urged his young friends to devote a portion of their energies to the study of some particular subject and to make it their life-work; referred to the modern joint-stock business methods as likely to crush out the old class of chemists who were wont to take an active interest in the conduct of municipal affairs, and to implant in their place branch managers whose sole interest will be to draw their salaries, leaving public affairs to take care of themselves so far as they are concerned; and concluded by offering a word of encouragement to those who have yet to qualify for the title "chemist."—Mr. Watson Will replied. He thought the Chairman had hit the nail on the head in his reference to the examinations.—The Chairman then distributed the medals and certificates to the successful students, the silver medallists being:—F. T. Roper, William S. Flick, and David J. Williams; bronze medallists (chemistry), O. C. M. Davis, T. T. Richards, G. A. Cawkwell; (pharmacy), O. C. M. Davis, W. V. Westlake, W. R. B. Arnold; (botany) O. C. M. Davis, G. W. French, F. Pickles; (materia medica) O. C. M. Davis, S. W. Wallis, W. J. Thomas; (dispensing) G. W. French, T. T. Richards, and M. A. H. Barley.—The toast of "The Demonstrators" was next proposed in a very complimentary speech by Mr. A. Brooke Britton.—Messrs. G. T. Branch, H. Lucas, and F. F. de Morgan replied. The former referred to his departure from the College in the near future, while Mr. Lucas and Mr. de Morgan advised the students present to apply a little common-sense to their studies.—Mr. Thomas Tyrer, in proposing the toast of "The Students," said he felt as much a boy as any of them, and went on to recommend to the students the advice given to him by his father when starting out in life, viz., "Don't be a fool." The essence of success in their particular calling was "accuracy," he therefore urged them to be careful and observant.—Mr. H. L. Ironmonger responded for the students in a clear and deliberate manner. The work and worries of a chemist's assistant, he said, were really greater than many people imagined. However, other people had gone through that period successfully and he did

not see why they—the present students—should not if they stick to their work. They were all sorry to learn that Mr. Branch was leaving them, but wished him every success in his future career. —Other toasts were "The Visitors," proposed by Mr. Watson Will and responded to by Captain David Peters, and "The Chairman" proposed by Dr. F. B. Power.—A most enjoyable evening was brought to a conclusion by the singing of "Auld Lang Syne."

The B.P. as a Standard for Drugs.—At the invitation of Mr. P. F. Rowsell, president of the local association, the chemists of Exeter assembled at Lion House, St. Thomas, on Tuesday last to meet Mr. C. G. Moor, M.A., F.I.C., F.C.S., the City Analyst for Exeter. Mr. and Mrs. Rowsell welcomed the guests, and after an excellent repast an interesting and instructive discussion took place in relation to pharmaceutical matters, particularly on the question of the B.P. as a standard for drugs.—Mr. Moor said his object was to promote their general interests so that there should be no unnecessary friction in the carrying out of their several duties. With regard to the question of the standard of drugs he read a paper on "Suggested Standards of Purity for Foods and Drugs" at the B.P.C., at Plymouth, in July last, but they were then told by Dr. Attfield that the British Pharmacopœia was not a legal standard under the Food and Drugs Act. They all knew that it was not a legalised standard, but it was practically accepted in Courts of Justice by magistrates as a legalised standard, so that for all intents and purposes it was a legalised standard. The fact, however, that it was not strictly a legalised standard was rather a benefit than otherwise, because if it were legalised they would be bound to carry out all processes and details according to the letter of the law.—Most analysts were agreed in taking the B.P. as a standard. — Mr. Moor then dealt with various preparations suggested by the members, including that of Gregory's Powders, the point at issue being that the oxide of magnesia became partly converted into carbonate. Mr. Moor agreed that some reasonable allowance for natural carbination should be made, and suggested that it could be determined by experiment. — A question was asked whether the presence of small quantities of chlorides in lime water would be held as an adulteration, and Mr. Moor said he considered that the strength of the lime was the most important point, and he did not consider that small quantities of chlorides would be a matter of great consequence. There was considerable discussion on the question of sweet spirit of nitre, and as to whether an improved method of keeping it could be suggested. Mr. Moor asked whether the allowance given in the B. P. for natural deterioration appeared to be sufficient—namely, that after being opened several times the liquid remaining in the bottle should yield on assay not less than five-sixths of the original volume of the gas. There was a consensus of opinion that it was not a sufficient allowance.—Mr. J. Hinton Lake raised the question of the tests of distilled waters, and Mr. Moor said he was not aware that they were frequently tested. There appeared to be only one method of doing so, which was not, to his knowledge, thoroughly worked out, but a process might possibly be based on the iodine absorption of the essential oils employed.—Mr. Lake also raised the question as to what allowance might be made for deterioration in alkaloidal strengths, or as to whether any discounts could be allowed for natural or accidental deteriorations of alkaloids in standardised preparations.—Mr. Moor, in reply, took the case of one particular article mentioned —that of liquid extract of ipecacuanha. The B.P. was perfectly clear in stating that the mixed alkaloids should be not less than 2 and not more than 2.25 grams per 100 C.c., and he did not see how any departure could be made from those figures unless it were shown that in any particular preparation there was a natural loss of alkaloids.—An interesting discussion also took place on tinctures, and Mr. Moor said that as regards many tinctures the total solids left on evaporation were a valuable indication as to whether the tincture was duly prepared and of full strength. On the other hand, there were some tinctures—as, for example, tincture of opium—in which the total solids were naturally variable with the kind of opium used, and, provided the alkaloid morphine was present in due quantity, the amount of total solid residue was of no significance within very wide limits. To take the case of another tincture—for example, the tincture of capsicum—abnormally low total solids would show that the tincture was deficient in oleo resin, which was the active ingredient. Such a deficiency might occur from the skin of the capsicum having been separated from the seeds in grinding and a portion containing more skin than seeds employed for tincture making.—A question was asked as to whether the total solids of cannabis indica were not variable, and Mr. Moor replied that of four samples which he had taken the total solid residue was practically identical in all cases—namely, about 4.2 per cent., which agreed closely with the 4 per cent. suggested by Barclay.—Several other preparations were dealt with, and at the close of an interesting discussion a cordial vote of thanks was voted to Mr. Moor.

The Sale of Potash Water.—At Swindon Petty Sessions, on Monday, November 27, John James Shawyer, chemist and druggist, Wood Street, Swindon; William Williams, pharmaceutical chemist, Bridge Street, New Swindon; William Evans, described as a chemist, Market Street, New Swindon; and Joseph Henry Green, chemist and druggist, Wood Street, Swindon, were summoned under the Food and Drugs Act for selling potash water not of the nature and quality demanded.—The case for the prosecution (Wilts County Council) was that according to the analysis of Dr. Bernard Dyer, the county analyst, the "potash water" in question was "carbonated water, destitute of potash."—After evidence had been given for the defence in the first two cases to the effect that the article was sold in exactly the same condition as received from the manufacturers, the magistrates decided that although they had not the slightest doubt as to the *bonâ fides* of Mr. Shawyer and Mr. Williams, as the proceedings were taken in the interests of the public there must be a nominal fine of 1s. and costs.—With regard to the case against Mr. Evans, the analysis was disputed, it being asserted by Mr. J. C. Fell, analytical chemist to C.A.M.W.A.L., who supplied the potash water, that it contained six grains of potassium bicarbonate to the pint. This was supported by Mr. F. W. Stoddart, Bristol city analyst, who stated that the sample examined by him contained potassium bicarbonate in the proportion of 5·95 grains to the pint, and 2½ grains of other solids. The case was therefore adjourned in order that Dr. Dyer and Mr. Stoddart might make a joint analysis of the third portion of the contents of the syphon purchased by the prosecution.—The case against Mr. Green was also adjourned, together with two summonses under the Merchandise Marks Act against C.A.M.W.A.L. for applying a false trade description to certain syphons of potash water.——Two cases under the Merchandise Marks Act were heard at the same court against Edwin Robert Ing, aërated water manufacturer, Swindon, trading as E. R. Ing and Co., and against Idris and Co., Limited, aërated water manufacturers, of Pratt Street, Camden Town, London, for applying a false trade description to certain syphons of potash water delivered to Mr. J. J. Shawyer and Mr. William Williams respectively, two of the defendants in the previous cases.—For the defence Mr. Ing stated that he never attempted to sell "potash water" which did not contain potash. He sold carbonated water, and he suggested that a potash water label was put on a syphon of carbonated water. —For Idris and Co., Limited, it was suggested that during the hot weather, when the firm was very busy, soda or other water might have been left in the pipes and cylinders in which they combined the gas and the water, and some of this probably escaped the notice of the foreman and got into the potash water syphons. There was no desire on the part of the company to sell "potash water" which did not contain potash.—The magistrates, while of opinion that the defendants had no intention of committing a fraud, were unanimously agreed that they had no alternative but to convict, because—through some want of supervision or another cause—the public did not get what they believed they were buying. Fines of 10s. and costs were accordingly imposed.—A second summons of a similar nature against Idris and Co., Limited, was withdrawn.

Prosecution of "Madame Frain."—At the Central Criminal Court on Saturday Mr. Justice Darling delivered judgment in the case referred to at page 506e last week. He said the defendants were accused of having carried on a regular business for many years, one or other of them—one in succession to the other—the object of which business was to sell drugs to women in order that they might attempt to procure abortion, and the jury had found that the defendants by means of advertisements incited the women to take these drugs, and thereby to attempt to procure abortion. The defendants raised two defences. In the first place they said that granted, for the sake of argument, that they did that, they were not guilty, because, as a matter of fact, the drugs would not procure abortion. They charged the women very large sums of money for those things, and then set up as a defence that the things were absolutely worthless, and compared

them to water or bread. They charged 22s. for a bottle of the mixture, and a considerable sum for the pills. If it had been true that the stuff had been what they contended, they could have been indicted, and, he thought, properly indicted, for obtaining money by means of false pretences. And he said that for this reason. It was said that the defendants in what they did were doing no more than other people did who advertised drugs calculated to cure all sorts of ailments. He could only say that, if those drugs were as worthless as the defendants submitted that theirs were, those people also had better take care that they did not stand in the dock charged with obtaining money by false pretences. But the case did not go to the jury on that basis at all. It went to the jury on the basis that the defendants incited the women to take something which would procure abortion—something which was not a harmless thing, but which was a dangerous thing, and the jury found that what they supplied was a noxious thing capable of procuring abortion, and in that respect they broke the law. He had consulted the Lord Chief Justice as to the sentence he was to pass upon them, and had his full approval. He sentenced Brown to twelve months' imprisonment in the second division; Abrahams and Fox to nine months' imprisonment in the second division. Cross and Perron were merely servants of the other defendants, therefore if they were content to be bound over in their own recognisances to come up for judgment if called upon they would be released. He desired to say one word with regard to others not before the Court. This crime was rendered possible because newspapers accepted advertisements of this illegal business. It was desirable that it should be known that anyone who incited by whatever means a person to commit crime himself committed a crime. The jury had found by their verdict that these advertisements were incitements, which were used by the men on whom he had passed sentence to the crime of abortion. If any advertisements which incited to this or any other crime appeared again the proprietors, editors, and printers of the newspapers which made them public would deserve to find themselves—aud if any words of his had any influence with the Treasury they would find themselves—in that dock; and, although they pointed out no particular means for the commission of the crime, if the jury found that they did incite to crime they would probably receive a more severe sentence than that passed in this case.—Cross and Perron entered into their own recognisances in £50 to come up for judgment if called upon, and were discharged.

IDRIS AND CO., LIMITED. — The ordinary general meeting of the company will be held at the office of the company, Pratt Street, Camden Town, London, on Thursday, December 7, at 3 p.m., to receive and consider the directors' report and balance-sheet, and to transact the other ordinary business of the company. Also to consider, and if thought fit, pass the following resolution:—

That the capital of the company shall be increased from £150,000 to £200,000, by the creation of 50,000 new A Preference shares of £1 each, which shall rank *pari passu* in all respects with the existing 70,000 A Preference shares of £1 each, and that Clause 9 of the Articles of Association be modified accordingly.

In the event of the resolution being passed, it will be submitted to a second extraordinary general meeting to be held at the same place on Friday, December 22. The balance-sheet includes the result of thirteen months' trading, and shows a profit considerably in advance of that made during any previous corresponding period. After charging interest on the debenture stock and making very full allowance for depreciation, it amounts to £17,864 4s. 4d., which with £1,163 6s. 11d. brought forward from the last account, makes a total amount of £19,027 11s. 3d. standing to the credit of the profit and loss account.

LONDON COLLEGE OF CHEMISTRY, ETC.—A smoking concert was held at the Gauden Hotel, Clapham, on November 16, in connection with the London College Football Club, Mr. Wootton, B.Sc., in the chair. The features of the evening were: A Welsh quartette, by Messrs. Franklin-Vallet, Pritchard, Jones and Evans; and recitations by Messrs. Edwards and Fred Ashford. Mr. Ashford gave "The Absent-Minded Beggar," after which a collection was made, resulting iu £3 being forwarded to the *Daily Mail* War Fund. The toasts were, "The Queen," Mr. Wootton; "The Principal," Mr. Ashford; "The Staff," Mr. Murray; and "The Pharmaceutical Society," Mr. Franklin-Vallet, The latter gentleman, in the course of his remarks, expressing the hope that students and others would defer criticism of the Society until they had become members. A large number of past and present students was present. The proceedings were brought to a close with the singing of "God Save the Queen."

SCOTTISH NEWS.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The second meeting of the twenty-second session was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Wednesday, November 22, at 9.15 p.m., Mr. Fraser McDiarmid (President) in the chair. The minutes of last meeting were read and approved. Mr. W. B. Cowie explained and demonstrated practically the various methods adopted by determining vapour densities, and showed how this factor was utilised in fixing molecular weights. The vapour density of chloroform was practically determined by Meyer's method. The apparatus employed in the cryoscopic method of determining molecular weights was also exhibited and explained. Mr. Cowie then gave a practical demonstration of the volumetric composition of water by electrolytic analysis in a voltameter and by eudiometric synthesis. On the motion of the Chairman, a cordial vote of thanks was accorded to Mr. Cowie, and the meeting then closed.

IRISH NEWS.

STUDENTS RECREATE.—As a rule, students manage to mingle method with their madness, but the Cork Queen's Collegians at the triennial visitation conducted by Lord Justice Holmes, Sir Thornley Stoker, and Dr. Moore, developed a very excessive hilarity. Certain applications being refused, uproar ensued. The graduates subsequently proceeded to the grounds and converted the notice boards into banners. Having procured a garden hose, the President's residence, where the visitors were lunching, was saluted with discharges of water. A hunt was then organised, a stuffed tiger belonging to the natural history museum being commandeered for the purpose, and during the sport several botanical specimens were uprooted. An empty prison van was next attacked, overturned, and the driver seriously injured. In the evening the students swarmed into a music hall and furnished a few unrehearsed extras. Afterwards they marched through the streets singing Irish songs, but as this pleased the crowd they immediately started up "Rule Britannia," whereupon the mob charged them and broke them up into indistinguishable fragments.

WELSH NEWS.

SWANSEA CHEMISTS' ASSOCIATION.—At Swansea the Chemists Association has met under the presidency of Mr. Hughes, to discuss the suggestion already made public as to the proposed pharmacy legislation. The attendance included Messrs. Barrett, Lloyd, Yorath, Groves, J. T. D. Turner, J. Davies, and Mr. Davies, the Secretary. It was decided, on the motion of Mr. Yorath, seconded by Mr. Barrett, to support the proposal:—

To protect chemists' titles, and make it illegal for companies of unregistered persons to keep open shop for the dispensing and selling of scheduled poisons, as in the case of individuals.

This was the principal business.

Partnerships Dissolved.

(From the London Gazette.)

James Thomas Dunk and George Thomas Clark, Hairdressers and Perfumors, 187, Kensington High Street and 221, Brompton Road, Kensington. Debts will be received and paid by G. T. Clark in respect to 187, Kensington High Street, and by J. T. Dunk in respect to 221, Brompton Road.

Harold Charles Ling and Charles Campbell Baxter Tyrie, Physicians and Surgeons, Keighley, Yorks. All debts owing by the late firm will be paid by H. C. Ling; debts due to the late firm will be received by either H. C. Ling or C. C. B. Tyrie. Each will continue to practise independently.

George Adkins and Charles Hyde Cosins, Medical Practitioners, Paignton. Debts will be received and paid by C. H. Cosins.

Alfred Octavius Grosvenor and James William Anderson, Medical Practitioners, The Tower, 72, Priory Road, West Hampstead, and 1, St. James's Mansions, West Hampstead.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Miss Mary Ariel Stewart. at the University of London on November 22, last had conferred on her the degree of Bachelor of Medicine of the University of London. Dr. Mary Stewart is sister of Dr. Grace Stewart Billings, in practice at Cheltenham, and eldest daughter of Mr. James Stewart, chemist and druggist, Cheltenham.

Mr. John William Richards, M.P.S., Llwynypia, Rhondda Valley, has had his pharmacy entirely re-modelled, the fittings, jars, and bottles being supplied by Messrs. Ayrton and Saunders, Liverpool.

Mr. Horace Reeves, M.P.S., has accepted an appointment with Dr. Gerber, of 16, Rue Grimaldi, Condamine, Monaco, which is now Mr. Reeves' address.

Calendar for the Week.

Sunday, Dec. 3. 1st Advent. ●0.48M. Sun rises 7.48, sets 3.52.

Monday, Dec. 4. Sun rises 7.49, sets 3.51.

Tuesday, Dec. 5. Sun rises 7.51, sets 3.51.

Bradford and District Chemists' Association, County Restaurant, at 9 p.m.—Musical Evening, arranged by Mr. Severs.

Royal Photographic Society, 66, Russell Square, W.C., at 8 p.m.—F. N. Evans will lecture upon "Lincoln Cathedral." Ladies specially invited.

Wednesday, Dec. 6. Sun rises 7.52, sets 3.50

British Pharmaceutical Conference, 17, Bloomsbury Square London, W.C., at 3 p.m.—Representative meeting of all interested in the Conference.

Manchester Pharmaceutical Association, Victoria Hotel.—Prof. F. E. Weiss on "The Way Plants Protect Themselves."

Midland Chemists' Assistants' Association, Exchange Rooms, Stephenson Place, Birmingham, at 9.15 p.m.—Paper by Mr. Barclay.

Pharmaceutical Society, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of Council.

Thursday, Dec. 7. Sun rises 7.53, sets 3.50,

Chemical Society, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers will be read by Messrs. H. J. H. Fenton and H O. Jones: A. W. Crossley and H. R. Le Sueur; and F. R. Mallet.

Chemists' Assistants' Association, Dorset Hall, Portman Rooms, Baker Street, London, W., at 7.30 p.m.—First Cinderella Dance of the Season.

Linnean Society of London, Burlington House, Piccadilly, W., at 8 p.m.—Papers will be read by J. W. Fawcett, G. M. Thomson, and H. M. Bernard.

Midland Pharmaceutical Association, Great Western Hotel, Birmingham, at 8.45 p.m.—Smoking concert.

Friday, Dec. 8. ☽ 9.3 A. Sun rises 7.45, sets 3.50

Cambridge Paarmaceutical Association, University Lecture Theatre.—Dr. Lloyd Jones on "Sewer Gas."

Glasgow Chemists' and Druggists', Assistants', and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Amusements.

Glasgow School of Pharmacy, North British Station Hotel, George Square, at 9 p.m.—Third annual supper.

Saturday, Dec. 9. Sun rises 7.56, sets 3.50

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

Thursday, November 30.

Business in Drugs and Chemicals has been somewhat quiet during the past week, and so far the hopes of an increasingly brisk trade up to the end of the year, and also well into the spring at least, have not been fully realised; at the same time there appears to be an exceedingly firm undertone, and the advanced prices now ruling show but little sign of sagging, in spite of the temporary absence of any very great actual activity in business. Possibly the prospect of dear money in the immediate future may have something to do with the apparent disinclination of buyers to do more than cover actual existing requirements. Acid Carbolic continues up in the skies, and may be confidently expected to further advance. Quicksilver is also very firm, and the same may be said of Mercurials. Menthol is dearer, Thymol very firm, while same may be said of both crude and refined Camphor. Bromides and Iodides steady. Quinine just a shade weaker again. Cod-liver Oil firm. Opium and Morphine quiet. Codein firm. Acid Citric dull and weak. Sulphate of Ammonia firmer. Bank rate was to-day advanced to 6 per cent. The following are prices ruling for some articles of principal interest:—

ACID CARBOLIC—Remains very firm, prices being nominally unchanged, there being, however, few sellers thereat. Quotations are nominally 8¾d. to 9d. for 35° to 36° C. ice crystal in large bulk; 9½d. to 9¾d. for 39° to 40° C.; and 10¾d. to 11¼d. for 39° to 40° C. detached crystals, B.P. quality. Crude 60 F. 2s. 9d. per gallon; 75° F., 3s. 6d. per gallon; liquid, 95 to 98 per cent. of pale straw colour, 1s. 7d. to 1s. 8d. per gallon in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC—Dull, at 1s. 3d. to 1s. 3½d. per lb. for crystals in 5-cwt. casks.

ACETANILIDE—Continues very dull at 9½d. to 11d. per lb.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb.; Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate: Chemically pure small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. per cwt. Sal Ammoniac: First, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate dearer: Grey, 24 per cent., London, December, £11 7s. 6d.; Hull, December, £11 7s. 6d.; January-March, £11 10s. to £11 12s. 6d.; Leith, December, £11 7s. 6d.; Beckton, January-March, £11 10s.; Beckton, terms prompt, £11 2s. 6d.

ANTIMONY.—Regulus, £39 to £40 per ton; Crude Japan (Black Sulphide), £23 10s. to £24 per ton.

ASHES.—Pots, 26s.; Pearls, 32s.

ATROPINE—Is firm at 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d .per oz. for the Pure Alkaloid.

BELLADONNA ROOT—Continues very scarce, very high prices being asked for really good root which is, however, hardly obtainable, while 42s. 6d. per cwt. is the price for only medium quality.

BLEACHING POWDER (CHLORIDE OF LIME).—English is quoted £6 10s. to £6 15s. per ton, on the spot.

BORACIC ACID.—Crystals, 25s.; Powder, 27s. per cwt.

BORAX.—Crystals still quoted 16s. per cwt. and powder 16s. 9d.

BROMIDES—Are in good demand at steady prices, say 1s. 10½d. per lb. for Potassii bromid, 2s. 1½d. per lb. for Sodii bromid., and 2s. 2d. per lb. for Ammon. bromid. Bromine is also unchanged at 2s. 2d. to 2s. 3d. per lb. in cases of 60 lbs.

BUCHU LEAVES.—Both the round and long leaves are wanted, the nominal value of the former being 1s. 1d. per lb and of the latter 10d. per lb.

CAMPHOR.—Crude market continues very quiet, and no business is reported, but prices are firm. On the spot there are still sellers of China at 165s. and Japan at 170s., and for arrival at 160s. and 165s., c.f. and i. respectively. Refined is unchanged in price.

CLOVES.—At auction, 237 bales Zanzibar offered and 86 bales sold at steady rates, good fair at 3½d., fair at 3⅜d., dark at 3¼d. Penang dull and in small demand, 57 cases bought in, good bright picked, at 8½d. to 9d., ordinary dark 5¾d. to 6d. Privately market Zanzibar very quiet, sellers for March-May delivery at 3 7/16d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon; pure, 2s. Benzole, 50 per cent., 11d. per gallon; 90 per cent, 9d. per gallon. Creosote, 4d. per gallon. Crude Naphtha, 30 per cent, at 120° C., 6d. per gallon; solvent naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene: A, 4½d. per unit; B, 3d. per unit. Pitch, 55s. per ton f.o.b. Tar, refined and/or crude, 12s. 9d. per barrel; 2¼d. per gallon.

COCAINE.—So far the threatened advance in makers' price has not taken place; same remains at 20s. 6d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins; while from secondhand the article is obtainable at about 1s. per oz. below this figure.

CODEINE—Continues in good demand at firm prices—viz., 12s. 11d. to 13s. 6d. per oz. for the pure, and 1s. per oz. less for the muriate, phosphate, and sulphate salts.

COD-LIVER OIL.—Market remains firm with an upward tendency, best noncongealing Norwegian oil being quoted 77s. 6d. to 82s. 6d. per barrel, in tin-lined barrels of 25-gallons each.

CREAM OF TARTAR.—First white crystals are quoted 74s. per cwt. on the spot; powder, 76s. per cwt.; ditto, 95 per cent., 77s.

CUBEBS—Have been in good inquiry, and some business has been done at full rates. Bulk of stock is firmly held at 25s. per cwt. and upwards, according to holder.

ESERINE (PHYSOSTIGMINE).—Prices are firm at 2s. 3d. per gramme for both the Sulphate and Salicylate Salts.

GALLIC ACID—Is dearer, price being 2s. to 2s. 2d. per lb., according to quantity and bulk packing.

GALLS.—China continue firm, but quiet, owing to scarcity, and prices nominal. Japan, for arrival, quoted 58s., c.f. and i. Persian has been in rather more demand, resulting in fair sales of blues at 62s. to 70s. Greens are selling in retail quantities at full prices. Smyrna and Morea unaltered.

GINGER.—Cochin, in auction, in fair supply, met a moderate demand. Rough descriptions firm and unchanged; cut kinds again dearer. Out of 599 bags and 271 cases there were offered 251 bags and 119 cases sold, partly without reserve; bold selected, cut and scraped, 92s. 6d.; medium, some bold ditto, at 67s. 6d.; small and medium ditto at 48s. 6d. to 50s. 6d.; small ditto, 37s. to 38s.; medium and small, roughly cut and scraped, much limed, at 44s.; small and tips ditto at 30s.; cuttings, fair, at 18s. 6d. to 19s.; Calicut, rough bright medium and small, at 26s. to 26s. 6d.; small dull at 24s.; ditto, part shrivelled, at 23s.; washed rough, chiefly small and dusty, part mouldy and wormy, at 25s. Jamaica: 10 barrels sold, fair, small bright at 54s. 6d.

GLYCERIN.—Crude is quiet, but fairly steady at nominally unchanged prices, while refined is perhaps a trifle weaker at 55s. for English, and 56s. to 65s., according to brand, for German best white double distilled, chemically pure, 1260° quality, in tins and cases.

HYPOPHOSPHITES.—The makers still quote 3s. 3d. per lb. for the Lime, Soda, and Potash Salts.

IODIDES—Steady at 10s. 6d. per lb. for Potassi Iodid, 11s. 10d. per lb. for Sodii Iodid, 13s. 10d. per lb. for Ammon. Iodid, 13s. 10d. per lb. for Iodoform Crystals, powder, or precipitated; 12s. per lb. for Resublimed Iodine, and 7½d. per oz. for Crude Iodine.

JAPAN WAX—Is firm, but quiet. Good squares on the spot quoted 32s. For arrival the price comes higher at 33s., c.f. and i.

LITHIA SALTS.—Makers still quote 10s. 8d. to 11s. per lb. for the Carbonate and 6s. 9d. to 7s. 6d. per lb. for the Citrate Crystals and Powder.

MANDRAKE ROOT.—From New York it is reported that the only large holder of autumn dug root has advanced his to 4½c. = 23s. 9d. per cwt., c.i.f., London, and further that prices must advance again shortly.

MENTHOL—Is very firm, 9s. 6d. per lb. having been paid, and 9s. 9d. is now asked for Kobayashi brand in case lots.

MERCURIALS—Are very firm at unaltered price, say 3s. 1d. per lb. for Calomel and 2s. 9d. per lb. for Corrosive Sublimate, the other mercurial preparations being quoted at proportionate prices.

MORPHINE.—Quiet at nominally unchanged price—viz., 5s. per oz. for the Hydrochlorate Powder and 2d. per oz. more for the Crystal Salt.

OILS (ESSENTIAL).—Star Aniseed dull of sale at 6s. 3d. per lb. Cassia very quiet at 4s. per lb for 70 to 75 per cent.; 4s. 6d. per lb. for 75 to 80 per cent.; and 5s. per lb. for 80 to 85 per cent. Peppermint: H.G.H. dull at 5s. 6d. per lb.; Japanese, dementholised, 3s. 10d. per lb.; 40 per cent, 5s. 6d. per lb.; English, 27s. 6d. per lb. Sassafras firm at 1s. 9d. per lb. Lavender: English is quiet at 42s. 6d. per lb. Citronelle 1s. 1d. per lb. in drums. Sandal Wood firm at 11s. 6d. per lb. Cubeb very firm at 3s. 6d. per lb. Clove steady at 2s. 5d. to 2s. 6d. per lb.

OILS (FIXED) AND SPIRITS.—Linseed steady, at slightly higher prices. On the spot pipes, London, £21 12s. 6d. to £21 15s.; barrels, £21 17s. 6d. to £22. December, £21 17s. 6d. to £22. Hull, spot naked, £21. December, £21 5s. Rape steady. Ordinary brown, on spot, £22 10s. December, £22 10s. Refined spot, £24. Ravison naked spot, £20 15s. December, £20 15s. Cotton firm at higher prices. London crude spot, £17 10s. November-April, £17 10s. Refined spot, £19 to £19 15s., according to make. Hull naked refined spot, quoted £17 5s. Crude spot, £16 5s. November-April, £16 5s. Olive: Mogador, £34; Spanish, £35 5s. Levant, £34 5s. Cocoanut quiet. Ceylon: On the spot, £25 to £25 10s; near, £24 c.i.f.; December-February, £23 15s. to £24. Cochin spot, £29 10s.; near, £27 5s. to £27 10s. c.i.f.; January-March, £26 10s. to £26 15s. c.i.f. Mauritius: On spot, £25 10s. to £26, in hogsheads. Palm: Lagos on spot, quoted £25 10s. Castor quiet. Belgian: First pressing spot, £27; January-June, £25 10s. f.o.b. Antwerp: Second pressing spot, £26 per ton, ex wharf. Hull manufactured guaranteed cold drawn pure Pharmaceutical, £29 10s. per ton in barrels; 3 9/16d. per lb. in cases. Pure firsts, £27 per ton, in barrels; firsts, 3 3/16d. per lb in cases, ex wharf, London. Lubricating Oil: Pale American spot, 7s. 6d. to 11s.; Black, 7s. to 9s.; Russian Black, 5s. 6d. to 6s.; Pale, 7s. to 9s. 6d. Petroleum Oil firm. Russian spot, quoted 6 5/16d. to 6½d.; December-March, 7¼d. to 7⅜d; Water White, 8½d. to 8⅝d. Petroleum Spirit: American, 9¾d.; Deodorised, 10d. Turpentine easier; American spot, 36s. 9d.; December, 36s. 9d.; January-April, 37s. 1½d. to 37s. 3d.; July-December, 32s.

OPIUM.—The market for all descriptions continues dull, and only a small business has been done in "Druggists'" at previous rates. In "Soft Shipping" kinds no business is reported. Persian continues to be dealt in to a small extent at firm rates.

OXALIC ACID—Is quoted 3d. to 3¼d. per lb nett, free London, for spot delivery.

PARAFFIN WAX.—Crude, 2⅞d. to 3d. per lb.; Refined, 3⅛d. to 3⅜d. per lb.

PHENACETIN—Continues quiet at 3s. 3d. to 3s. 6d. per lb., according to quantity, for both crystals and powder.

PILOCARPINE—Is quoted 30s. per oz. for both the Hydrochlorate and the Nitrate Salts.

PITCH.—8s. to 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt; bichromate, 3½d. per lb.; bromide, 1s. 10½d. per lb.; chlorate, spot, London, crystals, 3¾d.; powder, 3⅞d. Iodide, 10s. 6d. per lb. Permanganate, quoted 50s. to 60s. cwt., according to make; large crystals, 5s. per cwt. more. Prussiate yellow quiet, Beckton, 6⅞d.; other English makes, 7½d.; red, 1s. to 1s. 2d. per lb., according to quantity.

QUICKSILVER.—Importer is very firm at £9 10s. in bottle, the article not being offered from second-hand.

QUININE.—The market for best German brands continues quite inactive, and no sales are reported, prices closing barely steady, with sellers of B&S and or Brunswick, December delivery, at 1s. 1⅞d., and March at 1s. 2⅛d.

ROSIN—Dearer at 5s. per cwt. for strained on the spot and 4s. 4½d. to 4s. 6d. per cwt. for November-December and January-March shipment for sailing vessel.

SALICYLATES.—So far makers have made no change in their prices, in spite of the altered position of acid carbolic. Salol is unchanged in price at 3s. 2d. per lb. for bulk packing.

SANTONIN.—Makers are firm at 11s. 3d. to 11s. 9d. per lb., according to quantity, while from second-hand the article can be obtained for rather less money.

SENEGA ROOT.—This is very scarce in New York, and 2s. 2d. per lb. is the c.i.f. quotation for Minnesota root.

SHELLAC.—The demand on the spot continues slow, with only retail sales at previous rates, including TN Orange on a basis of

63s. for fair. The market for futures is without alteration, and quite inactive.

SODA COMPOUNDS.—Crystals: barrels quoted 60s., bags 57s. 6d. Ash: £6 to £7 per ton, according to percentage, etc. Bicarbonate, landed, £7 5s. Bichromate, 2¾d. per lb. Bromide, 2s. 1½d. per lb. Caustic, 70 per cent., white, £10; 60 per cent., £1 less. Hypo-sulphate (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet, on the spot, refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper: 7 bags were sold at 5⅜d.; 224 bags Penang offered and bought in, weight 31lb. 7ozs., dust 5 per cent. at 5½d. White Pepper was sparsely offered, only 60 bags Singapore were catalogued and bought in at 9½d. Chillies: 3 bales Zanzibar offered and sold without reserve at 46s. Pimento, in fair supply, met a slow demand, and of 532 bags in auction only 121 bags sold, ordinary to fair, at 3¼d. to 3⅜d. Mace neglected; 43 cases Penang bought in, including good bold pale at 2s. 4d. to 2s. 6d., and fair red at 1s. 7d. to 1s. 8d.; 12 cases Singapore also bought in at 1s. 6d. for fair red little wormy. Nutmegs dull; 52 cases and 20 bags Penang in auction were all bought in, including 80's at 1s. 2d. and shrivelled and broken at 4d.

STAR ANISEEDS.—Supplies are small, but so is the demand, and therefore the spot price of 100s. per cwt. is not readily obtainable.

STICKLAC—Remains very quiet, with only a small business in unsifted Siam at 39s. to 40s.

SULPHATE OF COPPER—Is quoted £24 10s. to £25 10s. per ton on the spot.

SULPHONAL.—While makers' price remains nominally 17s. per lb. for both Crystals and Powder, the article is offered quasi from second hand at 14s. to 14s. 6d. per lb.

TANNIC ACID.—Makers now ask 2s. to 2s. 1d. per lb. for the leviss. puriss., B.P. quality in 1-cwt. cases.

TAR.—Stockholm, 25s. 6d. to 26s.; Archangel, 18s. to 18s. 6d.

TARTARIC ACID—Quiet and unchanged at 1s. 1d. per lb. for English on the spot and 1s. per lb., c.i.f., for foreign.

THYMOL—Firm at 10s. 6d. to 11s. per lb., according to holder, makers generally not offering.

TURMERIC—Remains firm, although quiet, with only retail sales, including Bengal at 29s., Madras quoted 35s. to 37s. 6d. for fair to good bright finger. Cochin split bulbs sold at 12s.

WAHOO BARK AND ROOT.—The *Oil, Paint, and Drug Reporter* states that this is practically unobtainable, the nominal quotation being equal to 10d. per lb, c.i.f.

Liverpool Market Report.

November 29, 1899.

The prices of Cottonseed Oil and Spirits of Turpentine have advanced since last week, with prospects of higher rates still for the latter. Among general sales will be noted Gentian Root, on private terms, Beeswax, also privately, Carnauba Wax, and Cochin Ginger. Chemicals have been quieter, but prices are maintained, with an advance in that of Ammonium Sulphate.

AMMONIUM SALTS.—Sulphate is dearer and in better demand at £11 5s. to £11 7s. 6d. per ton.

BEESWAX.—119 packages of Gambia were disposed of privately.

CANARYSEED.—250 bags of Turkish sold for 36s. per 464 lbs., and the quotation rests between 35s. 6d. and 36s.

CARNAUBA WAX.—14 bags of Maranham grey fetched 45s. per cwt.

GENTIAN.—44 bales were disposed of on private terms.

GINGER.—80 bags of Cochin made 27s. per cwt.

GUM.—Arabic "sorts" 15 serons changed hands at full prices.

LINSEED—Continues idle. Calcutta, 4 per cent., November-December shipment, was offered at 45s. 6d. per 416 lbs., and River Plate, December-January, at 40s. 6d., January-February at 40s.

OILS (FIXED) AND SPIRITS.—Castor Oils are in limited demand, and sales so far have been only retail in amount. Calcutta at 2 15/16d. to 3d. per lb.; French, 1st pressure, at 2 13/16d.; 2nd French and Belgian at 2⅝d.; and Madras 2¾d. per lb. Olive oil is a strong market, with every prospect of still higher rates. Shipment lots of Seville are £35 per tun cost and freight, and Malaga £36 10s. per tun. Linseed oil is a little easier in price, and Liverpool makes in export casks are 23s. to 24s. per cwt. Cottonseed oil is in good demand at the higher rates of 19s. 6d. to 19s. 9d. per cwt. for Liverpool refined. Spirits of Turpentine are in moderate demand at 38s. 6d. per cwt.

POTASH SALTS—Unchanged.

SODA SALTS—Uncharged.

Manchester Chemical Report.

November 29, 1899.

There is not much to report on last week, and heavy chemicals generally are steady. White Caustic Soda is quoted £10 to £10 7s, 6d. for 77-78 per cent., and 70 per cent., £9 to £9 5s. Ammonia Alkali, 58 per cent., is firm at £4 7s. 6d., and Soda Ash, 48 per cent., £4 7s. 6d. to £5 2s. 6d. per ton, caustic and carbonated. Bicarbonate of Soda is unchanged. Soda Crystals are firm. Sulphur of all descriptions is about the same. Brown Acetate of Lime is unchanged on the week. Coal Tar products, owing to the increased price of fuel, are growing dearer daily. There is a fair business doing from this port in Pitch. Local makers of Carbolic Acid maintain their strong position, and there is a good demand for solvent Naphtha, large contracts for which have been placed over next year. In Creosote a fair amount of business is passing, but Anthracene is purely nominal. Muriate of Ammonia is in more request, and Carbonate of Ammonia is dearer. Owing to the demand in the States being heavy for Brown Acetate of Lime, there has been a fairly good advance, and this has stiffened the local product. Sulphate of Copper, in accord with the easier feeling in the metal, is lower on the week. Acetate of Soda is firmer. Yellow Prussiate is scarce locally, and notwithstanding the diminished demand for Cyanide consequent on the war, there is every appearance of an advance. Lead Salts continue on the up grade.

Newcastle-on-Tyne Chemical Report.

November 29, 1899.

Business on this market is still brisk. Contracts so far closed for next year are at advanced figures, in keeping with the dearer cost of production. Bleaching Powder and Caustic Soda are fully 10s. per ton up for home use and some of the oversea markets. Alkali keeps firm for prompt, as the article is now in few hands. Tar products have a stronger tone. Sulphur is steadier at quotations. Prices are: Bleaching Powder, £6 10s. to £6 15s.; Caustic Soda, 70 per cent., £9 10s.; 77 per cent., £10; Soda Crystals, in bags, 55s. to 57s. 6d.; Alkali, 52 per cent., £5 10s.; Soda Ash, 52 per cent., £4 10s.; Sulphur, £5; Pitch, 32s. 6d. per ton.

TRADE NOTES.

Colonial Readers may probably be interested to know that samples of Messrs. Ayrton and Saunders' screens and desks are on display in the showrooms of Messrs. Ellis Sellgren and Co., Elliot Street, Auckland, N.Z.; Messrs. Carl Zoeller and Co., Courier Buildings, Brisbane, Australia; Messrs. J. C. Langley and Co., 456, Collins Street, Melbourne; Messrs. Bertie Smith and Co. Apollo Street, Bombay, B.I.

Floral Thermometers.—Messrs. S. Maw, Son and Thompson 7 to 12, Aldersgate Street, London, E.C., have recently placed on the market a new form of thermometer which is exceedingly pretty, and is likely to sell largely as Christmas stock. The thermometer is fixed in a neat frame of bright twisted brass wire, decorated with leaves and flowers, and is intended to stand in any convenient position. The frames are of six different designs, viz.:—Acorn and oak leaves, violets, thistle, shamrock, daisies, and roses. The price is 15s. 9d. per dozen.

Deaths.

Evans.—On November 25, Samuel Evans, Chemist and Druggist, Caerphilly, Glamorganshire. Aged 76.

Prudhoe.—On November 25, Robert Prudhoe, Chemist and Druggist, West Hartlepool. Aged 75.

Thomson.—On November 26, at 85, Addison Road, Kensington, Louisa, wife of John Millar Thomson, of King's College, Examiner in Chemistry to the Pharmaceutical Society.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Alcock, Ashdown, Ayrton, Banbury, Bartlett, Bell Bishop, Campkin, Clayton, Cottingham, Cox, Crook, Cummings, Dawson, Deck, Franklin-Vallet, Gamble, Gifford, Gillard, Gray, Haydon, Heine, Hill, Howard, Keen, Lee, Lothian, Maddison, Marsden, Mason, Meadows, Mitchell, Morgan, Moseley, O'Halloran, Palmer, Pears, Reeves, Robins, St. Cry, Schissele, Sewell, Stewart, Stow, Tilley, Turner, Wallis, Watkins, Webster, White, Zimmermann

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

O'Brien's check-tills, practically as good as new, 30s. each.—Chambers & Son, Dunstable.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Surplus—Nos. 1, 3 & 5, Scarlet Felt Chest Protectors; also few Flannel and Chamois; 20 % off Maw's List; sale or suitable exchange.—J. Botham, Higher Broughton, Manchester.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Pharmaceutical Journal; first eighteen volumes, bound in half calf, for disposal. Offers wanted. Also handsome bent glass Dental Show Case for sale, with or without specimens.—Barton Dell, 148, King Street, Hammersmith, W.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

ASSISTANT wanted, Brighton.—J. Colby & Co., 101, Western Road, require a qualified ASSISTANT as second; to make preparations and assist in Dispensing as required. Must have been used to good class business. Outdoors. Salary £120.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

Merck's 'Manual of the Materia Medica' is a ready-reference pocket book, containing the names and chief synonyms of medicaments in actual use, together with brief statements of their physical form and appearance, solubilities, percentage strengths and physiological effects, therapeutic uses, modes of administration and application, dosage, incompatibles, antidotes, etc. It is a compact little volume of two hundred and thirty-six pages, and the contents are divided into three parts. The first treats of the materia medica in actual use to-day by British physicians, alphabetically arranged; part two deals with the therapeutic indications for the use of medicaments, and in part three the latter are classified according to their physiological action. Any pharmacist who would like a copy of the book can obtain one free of cost on application to Mr. E. Merck, 16, Jewry Street, London, E.C.

Wellcome's 'Photographic Diary and Exposure Record' for 1900 is as dainty a little pocket note-book as can well be imagined. It contains calendars for 1900 and 1901, all kinds of useful information—formulæ for development, exposure tables, etc.—for photographers, and a capital diary and exposure record. A pencil is provided for making notes and, in every way, the book has been made as useful as possible. It is intended to retail at 1s., and copies will be supplied by Messrs. Burroughs, Wellcome, and Co., at 9s. per dozen, less 20 per cent.; thirteen copies as twelve.

Gadd's 'Synopsis of the British Pharmacopœia, 1898' has now attained to the dignity of a fourth edition. It is a cheap shillingsworth, containing as it does, in addition to the very complete synopsis of the B.P. by Mr. H. Wippell Gadd, analytical notes and suggested standards by Mr. C. G. Moor. The book is published by Messrs. Baillière, Tindall, and Cox, at one shilling net, and every pharmacist and pharmaceutical student should make a point of possessing a copy.

'The Story of the Wandering Atoms,' by M. M. Pattison Muir, M.A. (London: George Newnes, Ltd. Pp. 192. Price 1s.), is really a popular and interesting account of the chief compounds of carbon. The author begins with a survey of the composition and reactions of the compounds of carbon, then sketches an outline of the classification of some of those compounds, and afterwards treats at some length of the properties of marsh gas, ethane, ethylene, sugars, starches, benzene, alkaloids, etc., etc.

'A Guide to Urine Testing, for Nurses and Others,' by Mark Robinson, L.R.C.P., L.R.C.S. (Bristol: John Wright and Co. Pp. 48. Price, 1s. net), is a slight production, based upon the works of Legg, Taylor, Scott, and other authorities. The author first gives the characteristics of normal urine, then proceeds to deal briefly with fallacies in testing, and describes the apparatus and methods used.

The 'Dictionnaire des Termes de Medecine,' par H. De Meric (London: Baillière, Tindall and Cox. Pp. 241. Price 4s. net), is the second part of a work which has already been referred to in these columns. In this case the French terms used in medicine are given in alphabetical order, with their English equivalents expressed concisely. The book is clearly printed, of handy size, and the matter is brought well up to date.

'The Medical Annual Synoptical Index to Remedies and Diseases' (Bristol: John Wright and Co. Pp. 411. Price, 7s. 6d. net) covers the twelve years from 1887 to 1898. It commences with a complete index to the twelve volumes of the 'Medical Annual,' the subjects being arranged under those headings which a medical practitioner would be most likely to look for. To each article is added a synopsis of the suggestions respecting treatment which have, year by year, been made by specialists. The first part of the book deals with remedies, the second with diseases; then follow Rogers' summary of the chief alterations in the new Pharmacopœia, test types for examining the acuteness of vision, pages for memoranda, and a supplementary index, giving additional cross-references to remedies and diseases not appearing in the alphabetical arrangement of the book.

ENGLISH NEWS.

School of Pharmacy Smoking Concert.—This annual and most popular meeting of members and friends of the School of Pharmacy Football Club was held on Thursday evening, November 30, in the Crown Room, at the Holborn Restaurant, which, as usual, was well filled. The President of the Pharmaceutical Society had kindly consented to occupy the chair, and promptly at eight o'clock he appeared, ready to open the proceedings, but, as is usual at such meetings, a little time is required in which to settle down, so that it was nearly the half hour before the Chairman took his seat. Professor Green was in the vice-chair, but, unfortunately, was obliged to leave early in the programme The School was also represented by Professor J. N. Collie, Professor H. G. Greenish, Dr. Lapworth, and among old students may be mentioned Mr. Walter Hills, Mr. C. B. Allen, Mr. W. Warren, Mr. T. Morley Taylor, Mr. C. Morley, and many others. The programme was well chosen and varied in its contents, commencing with a well-executed pianoforte solo by Mr. G. W. Wilton. It had been suggested to the Committee a few days before the concert that a collection should be made in aid of the fund for the relief of the families of soldiers engaged in the Transvaal war. The suggestion was at once taken up, and on approaching Mr. Morley Taylor, with his usual kindness, he consented to recite Rudyard Kipling's "Absent-Minded Beggar," in order to give a stimulus to the collection. About half-way through the programme this was carried out, and the collection amounted to £7. After the interval, the Chairman made a few remarks, chiefly with reference to the present state of affairs in the Transvaal, asking those present to sing the National Anthem, which was heartily responded to, together with "Rule Britannia." The toast of the evening, "The Pharmaceutical Football Club" was proposed by Mr. Surfleet, who, in a few well-chosen words, remarked that those who had seen the "Square" team at play, must have noticed that the students were not only assiduous in their work but also in their sports, and proposed the health of the captain, Mr. W. Owen, which was drunk with musical honours. Mr. Owen in reply, gave a brief *résumé* of this season's matches, and the position of the team as regarded the "Inter-Pharmacy Football Cup." Mr. Happold proposed a vote of thanks to Mr. Martindale for his kindness in coming there that evening to preside, which was heartily carried. The remaining items on the programme were then proceeded with, at the conclusion of which the Chairman concluded, what was acknowledged by all to have been a most successful gathering, by calling upon the company to sing "Auld Lang Syne," and leading off himself, although, as he remarked, he had not sung for many years.

Birmingham Pharmacists and the War.—At a meeting of the Relief Sub-Committee in connection with the Birmingham *Daily Mail* Fund for the relief of Reservists' wives and families, held on Monday, November 27, the Lady Mayoress, presiding, satisfaction was expressed at a suggestion as to the gratuitous services of the medical profession in deserving cases, and at a proposal made by Mr. C. Thompson, local secretary of the Pharmaceutical Society, that pharmacists should supply the medicine free of charge. Mr. Thompson in writing to the editor of the Birmingham *Daily Mail* on the subject, states that:—As there is a possibility of the medical men in Birmingham offering their services free to the wives and

families of the Reservists who have been called upon to rejoin their regiments, he feels sure that many pharmacists will be willing to supply the medicine necessary free of charge. He will therefore be glad to receive the names of any members of the Pharmaceutical Society who would like to join in such a movement, so as to divide the city into districts, and to make it known where medicines can be easily obtained. Mr. Thompson's address is 159, Stratford Road, Sparkbrook.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on December 4, Sir J. Crichton Browne presiding. The following were elected members:—Professor H. E. Armstrong, F.R.S., Mr. J. H. Bowman, Mr. J. S. Brookfield, Mr. J. B. Carrington, Mr. W. B. Cloete, and Mr. L. Leigh Smith. The following letter from the Clerk of the Goldsmiths' Company was read:—

Goldsmiths' Hall, London, E.C.,
November 16, 1899.

Dear Sir,—I am directed to inform you that the attention of the Court of the Goldsmiths' Company having been drawn to the fact that the Royal Institution of Great Britain has lately celebrated its Centenary, they have, in order to mark their sense of the importance of that event, been pleased to make to the Institution the further grant of £1,000, for the continuation and development of original research, and especially for the prosecution of further investigations of the properties of matter at temperatures approaching that of the absolute zero of temperature. I enclose a cheque for this amount, and I shall feel obliged to you to acknowledge the receipt.

I am, dear Sir, your obedient servant,
(Signed) WALTER S. PRIDEAUX.

The Hon. Secretary,
The Royal Institution of Great Britain.

The following resolution was then passed:—"That the members of the Royal Institution of Great Britain, in general meeting assembled, having been informed that the Court of the Goldsmiths' Company have made a donation of £1,000 to the funds of the Royal Institution in commemoration of its Centenary, and in aid of the investigations which are being carried on in its laboratories into the properties of matter at low temperatures, desire to express to the Court their profound and grateful appreciation of this second munificient manifestation of their practical interest in the work of the Institution—a manifestation which has been made on this occasion at once reminiscent of past services to science and prescient of services yet to come."

THE CASE OF ALLEGED POISONING BY ATROPINE.—A few weeks ago John Spanton, chemist and druggist, of Malton, Yorks., was summoned at Malton County Court by Thomas Slack, groom, for negligence in supplying him with a noxious drug—said to be atropine—thereby causing him suffering, and Judge Raikes, who heard the case, awarded plaintiff £5 damages. (See *ante*, 430*b*.) At the same court, on November 22, application was made on behalf of the defendant for a new trial, on the ground that the medical evidence did not support the theory of atropine poisoning, and that, inasmuch as defendant was not aware that this theory was to be brought forward, it was impossible for him to provide evidence on the question. It was also argued that it had not been proved that atropine had been supplied by the defendant.—His Honour Judge Raikes, Q.C., granted a new trial for January 24, and allowed plaintiff to take out of court the costs in the previous hearing, and reserved the costs of the application.

ALLEGED THEFTS OF DRUGS.—At Southwark Police-court, before Mr. Slade, on Saturday, December 2, John Jones (30), labourer, of Parlin Street, Bermondsey, and Henry Parker (27), dealer, of Churchill Place, Southwark Park Road, were charged with being concerned with other men not in custody in stealing three casks of cod-liver oil, 8lb. of iodoform, 7lb. of camphor, and a bottle of mercury, value £27 12s., the property of Alan Hicks, 66, Park Street. Jethro Lardent (36), herbalist, of Southwark Park Road, was charged with receiving the same, well knowing the goods to have been stolen. Mr. Knight, for the prosecution, stated that Jones was in the employ of the prosecutor, and Parker had been in the habit of purchasing empty barrels from Mr. Hicks. Certain information was given to the prosecutor by a man who had been in Lardent's employ, and Jones was taxed with the affair. He denied having stolen anything. Detective-sergeant Divall, however, traced the cod-liver oil to a highly respectable wholesale firm in the City, and then went to Lardent's shop. At first Lardent denied all knowledge of the cod-liver oil, but subsequently admitted that he purchased it and the other things mentioned in the charge.—The prisoners were remanded, Lardent being allowed bail in two sureties in £100 each.

OVERDOSE OF CHLORODYNE.—The Sheffield City Coroner held an inquest on Wednesday, November 29, with respect to the death of Ann Eliza Garlick (35), widow of William Garlick, tailor's assistant, of London.—Evidence was given to the effect that deceased lost her husband five weeks ago, and had since been very unsettled in her mind, and had expressed the wish that she had died with him, as she felt lonely. On the previous Sunday, while she was on a visit to her parents at the "Bridge Inn," Sheffield, her sister went upstairs and found deceased frothing at the mouth. Medical aid was sought, but she died early on Monday morning, she having drunk nearly the whole of the contents of a bottle containing an ounce and a half of chlorodyne, which had been bought for the purpose of making some cough mixture. It was stated that deceased had been in the habit of taking chlorodyne in order to make her sleep, and it was thought that she had taken it for that purpose on Sunday.—The jury returned a verdict that the deceased died from an overdose of chlorodyne administered by herself, but for what purpose deceased had taken it there was not sufficient evidence to show.

DEATH UNDER CHLOROFORM.—An inquest was held at Kidderminster on Thursday, November 30, on the body of William Lloyd, aged twelve, who died while under chloroform at the Infirmary. Dr. Stretton said it was one of the unaccountable cases of heart failure from chloroform. All the organs of the body were healthy. The operation was for infantile hernia. The jury returned a verdict that death was due to misadventure, and that no blame attached to anyone.

SOWING POISONED SEEDS.—The *Daily Mail* reports that a Grantham chemist and his son, who are also farmers, have been heavily fined for sowing seeds poisoned with strychnine. They had lost a whole crop last year through the birds, and pleaded ignorance of the law in taking revenge by poisoned seed.

THE CHEMISTS' DEFENCE ASSOCIATION.—A meeting of chemists was held at the Great White Horse Hotel, Ipswich, on Wednesday, November 29, Mr. S. R. ANNESS in the chair. The object of the meeting was to consider the scheme for a Chemists' Defence Association. Mr. WILLIAM JOHNSTON having explained the scheme, a discussion followed, and a resolution was unanimously carried approving of the aims and objects of the Association.

NORTHERN COLLEGE OF PHARMACY.—The students of this College held their annual dinner and smoking concert on Friday evening, November 24, at the Alexandra Hotel, Manchester. There was a large muster of students, and a pleasant evening was spent listening to a varied and an interesting musical programme. During the evening presentations of handsome walking sticks were made to Mr. Clayton and Mr. Lawson by the students.

MESSRS. WOOLLEY, SONS, AND CO.'S ANNUAL DINNER.—On Saturday evening, November 25, the staff held their twenty-first annual dinner and smoking concert at the Mosley Hotel, Piccadilly, Manchester. Mr. W. Lane presided, and over 100 persons were present. An excellent musical programme was provided, the usual toasts and speeches taking place at appropriate intervals. In responding to the toast of "The Firm," proposed by Mr. A. Balmforth, Mr. Hermann Woolley contrasted the present conditions of business with those which existed when he, as a youth, first entered the house. Then the premises of the firm were quite modest compared with their present buildings; their manufacturing resources were not nearly so great, and such implements of modern commerce as the telephone, cheap telegrams, post-cards, and the splendid systems of modern despatch and delivery were unknown. Business, too, was not carried on at such high pressure—customers were not so exacting and precise, nor competition so keen. These changes had been the grand opportunities of the firm; they had shown what could be done under these conditions by strict observance of sound business principles. Mr. Johnstone, in supporting Mr. Woolley, impressed upon the younger members the advantages of commercial education and strict attention to all details of business. Mr. A. C. Vallance gave "The Visitors," and Dr. Webster, in responding, remarked on the courtesy of the staff and the good feeling which existed between them and their principals. Our soldiers in South Africa and the Soudan were not forgotten, and after drinking to their "Welfare and Success," "The Soldiers of the Queen" was sung by Mr. Vallance, who was enthusiastically assisted by the whole company. Songs were rendered by Messrs.

A. C. Vallance, J. H. Franklin, Hankinson, Crowe, Whitehead, Hibbert, and Wingfield, and recitations ("The Absent-Minded Beggar" and "The Charge of the Light Brigade") by Mr. Makinson. Mr. A. H. R. Balmforth officiated at the piano. "The Health of the Chairman" was proposed by Mr. Vallance, and accompanied by the singing of "For He's a Jolly Good Fellow." Mr. Lane suitably replied, and a thoroughly enjoyable evening terminated.

Vinolia War Fund.—We are requested to announce that 1,000,000 ha'pennies have been sent already by the Vinolia Company, Limited, for the soldiers' families, widows, and orphans, and that one halfpenny will be forwarded on every tablet of Vinolia soap sold for the United Kingdom until the end of the year, so that the Vinolia soapworks will have run during November and December for the benefit of the Transvaal War Fund.

A Chemist and his Watch.—At the County of London Sessions (Clerkenwell) on December 6, Andrew Wood (21), was indicted for attempting to steal a watch from Frank Cox, chemist and druggist, of Swanley, Kent. It appeared from the evidence that on November 23 Mr. Cox was at the Stanley Cycle Show at the Agricultural Hall. He saw a notice up "Beware of pickpockets." While he was looking at some musical instruments on a stall round which a small crowd was gathered, he put his hand down to feel if his watch was all right, and found that the hand of the prisoner, who was standing behind him, was on his watch-chain. He seized the prisoner and gave him into custody. The jury found the prisoner guilty, and, a number of previous convictions having been proved against him, he was sentenced to eighteen months' hard labour.

Camphorated Oil: Merchandise Marks Act Prosecutions.—At Pontypool Police-court, on December 2, Messrs. Bell, Sons and Co., wholesale druggists, Liverpool, were summoned for applying a false trade description to three bottles of camphorated oil, sold to Thomas Evans, grocer, Six Bells, in November last.—Mr. W. L. Moore prosecuted on behalf of the County Council.—Defendants pleaded guilty.—Mr. Moore stated that his instructions were to press the charge. The defendants were large wholesale dealers, but when a retail dealer to whom they supplied goods was prosecuted, although they were communicated with, they refused to intervene in the slightest degree. The Bench would appreciate the importance of the case when they knew that magistrates all over the country had dealt very severely with similar cases, and the defendants had been proceeded against and fined at various courts.—Mr. G. R. Thompson, county analyst, gave evidence to the effect that he had analysed the sample submitted to him, and found it deficient 75 per cent. in its active principle, camphor, and that the oil used was not olive oil as required by the B. P. 1898. The oil he had analysed would mean a saving to the defendants of 2s. 8d. per gallon out of 3s. 7d.—For the defence it was pleaded that the fault lay with the refiners of the oil, who had supplied an inferior quality to what defendants supposed they were receiving. It was also stated that the refiners had been made to pay the whole of the fines inflicted on defendants.—Mr. Moore pointed out that the defence had not touched upon the question of camphor.—The Chairman, in inflicting a fine of £25 and £10 10s. costs, said the magistrates thought the case was richly deserving of such a fine. They had been fining small tradesmen for the very same thing—for offences of which they were perfectly guiltless—and when the Bench had the right people before it they should be made an example of.

Hewlett's Cricket Club.—The members and friends of this club held their second annual supper and smoking concert at Kohler's Restaurant, Wool Exchange, E.C., on Saturday, November 25. About seventy were present, and an excellent supper was succeeded by a well-arranged concert. The Chairman, Mr. E. J. Millard, F.C.S., read letters of apology and regret for their unavoidable absence from Mr. John C. Hewlett, Mr. J. D. Allman, and others. The toast of "Success to the Club," proposed from the chair, was responded to by Mr. H. Fosenmeyer, the captain, who discussed the events of the past season and the arrangements for next. The concert was highly successful, and special mention must be made of the songs by Mr. A. Probert and Mr. J. Chance, whilst the comic songs by Mr. C. Charsley, Mr. A. Upton, and Mr. E. Thompson were received with great favour. Pianoforte solos were rendered by Master J. Chance and Mr. J. Britton, who ably accompanied the songs. Mr. H. Newman recited a poem of his own composition, entitled "Glencoe," which was loudly applauded. The patriotic enthusiasm was sustained by Mr. Corrie's recitation of Rudyard Kipling's "Absent-minded Beggar," which was followed by the audience singing "Rule, Britannia!" and "Soldiers of the Queen," and a collection for the fund promoted by the *Daily Telegraph* for the widows and orphans. An interesting incident, not included in the programme, was the presentation to the honorary secretary of the club of a handsome marble clock subscribed by the members in recognition of his services.

Football.—In connection with the Inter-Pharmacy Football League, a match was played between Muter's F.C. and Westminster College F.C. on Saturday, November 25, at Shepherd's Bush, and resulted in a win for Muter's by ten to one.

Football.—The third Cup match of the Metropolitan College F.C., in connection with the Inter-Pharmacy Football League, was played on Saturday, December 2, at Wormholt Farm, Shepherd's Bush, against the London College F.C. The game was started about 2.45, on a heavy ground, and play continued fairly equal until the "Metros" centre put in a neat shot, which secured the first goal. On restarting the "Metros" again attacked, but up to half-time were unable to increase their score. After half-time one or two sharp rushes were made by the London team, but without scoring. Some good passing from the "Metros" secured their second goal, which was quickly followed by a third. The London team again tried hard, and after some quick passing secured their first goal. This was followed by several rushes, but they failed to equalise, when the whistle blew, leaving the "Metros" the winners by three goals to one.

SCOTTISH NEWS.

Edinburgh Royal Dispensary.—The pharmacy students of the Royal Dispensary, Edinburgh, held their annual smoking concert, on Friday evening, December 1. The chair was occupied by Mr. Strachan, until Mr. Duncan arrived later in the evening. An excellent programme was gone through—the students showing great musical ability—instrumental and vocal. At the suggestion of Mr. Duncan a collection for the "Soldiers' Widows' and Orphans' Fund" was made, £2 10s. being received, which has been sent to the *Scotsman* Fund.

FOOD AND DRUGS ACT PROSECUTIONS.

Light Calcined Magnesia.—At Highgate Petty Sessions on Wednesday, November 22, Clifford B. Moore, chemist and druggist, North Finchley, was fined 20s. and costs for selling as light calcined magnesia a substance containing 30 per cent. or thereabouts of light carbonate of magnesia.—The defence was that the article in question was part of the stock purchased with the business in June last year, and that atmospheric influence would convert some of it into carbonate of magnesia.—The Bench considered that there had not been wilful adulteration, but attributed it to carelessness.

Camphorated Oil.—Amos Kaye, drysalter, Hepworth, was fined 32s. 6d., including costs, at Holmforth Police Court on November 11, for selling camphorated oil containing only 5 per cent. of camphor and 95 per cent. of olive oil, instead of 21 per cent. of camphor and 79 per cent. of olive oil.——At Durham County Petty Sessions on November 15, Messrs. Holmes and Richmond, wholesale druggists, Darlington, were fined the full penalty of £20 and costs, for selling camphorated oil to which a wrong label had been attached, the oil in question being compounded with 80·72 per cent. of colza oil, instead of olive oil.——William B. Baynham, chemist and druggist, Woking, was summoned at the Guildford Petty Sessions, on Saturday, November 25, for selling camphorated oil which was certified by the county analyst to be 15 per cent. deficient in camphor.—Defendant contended that there was only a deficiency of 3·15 per cent., and that this was due to evaporation. The case was adjourned in order that the county analyst might attend to speak with regard to evaporation.

Seidlitz Powders.—During the hearing of an adjourned case at Houghton-le-Spring Petty Sessions on November 16, in which George Reay was charged with selling seidlitz powders not compounded in accordance with the B. P., 1898, the county analyst was

warned by the magistrates to be more careful in making analyses in future, as they should certainly hesitate before convicting in similar cases, unless there was a much better analyst's opinion given than in the particular case before them. He had certified that the seidlitz powders in question, on an average, were deficient in sodium bicarbonate to the extent of at least 45 per cent., whereas on the case being adjourned for a Somerset House analysis the Government analyst certified that the powders had been compounded in accordance with B.P. 1898, and that they were not deficient in sodium bicarbonate.—The bench, in dismissing the case, made an order for the prosecution to pay the costs, £4 11s. 8d., and said it was hard lines for a shopkeeper to be summoned and then to be told that the county analyst had made a mistake.

MILK OF SULPHUR.—On Tuesday, November 28, Herbert Bunting, 16, Broadmarsh, Nottingham, was fined 30s. and costs at the Nottingham Police Court for selling milk of sulphur containing 50 per cent. of calcium sulphate.—The defence was that it was part of some old stock which was kept to be used for pig powders, and had been sold inadvertently by the book-keeper early in the morning before the defendant or his son had arrived at the shop. There was plenty of the standard article in stock.

TRADE NOTES.

NEW NAME FOR LIEBIG COMPANY'S EXTRACT.—"Lemco" is the combination of letters which the Liebig's Extract of Meat Company has decided to use in future as a distinguishing mark of the company's extract in addition to the well-known blue signature J. V. Liebig. On and after January 1, 1900, all the company's jars will have an additional label bearing the initials of the company, "Lemco," by which name the company's extract will soon be generally known.

POTASSIUM PERMANGANATE AND ALUM SOLOIDS.—Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., submit specimens of potassium permanganate and alum soloids which they are now issuing in bottles containing 100. Each contains 3 grs. of potassium permanganate and 5 grs. of alum. Such a preparation will be of great service as a ready means of carrying the active constituents of an antiseptic and astringent solution which can be used in a variety of circumstances.

FIRE.—Messrs. Idris and Co., Limited, Pratt Street, Camden Town, London, N.W., write as follows:—With reference to the report which has appeared in the daily papers respecting the fire which occurred here last Sunday night, this is very much exaggerated. Fortunately, the fire was not of a serious nature, and very little damage has been done, nothing in any way to interfere with the carrying on of our business as usual, and the loss we have sustained is fully covered by insurance.

COUNTER BILLS AND ALMANACK, ETC.—Messrs. Kay Brothers, Limited, St. Petersgate Mills, Stockport, are issuing a new set of counter bills, suitable for the winter season advertising, their "Linseed Compound," "Coaguline," "Linum Catharticum" Pills, and "Klinx," a new white inorganic cement recently introduced for piecing broken porcelain, earthenware, stone, etc. Chemists who distribute the bills may have their own names and addresses printed on. The old size of hand-bill advertising "Linseed Compound" is to be altered to 6″ × 7½″., printed on better paper, on one side only, and including a map of South Africa. The firm's "Family Reference Almanac," 1900, is an attractive and useful publication, containing a list of remedies for simple ailments; hints as to first aid in accidents and sudden illness, and most of the information usually included in almanacs. The name and address of the chemist distributing the almanac is printed at the foot of the front outside cover.

PERSONAL AND BUSINESS NOTES.

Mr. F. Palmer, 92, Packingham Street, Islington, has been awarded the prize of five guineas offered by Mr. G. S. V. Wills, of the Westminster College of Chemistry and Pharmacy, in September last, for the best design for a pharmaceutical certificate.

Mr. Alfred Higgs, J.P., M.P.S., of Kingston-on-Thames, has been additionally appointed by the Lord Chancellor a Justice of the Peace for the Lunacy Acts, within the Borough of Kingston-on-Thames.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

THURSDAY, December 7, 1899.

Business in drugs and chemicals has not been very active during the past week, although there have nevertheless been a moderate number of transactions passing. No doubt the dearness of money has made buyers hold off as much as possible, but we shall perforce, we think, see renewed activity after the commencement of the new year. The changes in value which have taken place since last week are comparatively few. Quinine, after sagging a bit, appears to be again recovering. Much depends, however, upon the course of to-day's Cinchona Bark sales in Amsterdam, the results of which had not become known at time of going to press. Quicksilver and mercurials are again dearer. Camphor, both crude and refined, very firm. Acid carbolic again dearer. Acid chrysophaine is also quoted higher. Bromides and Iodides steady at unchanged prices. Cod-liver Oil firm. Menthol again rather higher. Lycophodium is dearer, and is expected to still further advance. Opium steady. Morphine quiet. Codeine very firm. The following are prices ruling for some articles of principal interest:—

ACETANILIDE—Continues dull and weak at nominally unchanged prices.

ACID CITRIC—is dull and weak at nominally unchanged prices.

ACID BORIC—Quotations are without change.

ACID CARBOLIC—Very firm. Quotations are nominally 10d. for 35° to 36° C. ice crystal in large bulk, 11d. for 39° to 40° C., 1s. to 1s. 1d. for 39° to 40° C. detached crystals, B.P. quality. Most of the makers of refined Acid Carbolic state that they are sold out and unable to offer for next few months. Crude: 60° F., 2s. 10½d. per gallon, 75° F., 3s. 8d. per gallon; liquid, 95 to 98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CHRYSOPHANIC—Is dearer at 7s. 3d. to 7s. 6d. per lb., according to quantity and make.

ACID TARTARIC—Quiet and unchanged.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: First, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate dearer; Grey, 24 per cent. London prompt, £11 7s. 6d. Hull prompt, £11 6s. 3d. to £11 7s. 6d. Leith prompt, £11 7s. 6d. January-March, £11 12s. 6d. Beckton, January-March, £11 10s. Beckton, terms prompt, £11 3s. 9d. to £11 5s. Slphocyanide 1s. 2d. to 1s. 3d. per lb.

ASAFETIDA.—There is some enquiry for good quality, and a few cases of Persian Gulf Gum have been turned over this week at an advance on last sales' prices.

BLEACHING POWDER (CHLORIDE OF LIME).—Rather dearer at £6 10s. to £6 15s. per ton for English make.

BORAX—Unchanged in price.

BROMIDES—Are firm at unchanged prices.

CAMPHOR.—The market for Crude is quiet, but quotations are firm. On the spot there are sellers of Japan at 167s. 6d., and for arrival near shipment at 160s. c.f. and i. Refined is firm and unchanged.

CLOVES.—Privately, the market for Zanzibar is quiet but firm,

with buyers for March-May delivery at 3 7/16d. At auction 100 bales Zanzibar catalogued were withdrawn. No Penang offered.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 3d. per gallon; pure, 2s. 3d. Benzole, 50 per cent., 10½d. per gallon; 90 per cent., 9½d. per gallon. Cresote, 3¼d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 3½d. per gallon; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene: A., 4½d. per unit; B., 3d. per unit. Pitch, 65s. per ton, f.o.b. Tar: Refined and crude, 14s. per barrel; 3d. per gallon for refined, 2¾d. for crude

COCAINE.—Makers still quote 20s. 6d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, while second-hand offers at about 1s. per oz. below this figure.

CODEINE—Is very firm at prices given last week.

COD-LIVER OIL—Is firm, with prices tending upwards, at, say, nominally 80s. per barrel for best new non-congealing Norwegian oil, in tin-lined barrels of 25 gallons.

COLOCYNTH.—Importers of Turkey apples are very firm owing to the reported deficiency in the supply. Small sales have been made at 1s. 6d. per lb.

CREAM OF TARTAR—Is steady and unchanged.

CUTCH.—Business continues on a small scale at previous rates.

GAMBIER.—The market for arrival continues very quiet, and no sales are reported, closing sellers October-December steamer at 14s. 3d. On the spot further small sales have been made in whole bales at 14s. 6d.

GALLS.—China remain quiet, without business on the spot, owing to dearth of supplies, and extreme prices are asked. Japan for arrival quoted higher at 59s. 6d., c. f. and i. Persian have been in less request, and only unimportant sales have occurred, but holders are firm for the small supplies.

GINGER.—Small supplies of Cochin met a slow demand. Of 208 cases and 52 bags offered, 95 packages sold, bold, some medium, roughly cut and scraped, rather heavily limed, at 88s.; medium ditto, at 72s. 6d.; small and medium ditto, at 51s. 6d. to 52s.; small ditto, at 36s.; fair cuttings, 18s. 6d. Calicut, medium, dullish rough limed, in cases, at 36s.; small rough, part shrivelled, at 22s. 6d. Jamaica quiet; and of 71 barrels offered, only 1 barrel sold; medium and small bright, at 63s.

GLYCERIN—Quiet at nominally unchanged prices, both for crude and also for refined.

IODIDES.—There is no change in prices to report.

LYCOPODIUM—Very firm at higher prices, say 1s. 10d. per lb. for double sifted in case lots. The article is expected to still further advance.

MERCURIALS—Have advanced 1d. per lb., owing to the rise in Quicksilver, Calomel now being quoted 3s. 2d.; Corrosive Sublimate, 2s. 10d.; red Precipitate, 3s. 6d.; white Precipitate, 3s. 7d,; and yellow Precipitate, 3s. 7d.

MORPHIA—Remains quiet, but nominally unchanged in price.

OILS (FIXED) AND SPIRITS.—Linseed flat. On the spot, pipes, London, £21 to £21 2s. 6d.; barrels, £21 5s.; Hull, spot, naked, £20 5s.; January-April, £19 15s. Rape quiet. Ordinary brown, on the spot, £22 5s.; refined, spot, £23 15s. Ravison, naked, spot, £20 5s. to £20 10s. Cotton steady. London, crude, spot, £17 10s. to £17 12s. 6d.; refined, spot, £19 to £19 15s., according to make; Hull, naked, refined, spot, quoted £17 7s. 6d.; crude, spot, £16 7s. 6d. Olive: Mogador, £34; Spanish, £35 5s.; Levant, £34 5s. Cocoanut quiet. Ceylon, on spot, £25 to £25 10s., near £24, c.i.f.; Cochin, spot, £28 10s., near £27 c.i.f. Palm: Lagos, on spot, quoted £25 10s. Castor quiet. Belgian, first, pressing, spot, £27; January-June, £25 10s. f.o.b. Antwerp; second, pressing, spot, £26 per ton, ex wharf; Hull manufactured, guaranteed cold drawn, pure, pharmaceutical, £29 10s. per ton in barrels, 3 9/16d. per lb., in cases; pure, firsts, £27 per ton in barrels; firsts, 3 3-16d. per lb. in cases, ex wharf, London; seconds not offering. Lubricating Oil: Pale, American, spot, 7s. 6d. to 11s.; black, 7s. to 9s.; Russian black, 5s. 6d. to 6s.; pale, 8s. to 9s. 6d. Petroleum Oil steady: Russian, spot, quoted 6 5 16d. to 6½d.; January-March, 6 5-16d. to 6½d.; American, spot, 7¼d. to 7⅞d.; water white, 8½d. to 8⅝d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Turpentine slow, and easier: American, spot, 36s. 6d.; January-April, 37s. 1½d. to 37s. 3d.

OPIUM.—The market has been firmer for druggist and manufacturing kinds, owing to an advance in the producing districts, and business of good extent has been effected. In "Soft Shipping" descriptions sales have only been retail.

OXALIC ACID.—There is no change to report. The article is, however, if anything, rather steadier.

PHENACETINE—Is steady, without alteration in value.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt.; Bichromate, 3½d. per lb.; Bromide, 1s. 10½d. per lb.; Chlorate, spot, London, crystals, 3¾d.; powder, 3⅞d. These prices are, however nominal, while lower prices are quoted for delivery over next year. Iodide, 10s. 6d. per lb.; Permanganate quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, quiet, Beckton, 6⅞d.; other English makes, 7½d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER.—Importer on Tuesday advanced his price to £9 12s. 6d. per bottle, at which advanced price the article is very firm, second-hand not offering.

QUININE—Continues very quiet, and only a restricted business has been done, including a few thousand ounces B&S and /or Brunswick March delivery at 1s. 1¼d. and buyers; spot buyers at 1s. 0¾d. and sellers at 1s. 1d. Price is, however, again tending upwards.

SAFFRON—Is very firm at 38s. to 42s. 6d. for good to very finest Valentia.

SALICYLATES AND SALOL.—So far the anticipated advance in makers' prices has not taken place.

SEEDLAC.—At auction 5 bags fine bright clean Kurrachee offered and sold at 60s.

SHELLAC.—The demand shows no improvement, and business on the spot is unimportant. The market for Futures remains quiet, with a sale of 100 cases TN March delivery at 64s., being easier. At auction to-day the moderate supplies met a slow demand and only a few cases sold, chiefly in small lots, at weaker prices, TN Orange being now quoted 63s. for fair quality. No AC Garnet was offered, good G bought in at 65s. Buttons neglected. A total of 559 cases offered and 84 cases sold. Second Orange; Of 335 cases 40 sold; fine OK in octagon bought in at 78s., and fine AA in circle at 74s.; good bright TN sold at 63s.; fair to good bright curly matted sold at 61s. to 63s.; bright red shivered at 60s.; block, fine pale at 71s.; middling 58s. Garnet: 32 cases offered and bought in, including good free G at 65s. Button: Of 192 cases 40 sold in oddments, chiefly block, from 41s. to 61s.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s.; bags, 57s. 6d.; Ash, £6 to £7 per ton, according to percentage, etc.; bichromate, 2¾d. per lb.; bicarbonate, landed, £7 5s.; bromide, 2s. 1½d. per lb. Caustic, 70 per cent. white, £10; 60 per cent., £1 less. Hyposulphate (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet, on the spot refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper all bought in. White Pepper in good supply met with slow demand; 200 bags Singapore sold, good at 9¼d.; 84 bags Siam bought in; also 355 bags Penang, fair at 8½d. Chillies quiet: 130 bags Japan bought in at 45s.; 2 bags Sumatra sold, fine bright at 51s. Capsicums: 1 bale Natal sold, without reserve, good bright at 96s. Cassia Lignea quiet; 148 cases withdrawn, and 200 bales broken bought in. Cinnamon Chips dull; of 183 packages Ceylon, only 61 sold in small lots from 1½d. to 3¼d. Mace quiet; 11 cases Penang bought in; fair to good bold red at 1s. 7d. to 1s. 10d.; 37 packages West Indian sold, fair to good pale at 1s. 6d. to 1s. 8d.; ditto red, at 1s. 3d. to 1s. 5d.; broken, at 1s. 2d. Nutmegs flat; 2 cases Penang sold, 80's at 1s. 7½d.; 112 packages West Indian sold, 59's at 2s. 8d.; 63's, 2s. 4d.; 68's, 2s.; 70's, 1s. 9d.; down to 120's to 122's at 9½d. to 10d.; and **140's at 6d.** Pimento in large supply and easier; of 1,254 bags, 339 sold, fair to good fair at 3¼d. to 3⅜d.

SULPHATE OF COPPER—Steady and unchanged.

SULPHONAL—Makers still quote 17s. per lb., while the article is selling from second-hand at shillings below this figure, for both crystals and powder.

TURMERIC.—At auction 40 bags Bengal offered and bought in. Privately there is only a restricted business passing, but prices are firm. Bengal quoted 30s. Good bright Madras finger sold at 37s. 6d., and Cochin split bulbs at 12s.

VERMILION.—In consequence of the further advance in Quicksilver the price of English has been raised 1d. per lb., making the quotations now 2s. 7d. to 2s. 9½d., according to quantity.

THURSDAY'S DRUG SALES.

To-day's drug auctions passed off quietly, many of the lots offered being bought in. Senna sold well, as also did cardamoms and honey. Ipecacuanha was again rather easier. The following are the particulars:—

ALOES.—100 boxes sold freely at 32s. per cwt. for good livery down to 23s. for bright capey,,5 cases, water damaged selling at 15s. 6d. to 17s. 6d. per cwt. 20 cases softish Cape sold readily at high prices, viz., 28s. to 29s. 6d. per cwt

AMBERGRIS.—1 tin, containing 8½ oz. of very fine flavour, sold, subject to owner's approval, at 92s. 6d. per oz.; 1 tin black undeveloped at 22s.

ANISEEDS.—30 bags good Spanish sold at 25s. per cwt.

ANNATTO SEEDS.—18 bags were taken out at 3d. per lb. Other 20 bags part sold at 3½d.

ARECA NUTS.—19 bags of fair quality were taken out at 30s. per cwt.

ARGOL.—4 bags Cape, part sold at 42s. to 47s. per cwt.

ASPHALTUM.—49 cases Syrian taken out at 33s. per cwt.

BALSAM COPAIBAE.—7 barrels were bought in at 1s. 4d. per lb., other 2 casks were taken out at 1s. 6½d.

BALSAM PERU.—3 cases held for 7s. 3d. per lb.

BITTER ALMONDS.—4 cases were taken out at 40s. per cwt.

BUCHU LEAVES.—9 bales were bought in at 1s. 1d. per lb., a bid of 11d. being declined. Other 4 bales sold at 9½d. to 9¾d. per lb.

CALUMBA ROOT.—20 bags fair sorts were bought in at 32s. per cwt., a bid of 27s. 6d. not being entertained. Another lot of 18 bags good sorts were taken out at 32s. 6d. Other 94 bags were also all bought in, washed root at 60s.

CAMPHOR.—3 tubes Japan crude fetched full price of 155s. per cwt. 2 casks French refined in Bells bought in at 1s. 11d. per lb. 25 cases Japan refined, part ¼oz. and part 1oz. tablets, at 2s. per lb.

CARDAMOMS.—4 cases fair heavy wild sold 3s. 10d. to 4s. per lb., down to 2s. 11d. to 3s. 1d. for small. 33 cases Ceylon Mysores all bought in at 2s. 2d. to 2s. 8d. per lb.; another lot of 81 cases sold at 1s. 6d. up to 4s. 1d. per lb., according to quality. 9 cases medium to fair seeds sold at 1s. 8d. to 2s. 3d. per lb.

CASCARILLA BARK.—16 barrels siftings were taken out at 25s. per cwt.

CHILLIES.—15 bags fair African were taken out at 50s. per cwt.

CHINA SOY.—50 casks taken out at 1s. 6d. per gallon.

CINCHONA BARK.—14 packages Crown and Grey all bought in at 7d. to 9d. per lb., 8 bales yellow bark at 9d.

COCAINE.—1 box Crude containing, according to Dr. Paul's analysis, 81·7 per cent. was taken out at 16s. per oz.

COD LIVER OIL.—15 barrels fair non-freezing Norwegian were taken out at 90s. per barrel. Other 70 barrels Norwegian were all bought in at 75s.

COLOCYNTH.—6 casks all sold at 1s. 5d. per lb. for fair pale, part small to medium brownish, and 1s. per lb. for brownish broken.

CROTON SEED.—58 bags bought in at 60s. to 65s. per cwt.

CUBEBS.—67 bags fair, somewhat dusty, bought in at 24s. to 25s. per cwt.

CUMMIN SEED.—25 bags Maltese taken out at nominally 35s. per cwt.

CUTTLE FISH BONE.—5 cases good bold were taken out at 9d. per lb.

DRAGON'S BLOOD.—8 cases bought in at £9 per cwt. for fair lump, and £4 5s. for very good saucers.; another lot of 9 cases were taken out at £12 to £15 per cwt.; other 5 cases were also bought in at £8 to £10 for medium to fair bright lump.

ELATERINE.—1 box, about 409oz. nett, bought in at 1s. 2d. per oz.

ERGOT OF RYE.—6 bags Spanish taken out at 2s. 9d. per lb.

ESSENTIAL OILS.—8 drums good, but rather darkish, Citronella taken out at 1s. per lb. 4 cases fair greenish West Indian Lime Oil realised 3s. 1d. per lb. 10 cases Dementholized Japan Oil Peppermint taken out at 4s. per lb. 7 cases Commercial Oil Eucalyptus were held for 9d. per lb., 1 case Portuguese selling at 1s. 9d. per lb. 4 cases Eucalyptus Rhisdonia held for 1s. 6d. per lb.; 6 cases Globulus, guaranteed 55 to 65 per cent. Eucalyptol, and B.P. 1898 for 2s. 4d. per lb. 3 cases Cinnamon Leaf for 3d. per oz.; 1 bottle Ylang Ylang for 12s 6d. per oz.; 1 case new Essence of Sweet Orange for 8s. per lb.

FENNEL SEED.—15 bags bought in at 21s. per cwt.

GALLS.—5 bags sold at 52s. to 72s. per cwt.

GENTIAN ROOT.—34 bags cut root were taken out at 14s. per cwt.

GRASS TREE GUM.—19 bags sold at 7s. 6d. per cwt.

GUAZA.—14 robbins fair tops taken out at 8d. per lb. 4 bags low dusty sold at 2½d. per lb.

GUM ARABIC.—21 cases part sold at 53s. for fair of the kind down to 29s. per cwt. for very inferior. For 25 bags Australian gum there was no bid. 32 bales Turkey sorts bought in at 75s. to 80s. per cwt.

GUM BENJAMIN.—8 cases small loose, part blocky, Siam were taken out at £11 per cwt; 9 cases ditto, part fair grain, part blocky, some almondy, offered without reserve, realised £10 to £10 5s. per cwt.; good Siam was bought in at £16; 30 cases fine seconds Sumatra were bought in at £11 per cwt.; fair ditto at £7, selling at £7 15s.; common at £6 5s.; 7 cases low inferior being bought in at 65s. to 85s. per cwt.

GUM GALBANUM.—15 packages good taken out at 1s. 1d. to 1s. 3d. per lb.

GUM GUAIACUM.—14 cases sold at 2½d. per lb. for fair glassy block, slightly drossy, down to 1¾s. per lb. for drossy. Other 5 cases and 2 barrels part sold at 1s. 9d. for bright glassy, 8d. for part drossy, and 4d. per lb. for common.

GUM KINO.—2 cases good Cochin were held for 1s. 9d. per lb.

GUM MASTIC.—16 cases yellow taken out at 1s. 7d. per lb.

GUM MYRRH.—Fine pale sorts were part sold prior to auction, remaining 4 cases being bought in at £5 5s. per cwt. and fair sorts at 75s., rather lower quality at 60s., down to 24s. to 35s. for inferior dark siftings and low pickings.

GUM TRAGACANTH.—4 bags of low quality bought in at £5 per cwt.; other 12 packages taken out at £13 to £15 10s. per cwt.

HONEY.—29 barrels Chilian sold at 24s. per cwt. 12 packages Jamaica all sold at 27s. for darkish down to 24s. per cwt. for dark colour. 59 cases Australian part sold at 25s., remainder bought in at 27s. per cwt. for good white. 28 cases fine Californian all sold at 34s. 6d. to 35s. per cwt. 11 cases Chilian were taken out at 35s.

IPECACUANHA.—29 bales Rio, part sold at 11s. 6d. to 12s. per lb., balance being bought in at 12s. 6d. 23 packages Carthagena were taken out at 8s. 9d. to 9s. per lb.

JALAP.—20 bags Vera Cruz part sold at 5¾d. to 6d. per lb for very small; other 6 bags taken out at 7d. per lb.

KOLA NUTS.—40 bags were taken out at 2½d. per lb.; other 30 bags were bought in at 3d. to 4½d.

LICORICE ROOT.— 25 bales decorticated impalpable powder bought in at 42s. to 50s. per cwt. 41 bales good natural cut root sold at 14s.

MANNA.—Two cases were bought in, there being no bid.

MENTHOL.—One case containing 12 × 5lb. tins, said to be good dry white crystals, but not bearing one of the brands most favourably known, was taken out at 10s. per lb.

MORPHINE.—500oz. Wink's hydrochlorate powder were bought in at 4s. 9d. per oz.

MYRABOLANES.—23 bags sold at 4s. 9d. per cwt.

ORANGE PEEL.—7 cases thin cut were taken out at 6d. per lb.

ORRIS ROOT.—15 bags very medium Verona were held for 28s. per cwt., 15 bags fair Florentine for 60s., 10 barrels finest English ground powdered Florentine for 65s.

PATCHOULY LEAVES.—2 cases sold without reserve at 3½d. per lb.

RHATANIA ROOT.—75 bales bought in at 4d. per lb.

RHUBARB.—45 cases were chiefly bought in at 11d. per lb., medium, round and flat, Canton, one case round being held for 1s. 1d. per lb. Good to fine Shensi bought in at 2s. 6d. to 3s. 6d. for flat and 2s. 2d. to 2s. 6d. per lb. for round. Various lots sold without reserve at 7d. to 1s. 2d. per lb. 13 cases rough, round, horny, high-dried, were bought in at 6d. per lb.

SANDAL WOOD CHIPS.—497 bundles bought in at £25 per ton.

SARSAPARILLA.—3 serons good Honduras were bought in at 1s. 5d. per lb.; 18 serons Mexican were also bought in, a bid of 5¼d. per lb. being declined; 1 bale red native Jamaica bought in at 1s. 5d. per lb.; 22 bales Jamaica part sold at 1s. 6d. to 1s. 7d. per lb; 10 bales Lima bought in at 1s. 3d.

SCAMMONY.—14 cases all bought in at 20s. to 22s. per lb.

SCAMMONY ROOT.—167 bags sold at 19s. per cwt.

SENNA.—227 bales Tinnivelly sold readily up to 5¼d. per lb. for fair leaf, lower qualities fetching less money in proportion; other 437 bales also sold readily at about similar rates, according to quality. 1 bale good green medium leaf realised 6½d. per lb. 13 packages Alexandrian part sold at 8d. for fair leaf; other 56 packages of Obovata Alexandrian leaf sold freely up to 9d. per lb.

SQUILLS.—28 bags bought in at 3d. to 4d. per lb.

STAR ANISEEDS.—5 cases fair China were taken out at £5 10s. per cwt.

STAR ANISEED OIL.—20 cases China taken out at 6s. 3d. per lb.

STROPHANTHUS SEEDS.—Six bags Kombe, taken out at 3s. to 4s. per lb., according to variety.

TAMARINDS.—65 casks good East Indian were chiefly taken out at 11s. per cwt., 15 casks of inferior quality selling without reserve at 6s. 6d. per cwt.

TONQUIN BEANS.—2 cases black Para, part foxy, sold at 11½d. per lb.; 2 casks Angostura held for 3s. per lb.

WAX.—1 cask Jamaica sold at £7 per cwt.; fair Zanzibar at £6 7s. 6d. to £6 10s.; Calcutta at £7 to £7 12s. 6d.; Bombay at £5 to £5 15s. 10 bags Morocco bought in at £6 15s.; 22 cases Japan sold at 30s. 6d. per cwt., subject to owner's approval.

Liverpool Market Report.

December 6, 1899.

A brisker tone has pervaded the market during the last week, inquiry has been better, and in many cases good transactions have been effected, with a consequent improvement in quotations. Chilian produce, Beeswax and Honey, has occupied the attention of buyers, and satisfactory amounts of Beeswax have consequently changed owners at full rates. The same remark applies to Honey, full prices for which are now asked. Oils are only slightly altered, Cottonseed Oil having advanced 3d. per cwt., and Spirits of Turpentine being down 6d. per cwt. A very firm feeling is noticeable in Chemicals, with advances in Carbonate and Sulphate of Ammonia and Bichromates of Potash and Soda; an advance in Caustic Soda is probable.

AMMONIA SALTS.—Carbonate higher, 3½d. per lb. lump. and 3¾d. powder. Salammoniac is firm at 38s. to 40s. per cwt. Sulphate £11 5s. per ton.

BEESWAX.—60 sacks of Chilian, £7 per cwt., now advanced to £7 5s. and £7 10s. per cwt. 20 sacks subsequently went for £7 10s. 7 bags of Buenos Ayres sold at £6 11s. 3d. to £6 17s. 6d. per cwt. 14 bales of Gambia also went at late rates.

BLEACHING POWDER—Has advanced to £6 per ton.

CANARYSEED—Is quietly steady on the spot at 35s. 6d. to 36s. per 464 lbs. for Turkish. 50 bags changed hands at 36s.

COPPERAS—Is very steady at 37s. per ton for Welsh, and 39s. per ton for Lancashire.

COPPER SULPHATE—Has become firmer, £25 to £25 10s. per ton.

HONEY.—100 barrels of Chilian sold at 29s. to 30s. per cwt. for Pile X, 24s. to 25s. 6d. for Pile 1, and 21s. 6d. for Pile 3.

LINSEED.—The tone remains firm, and a fair inquiry existed early in the week when 200 tons River Plate sold for December-January shipment at 40s. per 416 lbs, with option of January-February shipment at 39s. Calcutta was quoted at 45s. 6d., November-December shipment, and a little North American at 49s., November-December. At present the market is lifeless, and there is no disposition to operate either on the part of buyers or sellers.

OILS (FIXED) AND SPIRITS.—Castor Oils are in fair inquiry, with a slight move towards easier prices. Calcutta 2 15/16d. to 3d. per lb. store, 100 cases sold ex quay at 2⅞d. per lb. French, 1st pressure, 2¾d. per lb. store, with sellers forward, December to June, at £24 per ton f.o.b. to Marseilles, 2nd pressure, Belgian 2⅝d. per lb.; 2nd Sulphur 2½d. per lb.; Madras, 2¾d., 28 casks sold. Olive Oil: Sales from store of Spanish at £36 10s. to £37 per tun. Linseed Oil is easier 3d. per cwt., and is offering at 22s. 9d. to 24s. per cwt. Cottonseed Oil is very firm at an advance of 3d. per cwt., and sells at 19s. 9d. to 20s. per cwt. Spirits of Turpentine is only in moderate demand at 38s. per cwt.

POTASH SALTS.—Bichromate is 4d. per lb., and very firm. Chlorate 3½d. to 3¾d. per lb. Cream of Tartar is steady at 74s. to 80s. per cwt., and small sales of Greek from Patras have been made at 62s. 6d. Pearlash is nominal at 32s. per cwt. Potashes are still firm at 24s. 6d. to 24s. 9d. per cwt. Prussiate 7¾d. per lb.

SODA SALTS.—Bicarbonate £6 5s. to £6 15s. per ton. Bichromate dearer, 3¼d. per lb. Borax £16 per ton. Caustic, 76 to 77 per cent., £10 per ton, 70 per cent., £9 5s. Crystals £3 5s. per ton. Nitrate 7s. 9d. to 8s. per cwt., with moderate demand.

Manchester Chemical Report.

December 6, 1899.

There is a good business passing in both heavy and fine chemicals, and the textile and paper-making industries are absorbing large quantities owing to the active state of those trades. Caustic Soda and Ammonia Alkali are rather scarce for prompt delivery at full rates, and in regard to Bleaching Powder, makers are well supplied with orders. Acetic Acids are dearer, and Green Copperas is in active demand for export, although locally the Lancashire make seems too dear for buyers, Sulphate of Copper is rather dull at £24 10s. to £25 10s. per ton according to brand, delivered Manchester. Salt Cake is in full supply at 27s. to 28s. per ton in bulk on rails. Recovered Sulphur is firmer at £4 12s. 6d. to £5 2s. 6d. per ton, according to quantity and delivery. Notwithstanding low quotations in certain quarters, Yellow Prussiate is scarce here, and makers are firm at 8d. to 8¼d., except in quantity for forward delivery. Ammonia Salts seem to be again advancing. Arsenic is easier at £19 5s. to £19 10s. per ton ex ship, Garston. There is a rumour of the probable absorption of the firm of Bowman, Thompson and Co., Ltd., Northwich, by that of Brunner, Mond and Co., and that the probable settlement will be in the exchange of three shares of B. T. and Co. to one of B. M. and Co. This, if true, ought to be most satisfactory to the shareholders in the former firm. The flotation of the Electrolytic Alkali Co., Ltd. (Hargreaves Bird process), is attracting much attention in the trade here, and is expected to have important results in cheapening production. The direct oil trade has brightened up, and there have been important arrivals per Manchester Ship Canal during the past week.

Newcastle-on-Tyne Chemical Report.

December 6, 1899.

This chemical district is still very firm, and makers practically sold out for the remainder of the year. Bleaching powder is reported sold over the whole of next year at present quotation. Values are: Soda Crystals, 57s. 6d.; Caustic Soda, 70 per cent., £9 5s. to £9 10s.; Bleaching Powder, £6 10s. to £6 15s.; Soda Ash, 52 per cent., £5; Alkali, 52 per cent., £5 15s.; Sulphur, £5 per ton.

Deaths.

Tweedie.—On November 1, Jonathan J. Tweedie, Chemist and Druggist, late of Cambridge. Aged 35.

Greenwood.—On November 24, Samuel Greenwood, Chemis and Druggist, Bradford. Aged 54.

Heathcote.—On November 26, Edward Gilbert Heathcote, Chemist and Druggist, Bradford. Aged 53.

Milner.—On December 1, Thomas Milner, Chemist and Druggist, Consett. Aged about 45. Mr. Milner, who was a single man, and had been in business in the town for fifteen or sixteen years, was seized with a fit while at business, and expired almost immediately.

Hughes.—On December 2, Evan Griffiths Hughes, Chemist and Druggist, Manchester. Aged 64. Mr. Hughes, who had been a member of the Pharmaceutical Society since 1895, had been associated with the business life of Manchester for nearly half a century, and was a liberal supporter of the Botanical and Horticultural Society.

Publications Received.

Artificial Formation of a Rudimentary Nervous System. By Professor A. L. Herrera, Jun. Reprinted from *Natural Science*. Vol. XIII. Nos. 81 and 82. From the Author.

Effects of Borax and Boracic Acid on the Human System. By Dr. Oscar Liebreich. Berlin, 1899. (Translated from the German.) Pp. iv. + 44, with two plates. Price 2s. London: J. and A. Churchill, 7, Great Marlborough Street, W. From the Publishers.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Anness, Ashton, Attfield, Bagnall, Bartlett, Bennett, Beynon, Bilson, Branch, Cocks, Davies, Duncan, Dunning, Fisher, Forgie, Gilchrist, Gilderdale, Gill, Higgs, Hill, Hobbs, James, Jeffs, Johnston, Jones, Kirkby, Lennox, Linstead, Lucas, Lunan, Marshall, Mason, Reynolds, Ring, Rudd, Seabury, Shorthouse, Turner, Twelves, Wills.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Drugs and Chemicals.—Cocaine Hydrochlorate, ⅛ oz. 2/9, ¼ oz. 5/3, ½ oz. 10/-, 1 oz. 20s. Post free for cash.—Collis, Bath.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Overstocked Potass. Iodid., 9/6 lb., 4 lbs. 36/-; Iodoform Prec., 12/6, Crystal, 12/-; Bismuth, Subnit., 5/3 lb., 4 lbs. £1 1s.; Morph. Acet. and Hydroch., 5/- oz.—Eastman, Forest Lane, Stratford.

A Number of gold labelled and other stoppered shop-rounds, ointment pots, and some large wide-mouth white bottles suitable for stock, for disposal; offers wanted.—Wilcox, 83, Mortimer Street, London, W.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements.

(Received too late for Classification.)

UNQUALIFIED, 24, 9 years' experience. Photography. Disengaged.—WILKINSON, 28, Finsbury Rd., Leeds.

NOTICES TO CORRESPONDENTS.

All Communications for the 'Pharmaceutical Journal' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for.

Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C.

Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London, W.C.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

Calendar for the Week.

Sunday, Dec. 10. 2nd in Advent. Sun rises 7.57, sets 3.49.

Monday, Dec. 11. Sun rises 7.58, sets 3.49.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION, Town Hall, at 8.30 p.m.—Meeting to discuss the Chemists' Defence Scheme, and the Companies Bill.

EDINBURGH PHARMACY ATHLETIC CLUB, West-end Cafe, Prince's Street, at 8.30 p.m.—Annual Smoking Concert.

Tuesday, Dec. 12. Sun rises 7.59, sets 3.49.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 8 p.m.—Evening meeting, when Professor J. Millar Thomson will lecture on "Some Relations of Water to Other Substances."

ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London W.C., at 8 p.m.—Two papers by Thomas Bolas, "Notes on the use of the Dallmeyer Focometer," and "The Origination of Printing Types by Photographic Methods."

Wednesday, Dec. 13. Sun rises 8.0, sets 3.49.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, 36, York Place, at 9.15 p.m.—Paper on "New Remedies," by Donald M'Ewan.

MIDLAND CHEMISTS' ASSISTANTS, ASSOCIATION, Exchange Rooms, Birmingham, at 9.15 p.m.—"Laboratory Notes," by J. Barclay.

NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION, Hotel Métropole, at 8.30 p.m.—Smoking Concert; the President (C. Ridley) in the chair.

Thursday, Dec. 14. Sun rises 8.1, sets 3.49

CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, at 9 a.m.—Musical and Society Evening.

LIVERPOOL CHEMISTS' ASSOCIATION, Royal Institution, at 7 p.m. —"Note on Liq. Bismuthi," by R. C. Cowley and J. P. Catford.

Friday, Dec. 15. Sun rises 8.2, sets 3.49.

GLASGOW CHEMISTS AND DRUGGISTS,' ASSISTANTS,' AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Lantern Lecture, "The Hospitals of Glasgow," by Councillor J. Erskine.

Saturday, Dec. 16. Sun rises 8.2, sets 3.49

ENGLISH NEWS.

Companies Acts Amendment.—At a meeting of the General Medical Council on Tuesday, December 5, the interim report from the Companies Act Amendment Committee was read and adopted by the Council. The report stated that the Committee was glad to be able to report that the Lord Chancellor's clause prohibiting the practice by companies of the business or profession of physician, surgeon, dentist, or midwife, which has now been placed in a Government measure (the Companies Acts Amendment Bill), was passed without amendment by the House of Lords towards the end of last session. It was too near to the close of the session for the Bill to be then introduced in the House of Commons, but it was understood that the Government intends to actively proceed with the measure, and it was hoped that it will be introduced in the House of Commons early in the ensuing session. In view of the doubt which still attaches to the application of the words "physician" and "surgeon," the Committee felt that the addition of the words "medical practitioner" was more than ever necessary, and it was using its best endeavours to procure their insertion, which would probably present no difficulty. Since its last report the Committee had received further information, which enabled it to state that both medical and dental companies are still actively pursuing highly objectionable forms of practice.

Midland Pharmaceutical Association.—In connection with this Association a very successful smoking concert was given at the Great Western Hotel, Birmingham, on the 7th inst. Mr. G. E. Perry, who presided, also contributed to the musical programme, and sang a song in which there were references to trade topics, conceived in the happiest vein. The other vocalists were Mr. Hubert Langford, Mr. Longmore, and Mr. Burton.

Leeds Chemists' Association.—At a meeting of this Association, held on November 23, a draft clause was adopted for insertion in the Companies Bill. The clause provides that no company shall carry on the business of a chemist and druggist or use titles implying qualification under the Pharmacy Act, unless its "controlling shareholders" are qualified.

Manchester Pharmaceutical Association.—This Association has obtained the signatures of 289 registered persons, carrying on business in Manchester and the neighbourhood, to a petition which has been sent to the Council of the Pharmaceutical Society, urging the promotion of legislation to render it illegal for limited companies to use chemists' titles; and that any attempt to regulate company trading should be strenuously opposed.

Warrington Chemists' Petition.—A petition similar to the one sent by the Manchester Association to the Council of the Pharmaceutical Society has been signed by all the chemists in business in Warrington, and has been forwarded to the Council.

Public Dispensers' Association.—A special general meeting of this Association will be held at the new rooms St. Bride's Institute, Ludgate Circus, on Wednesday, January 3, 1900, at 8 p.m., to make the necessary alteration of the rules, etc., in accordance with the motion of the late Poor Law Dispensers' Association. The annual general meeting will follow for election of officers, etc. The Association has made St. Bride's Institute its headquarters, and will hold meetings there on January 3 and 31, February 28, March 28, and April 25, subjects to be announced later. The Association hopes by thus taking the most central position in London to facilitate the attendance of dispensers. All public dispensers are welcome at the meetings of the Association, and are particularly invited to bring before the meetings any questions of interest that may occur to them. Any further information can be obtained from the Secretary, Mr. G. F. Forster, care of Shuttleworth Club, Fye Foot Lane, Queen Victoria Street, E.C

Yarmouth Chemists' Association.—On the 7th inst. Yarmouth chemists again discussed the defence movement. The following resolution was unanimously passed:—

That this Association, having carefully considered the objects and rules of the Chemists' Defence Association, recommends it to the favourable consideration of its members and chemists generally.

Grocers and the P.A.T.A.—The *Grocers' Review* has a lengthy article on the prospects of the Grocery Section of the P.A.T.A., and expresses a belief that nine out of every ten retailers are heartily sick of the cutting down of prices. In his concluding remarks the editor writes:—"We have not the least doubt about the prospects of the Grocery Section of the Proprietary Articles Trade Association, if the retailers themselves whom the scheme must benefit will give it their full support, because the gentlemen who have been appointed to represent the retail trade are gentlemen of high standing, and possess abilities which could only be calculated to be conducive to the welfare of the trade. We regard this as a fine opportunity for retailers to test whether anything tangible can be done in order to conduct what has been described as a 'fair trade in grocery proprietaries.' With such support from influential gentlemen and from influential firms, one would think that the retailers themselves should strike while the iron is hot, and immediately become associated with that organisation, the Grocery Section of the Proprietary Articles Trade Association, which is attempting to do such honourable work."

Cinderella Dance.—The first dance of the season in connection with the Chemists' Assistants' Association, was held on Thursday, December 7, at the Portman Rooms, Baker Street, London, W. It was moderately patronised, many of those usually present no doubt attending a dance given on the same evening by a leading pharmacist. Messrs. Martin and Solomon acted efficiently as M.C.'s, and dancing was kept up with spirit until midnight. The programme consisted of sixteen items, some of which were encored. There were also two extra dances.

Royal Institution.—The following are the Lecture arrangements at the Royal Institution, before Easter:—Mr. C. Vernon Boys, Six Christmas Lectures (specially adapted for young people) on Fluids in Motion and at Rest; Professor E. Ray Lankester, Twelve Lectures on The Structure and Classification of Fishes; Dr. W. H. R. Rivers, Three Lectures on The Senses of Primitive Man; Professor H. H. Turner, Three Lectures on Modern Astronomy; Dr. Charles Waldstein, Three Lectures on Recent Excavations at Argive Heræum (in Greece); Three Lectures by Sir Hubert H. Parry; Mr. W. L. Courtney, Three Lectures on The Idea of Tragedy in Ancient and Modern Drama; The Right Hon. Lord Rayleigh, Six Lectures on Polarised Light. The Friday Evening Meetings will begin on January 19, when a Discourse will be given by the Right Hon. Lord Rayleigh, on Flight; succeeding Discourses will probably be given by the Hon. C. A. Parsons, Professor J. Reynolds Green, Mr. H. Warington Smyth, Professor J. H. Poynting, Major Ronald Ross, Professor Frank Clowes, Sir Benjamin Stone, M.P., Professor J. Arthur Thomson, Sir A. Noble, Professor Dewar, and other gentlemen.

A Deficient Measure.—At the Leicester County Petty Sessional Court on Wednesday, December 6, Mr. Sidney B. White, chemist and druggist, Leicester, was summoned for having an unjust measure in his possession, at Syston, on the 28th ult.—Inspector Bowley

spoke to finding a quart measure at defendant's shop which was ten drachms deficient. The measure had not been submitted to an inspector since 1895.—Mr. Barnett appeared for the defendant, and said that Mr. White would plead guilty to the charge. Through an oversight on the part of the defendant's manager, the vessel had not been recently tested.—A fine of 24s., inclusive of costs, was imposed.

CLASSES IN PRACTICAL VISUAL OPTICS.—Readers of the Journal who intend to qualify for the Worshipful Company of Spectacle Makers' diploma will probably be interested to know that classes will be held in January and February in London, Manchester, and other provincial centres, conducted by Mr. Lionel Laurance (official instructor to the Spectacle Makers' Company), 1, Vernon Place, Bloomsbury Square, London, W.C., from whom particulars may be obtained.

C.A.M.W.A.L. ANNUAL REPORT.—The twenty-first annual report of the directors for the year ending September 30 last states that there has been a net increase of 294 in the number of members, making a total of 4,849, and an increase in the amount of sales and profits. The directors propose to pay the dividend (10 per cent.) on December 30, the amounts being placed to the credit of open accounts unless applied for before December 16. Those who received cash payments last year, however, need not apply. It is proposed to give the employees a liberal bonus, as hitherto. The dividend and bonus will absorb (income-tax included) £6,416 9s., and a balance will be carried forward of £1,299 14s. 4d., making a total of £7,716 3s. 4d. At the annual general meeting, which is to be held at Anderton's Hotel, Fleet Street, E.C., on Tuesday, December 19, Messrs. H. Davenport and A. Gould retire from the directorate, but offer themselves for re-election. The auditors, Messrs. Prideaux, Booker, Frere, and Co., London, and J. W. Close, Leeds, also retire, but offer themselves for re-election. Several resolutions will be proposed at this meeting, to the effect that it is desirable to sell the undertaking of the old company to a new company, to be formed with the name of "Camwal, Limited," and that accordingly the company be wound up voluntarily, and that the secretary, Mr. Henry Thomas Butler, be appointed liquidator for the purpose of such winding up.

CHEMISTS AND STOLEN GOODS.—On Friday, December 8, before the Hull Stipendiary, William Flynn and Alfred Lumley were charged with robbing their employers, Messrs. Cussons, Limited.—According to the evidence of the police, part of the stolen property was recovered from Mr. G. W. Anderson, chemist and druggist, Derringham Street, Hull, and other chemists (not named), to whom the prisoner Flynn had sold the goods.—Mr. Anderson was closely cross-examined as to his dealings with Flynn, and he admitted that he had 25 per cent. off wholesale prices, but alleged that he did not know that the goods were stolen, although there was certainly a great doubt as to whether the transactions were honest.—The prisoners were sentenced to four calendar months' imprisonment.

"RED TAPE AND INQUESTS" is the heading to a report in the *Kent County Examiner* of an inquest held on Edward Button (78), of Ashford, who was found dead in bed, although there was no doubt that death was due to natural causes.—The coroner explained to the jury that up to a few years ago a coroner could write to a medical attendant and ask whether there was any circumstances in the slightest degree suspicious attending any death reported to him, and if the doctor wrote back saying there were no such circumstances, but that death was, in his opinion, due to such-and-such a cause, then the coroner need not hold an inquest. But as the auditor had ruled that coroners could not pay a fee to a medical man unless an inquest was held, he was compelled to drag a jury there. The doctor could not give a certificate, as he had not seen the man for four or five years.—Mr. F. Guttridge, chemist and druggist, Ashford, stated that deceased came to him about a fortnight previously, and complained of a pain in his back. He gave him an innocuous mixture containing potassium bicarbonate, sodium salicylate, and gentian.—Medical evidence having been given, the deceased's eldest son stated that there was not the slightest suspicion in the case, but he thought that there was some red tapeism in the matter on account of the deceased going to a chemist instead of a doctor.—The jury returned a verdict of "Natural causes."

FOOTBALL.—The return match between Dartford and the Metropolitan College of Pharmacy F.C., which was to have been played on Saturday, December 9, was scratched at the last moment. The "Metros" managed, however, to fix up a match against the Amicables, Battersea, the final result being "Metros," 3 Amicables, 1.

SCOTTISH NEWS.

EVENING MEETING IN EDINBURGH.—The next meeting at 36, York Place, will be held on Wednesday, December 20, at 8.30 p.m. Mr. Peter Boa will preside, and Mr. Thomas Dunlop, a pharmaceutical chemist member from Glasgow, has promised to read two papers—one on a "Strychnine Mixture" and the other on "Maceration Tinctures." The customary reference to the recent additions to the Society's library and museum in Edinburgh will be made by the Assistant-Secretary.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—With a view to securing friendly intercourse and mutual acquaintanceship among assistants and apprentices, the office bearers and Committee issued invitations to all those engaged in Edinburgh and Leith to a meeting held in the Pharmaceutical Society's House, 36, York Place, on Wednesday, December 6, and lasting from 8.30 to 10.30 p.m. The President, Mr. Fraser McDiarmid, and the Committee received the company as they arrived. Tea and cake were served, and the time devoted chiefly to conversation and the examination of a large number of interesting exhibits. Mr. J. Hume Patterson, of the Royal College of Physicians' Research Laboratory, exhibited an exceedingly interesting series of pathogenic bacteria. Messrs. Duncan, Flockhart and Co. sent a collection of dried glandular extracts and preparations. On one table were laid out an interesting series of early herbals and pharmacopœias from the Society's library; on another several microscopic objects, including living specimens of *Volvox globator*, *Hydra fusca*, *Amœba*, and *Tyroglyphus siro* (cheese-mite), the circulation of the blood in a frog's foot, starch grains *in situ* under polarised light, etc. A collection of specimens and apparatus, lent by Mr. William Hume, scientific instrument maker, included a small working model gas-engine and Marconi's apparatus for wireless telegraphy. In the course of the evening the President formally welcomed the assistants and apprentices who had responded to the invitation, and expressed a hope that they would attend the regular meetings held once a fortnight. Mr. Hume Paterson also gave an interesting explanation of his exhibit. After a very pleasant and profitable evening the proceedings concluded with a cordial vote of thanks to all who had contributed to the success of the gathering.

GLASGOW SCHOOL OF PHARMACY.—The third annual supper took place in the North British Hotel, George Square, on Friday, 8th inst., when upwards of ninety past and present students of the School were present. Mr. John Lothian, Principal, occupied the chair, and Messrs. McLeod, Fraser, Carruthers, and Penman acted as Croupiers. After an excellent supper, Mr. Gilmour, in an eloquent speech, proposed "The School and Principal," which was acknowledged by the Chairman. Mr. W. L. Currie, on behalf of the Kinninmont Prize Committee, then presented the Kinninmont

Gold Medal to Mr. Henry Rodwell, a pupil and demonstrator in the School.—Mr. Martin Meldrum proposed "The Pharmaceutical Society," and Mr. Peter Boa, Chairman of the North British Branch Executive, replied. In doing so, he said the question of dividing the qualifying examination and allowing students to pass in subjects in which they had done well, was in the air, and would probably have to be carefully considered. He thought the Society, on fair consideration, would be found to deserve well of all qualified pharmacists, and that they would feel it to be a duty to give it every support.—Mr. J. Rutherford Hill proposed "The Students," and, in doing so, urged upon them the importance of facing the work of preparation with courage and a determination to win. He earnestly deprecated regarding the qualifying examination as an end in itself. It was only a means to an end, and the real end was the successful practice of pharmacy.—The evening was enlivened by numerous songs and recitations, and a pleasant time was brought to a close about 1 a.m. In the course of the evening Mr. John P. Taylor, in the name of past and present pupils, presented to Mr. Lothian a handsome roll-top writing-desk and chair, and an inkstand.

Edinburgh Pharmacy Athletic Club.—The eighth annua smoking concert was held in the West End Café, Princes Street, on Monday, December 11, Dr. George Coull, Hon. President, in the chair. There was a large and representative attendance. The Committee, under the skilful guidance of Mr. J. P. Gibb, Hon Secretary, submitted a capital programme, among the contributors being G. H. C. Rowland, G. Jamieson, Graham Courtney, D. Simpson, K. Brewster, J. P. Gibb, J. Bartleman, etc. A special feature was a cinematographic exhibition of historic pedestrian and other athletic events, which was enthusiastically received. The Chairman proposed "Success to the Club," and Mr. Rutherford Hill responded.

Attack on a Chemist.—At Bo'ness Burgh Court last week, Richard Orr, skipper of the tug-boat "Venus," was fined 10s., or seven days, for assaulting Marshall Thomson, chemist and druggist, manager of two shops occupied by Dr. Graham at Grangepans and Bo'ness.—It appeared from the evidence that Miss Orr, sister of the defendant, acted as assistant in charge of one of the shops, and after closing the shop at ten o'clock it was customary for her to go each night to the other shop to report to the plaintiff.—Defendant objected to his sister being kept out so late, and while in an excited state on November 25 went to remonstrate with the plaintiff, the result being an assault was committed.

IRISH NEWS.

Pharmaceutical Society of Ireland.—Applications for the January Preliminary Examinations must be lodged with the Registrar, 67, Lower Mount Street, Dublin, not later than eleven o'clock on the morning of Tuesday, the 19th instant.

Poisoning of Irish Foxhounds.—At the Munster Winter Assizes, at Cork, before Mr. Justice Gibson, during last week, Michael Curtin, a respectable farmer's son, residing near Newcastle West, County Limerick, was put forward on a charge of having been implicated in the recent poisoning of the West Limerick Foxhounds. Mr. Bourke, Q.C., intimated that the Crown did not intend to send a bill to the Grand Jury, and asked that the accused should be discharged. Curtin was accordingly released from custody. In this connection it may be mentioned that when the prisoner was arrested on the charge in the first instance, bail to any amount was offered, but the Crown could not then see its way to accept it, and the result was that the accused man was detained in prison for a week.

Accidental Poisoning by Ammonia.—A melancholy occurrence has taken place in the townland of Ballymulderg, situate about two miles from Magherafelt. A respectable farmer, named Edwards, got up in the early hours on Sunday morning intending to take some ether which he kept in a press for the purpose of relieving pains caused by asthma and chronic chest affection; but instead of taking the ether the unfortunate man in mistake took a dose of liquid ammonia which was in the press in a similar bottle to that containing the ether. Death occurred about two p.m. on Sunday evening. An inquest was held at deceased's residence on Monday. After hearing the evidence, the jury found that the deceased died from shock or collapse caused by drinking a quantity of ammonia through misadventure.

Poisoning Sensation.—Colonel Tynte, R.M., has investigated a sensational charge brought against Mrs. St. Clair of attempting to poison her husband, at Moville, during the past week. The case for the prosecution was that the accused woman placed matches in a kettle and then fled to Belfast, where she was subsequently arrested on the charge. Mr. St. Clair next morning made his own breakfast, using the kettle of poisoned water. When he had finished the meal he fell down and vomited. He remained unconscious for twelve hours. Dr. Newell deposed that he attended Mr. St. Clair and found him vomiting on the kitchen floor. There was a kettle strongly smelling of phosphorus. Match-heads were floating on the water in the kettle. The teapot also smelt of sulphur. He treated Mr. St. Clair for phosphorus poisoning until he got well again. In reply to Mr. Miller, solicitor for the accused, Dr. Newell stated that red phosphorus was not supposed to be poisonous even in large doses. After hearing further evidence, Colonel Tynte refused informations, and the accused woman, who is the daughter of a Liverpool hardware merchant, was discharged.

TRADE NOTES.

Vinolia War Fund.—The Vinolia Co., Limited, Malden Crescent, London, N.W., announce that one and a-half million ha'pennies (£3,125) have been forwarded by the Vinolia War Fund in aid of the soldiers', families, widows, and orphans. As previously stated in these columns, the company allows the fund ½d. on every tablet of Vinolia soap sold.

Waterproof Fluid Glue.—The Aqua Glue Co., 23, Brunswick Street, Liverpool, submits a sample of Water-Resisting Fluid Glue, put up in a tube from which it is squeezed out as required for joining new or fractured surfaces. It is a unique and valuable preparation, inasmuch as it is always ready for use and is packed in the most portable and convenient form. Its chief advantage—a most important one—over all similar preparations is the fact that articles joined with it successfully resist the action of water and damp, its exceptional merits adapting it to many uses for which the ordinary forms of glue are unsuitable.

Wellcome's Photographic Diary.—We are informed by Messrs. Burroughs, Wellcome, and Co. that the issue of this book (see *ante*, p. 562*a*) has been exceedingly successful. The number of advance orders received for the copies of the first edition prompted the publishers to reprint a second edition at once, but the demand has been so great that this issue will shortly be exhausted. A third edition is now being printed, and will probably be ready by the time that the second is exhausted, but in order to prevent disappointment those who have not already obtained a supply and intend to do so should give their orders as soon as possible, so that there may be no delay in getting the whole of them executed before Christmas.

POTASSIUM CHLORIDE TABLOIDS.—Potassium chloride having been recommended as preferable to common table salt for the use of gouty patients, Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., have introduced a 20 grain tabloid of the substance, so compressed that one or more may be easily crushed into powder at the table, when it may be taken with food.

NEW CHINOSOL PREPARATIONS.—The Chinosol Hygienic Company, 36, St. Mary-at-Hill, Eastcheap, London, E.C., submits specimens of Chinosol Sanitary Tablets and Chinosol Bath and Toilet Tablets. The former have for some time been recognised by sanitary authorities as an efficient and very convenient form of chinosol in odourless disinfection; hence, the company has prepared small packages or boxes of three tablets at sixpence, and boxes of six tablets at elevenpence each, to be offered to the public for the prompt and economical production of concentrated disinfectant fluids for the household, in place of the poisonous and objectionable fluids hitherto used. The Chinosol Bath and Toilet Tablets illustrate the adaptability of chinosol for toilet purposes. They are oomposed of pure chinosol compressed, and in their application are refreshing to the skin and fragrant in their perfume (otto of roses). Counter bills, giving particulars as to use, etc., are supplied to chemists in any quantity they may require.

FOOD AND DRUGS ACT PROSECUTIONS.

CAMPHORATED OIL.—At Birmingham Police-court, on Friday, December 8, William Curtis Miller, chemist and druggist, 107, Hockley Hill, was summoned for selling camphorated oil containing only 87 per cent. of the proper proportion of camphor.—The defendant pleaded that it was liable to evaporation, and this could not be avoided. A fine of 20s. and costs was imposed.——Samuel Partridge, chemist and druggist, 37, Grange Road, was summoned for selling camphorated oil containing only 87 per cent. of the proper proportion of camphor, and at least 50 per cent. of mineral oil.—Mr. Adcock defended, and stated that the ingredients had been mixed only the night previous to the sale, and the camphor had not properly dissolved. With regard to the oil, he stated that the defendant bought it from a Mr. John Cox as pure olive oil.—In reply to Mr. Fisher (Chairman of the Bench), the defendant said that it was not customary for chemists to test their drugs when they purchased them from respectable firms as pure articles.—Mr. John Cox, who also bought the oil as pure from a Liverpool firm, confirmed the defendant's statement, and Mr. Fisher said the magistrates were astonished that chemists should not examine the drugs they received. It seemed incredible. He did not think the public knew it, and the Bench certainly did not. The sooner such a custom was established the better it would be for the protection of the public.—Defendant would be fined 40s. and costs.——Emma Evans, 55, Cattell Road, was fined 20s. and costs for selling camphorated oil containing only one-fourth of the camphor prescribed by the British Pharmacopœia; and James Steen Harvey, chemist and druggist, 29, Arthur Street, was fined 40s. and costs for selling camphorated oil containing only two-thirds of the due proportion of camphor.——On Saturday, December 9, at the Guildford County Petty Sessions, the adjourned case against William B. Baynham, chemist and druggist, Woking (referred to last week, at page 562*c*), came up for hearing.—Dr. Stevenson now stated that he allowed 0·4 per cent. in favour of the vendor for evaporation, but the deficiency of 3·15 could not have occurred without great carelessness either in weighing or heating.—Defendant pointed out that the British Pharmacopœia in a number of preparations gave definite instructions as to the use of heat, but in regard to camphorated oil no such instructions were given.—Dr. Stevenson said a little gentle heat would not, perhaps, be objectionable. He did not consider it a serious case of adulteration.—The Bench acquitted defendant of any intention to defraud, and inflicted the nominal penalty of 1s.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Dr. A. B. Griffiths has had conferred on him, by his Majesty the Sultan, the Knight's Star of the Imperial Order of the Osmanie for scientific services rendered to the Ottoman Government.

Mr. Horatio C. Goodall, M.P.S., chemist and druggist, of St. Catherine's, Lincoln, was one of the successful candidates at the examination of the Sanitary Institute, held in London, December 1 and 2 last.

Mr. J. A. Dewhirst, Ph.C., chemist to Messrs. Curling, Wyman and Co., has been elected a Fellow of the Chemical Society.

Mr. Aubrey T. Hill is to have a congratulatory dinner given to him at the Wellcome Club and Institute, on Tuesday, December 19, by the members of the staff of Burroughs, Wellcome and Co., on his appointment as assistant manager of the works at Dartford.

Mr. C. F. Jarvis, chemist, Villa Road, Handsworth, owing to impaired health, has disposed of the business successfully carried on by him for the last seventeen years to Messrs. Snape and Son, of Great Hampton Street, who will continue the business.

Mr. Thomas J. Wild's friends and fellow students at the School of Pharmacy will doubtless be pleased to learn that, since taking up his appointment at the Government Civil Hospital, Hong Kong, his abilities as an athlete have already been recognised. The *Hong Kong Telegraph*, commenting on a match between the Hong Kong Cricket Club and the Garrison Eleven, states that Mr. Wild's was one of the best-played innings during the whole match.

Deaths.

Stanford.—On December 8, at "Glenwood," Dalmuir, Edward Charles Cortis Stanford. Mr. Stanford was an old prizeman of the School of Pharmacy, and a Life Member of the Pharmaceutical Society.

Richmond.—On December 9, Henry Richmond, Chemist and Druggist, M.R.C.V.S., Lytham. Aged 84.

Partnerships Dissolved.

(From the London Gazette.)

Carel Adelbert Gazan and Theophile Jeanc Baptiste Desnos, trading as Jules Denoual, Capsule Manufacturers, 4, New Cross Road, London. Debts will be received and paid by Theophile J. B Desnos, who will continue to carry on the business.

Alfred Peak and Samuel Hardman, trading as the Whitefield Mineral Water Company, Whitefield.

Reginald John Roberts and Wilson Tyson, Physicians and Surgeons, Lowestoft. Debts will be received and paid by Wilson Tyson.

Joseph Todd and George Dixon Todd, Medical Practitioners, Selby.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

Willian James Tivy, Physician and Surgeon, 8, Lansdown Place, Clifton, Bristol.

John George Nevitt, Surgeon, 128, Harrogate Road, Chapel Allerton, and 153, Roundhay Road, Leeds.

George Jeanes, chemist and druggist, 3, St. Maur's Place, Livingston Avenue, Sefton Park, Liverpool.

Edward James Francis Garner, Chemist and Druggist, 251, Netherfield Road North, Liverpool.

Charles Ernest Richmond, Surgeon, 5, Lime Grove, Chorlton-Medlock, Manchester

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

THURSDAY, December 14.

Business in drugs and chemicals has not been very brisk during the past few days, and we are now hardly likely to see any renewed activity until the turn of the year. The principal changes of the week have been a reduction in German refiners' price for camphor bells and flowers, an advance in makers' prices for quinine, and a rise in prices of pilocarpine, eserine, and veratrine. Quicksilver remains very firm, and the fact that second-hand does not offer would appear to point to the possibility of a further advance in importer's price, he apparently having the game entirely in his own hands. Other prices are mostly firm, or at least show a strong undertone. The following dates have been fixed for sales in 1900:—Drugs (usual), January 18, February 15, March 15, April 12, May 10, June 7, July 5, August 2 and 30, September 27, October 25, November 22. For goods not previously offered in sale: February 1, March 1 and 29, April 26, May 24, June 21, July 19, August 16, September 13, October 11, November 8, December 6. Vanilla: January 10, February 7, March 7, April 4, May 2 and 30, June 27, July 25, August 22, September 19, October 17, November 14, December 12. Below we give prices ruling for some articles of chief interest:—

ACETANILIDE—Dull, at 9½d. to 11d. per lb., according to quantity and make.

ACID BORACIC.—Crystals are quoted 25s. per cwt. and powder 27s.

ACID CARBOLIC—Very firm. Quotations are nominally 10d. for 35° to 36° C. ice crystal in large bulk, 11d. for 39° to 40° C., 1s. for 39° to 40° C. detached crystals B.P. quality. Crude 60° F. 3s.; 75° F., 4s.; liquid, 95 to 98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon in 40-gallon casks; ditto 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC.—The article is weak at 1s. 3d. to 1s. 3½d. per lb. for crystals in 5 cwt. casks on the spot, and about 1d. per lb. less for delivery during next year. Makers are, however, not desirous of selling so far forward.

ACID OSMIC.—It is stated that this article will in future be very much dearer, as much as 7s. per gramme in 1 gramme sealed tubes being mentioned as the possible future price.

ACID TARTARIC—Is rather easier, at 1s. 0¾d. per lb. for English, on the spot; 11¾d. per lb., c.i.f., for foreign.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb.; Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing; Muriate, chemically pure, small crystals, 33s. to 36s. per cwt.; ditto, commercial, 30s. to 32s. 6d. per cwt.; Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s.; ditto, crushed for batteries, 2s per cwt. more; Iodide, 13s. 7d. per lb.; Sulphate weak, gray, 24 per cent., London, prompt, £11 6s. 3d.; Hull, prompt, £11 6s. 3d.; January-March, £11 12s. 6d.; Leith, prompt, £11 6s. 3d. to £11 7s. 6d.; January-June, £11 13s. 9d.; Beckton, prompt, £11 5s.; January-April, £11 10s.; Beckton terms, prompt, £11 3s. 9d.; Sulpho-cyanide, 1s. 2d. to 1s. 3d. per lb.

ANTIMONY.—Reguhis is quoted £39 to £40 per ton, and crude Japan (black sulphide) £23 10s. to £24 10s.

APOMORPHINE—Is firm at 19s. to 20s. per oz., according to make and quantity.

ASHES.—Pots 26s. 6d., pearls 33s.

BELLADONNA ROOT.—Good root remains very scarce. As much as 45s. per cwt. is asked for medium quality.

BISMUTH—Still unchanged at 5s. per lb. for the commercial quality of the metal, 5s. 1d. for the Subnitrate, and 5s. 8d. per lb. for the Carbonate. It is very strange that this article, an advance in which was so confidently predicted, has not moved at all. Some people, writer included, think that we may very likely see an upward movement at the turn of the year.

BLEACHING POWDER (CHLORIDE OF LIME)—Is quoted £6 10s. to £6 15s. per ton for English make.

BORAX.—Crystals are still quoted 16s. per cwt., and powder 16s. 9d.

BROMIDES—Are steady and unchanged at 1s. 10½d. per lb. for Potassii bromid, 2s. 1½d. per lb. for Sodii bromid, and 2s. 2d. per lb. for Ammon. bromid. Bromine is also unchanged at 2s. to 2s. 2d. per lb., in cases of 60 lb.

CAMPHOR.—Crude continues quiet and inactive, Japan, spot, 167s. 6d. per cwt., and for arrival 170s., c.i.f.; China, spot, 162s. 6d. English refiners maintain their price of 2s. per lb. for Bells and Flowers in ton lots, while Hamburg makers quote as low as 1s. 9d. per lb.; this latter quotation is apparently a ruse, in the hope of depressing market for crude, and thus being able to secure cheaper supplies. It remains to be seen in how far such hopes will be realised.

CASTORUM.—29 packages (about 688lb.) were offered at auction and sold, 1sts at 50s. to 63s., 2nds at 30s. to 41s., 2nds and 3rds at 33s. to 34s., 3rds at 34s. to 35s., pickings at 5s. to 14s.

CASTORUM.—The annual sales of this article took place on Wednesday, when 1,736 lbs. were offered by the Hudson Bay Company, and about 700 by other importers. The whole met with a good demand, 1sts and 2nds realising full rates, whilst 3rds and pickings sold rather irregularly at 6s. to 8s. decline. Firsts realising from 75s. to 50s.; seconds, 65s. to 30s.; thirds, at 33s. to 46s.; pickings, 33s. to 14s.

CLOVES.—At auction 10 bales Zanzibar were sold, fair at 3 5/16d. Privately the market for Zanzibar is very quiet, but steady. Business is reported to have been done at 3 13-32d. for March-May delivery.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial 1s. 4d.; pure, 2s. 4d. Benzole, 50 per cent., 10½d. per gallon; 90 per cent., 9d. per gallon. Creosote 3¼d. per gallon. Crude Naphtha 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha 95 per cent. at 160° C. 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon. 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene: A., 4¼d. per unit; B., 2¾d. per unit. Pitch, 34s. per ton, f.o.b. Tar: Refined and crude, 12s. 6d. per barrel; 2d. per gallon.

COCAINE.—Prices are practically unchanged; makers still quote 20s. 6d. per oz. for the hydrochlorate for 200 oz. lots in 25 oz. tins, while second-hand offers at about 1s. per oz. less money.

CODEINE—Is very firm at 12s. 11d. to 13s. 6d. per oz. for the pure and 1s. per oz. less for the Muriate Phosphate and Sulphate Salts.

COD LIVER OIL—Is very firm, although there has not been very much business passing lately, quotations are nominally 80s. to 85s. per barrel, acording to brand for best non-freezing Norwegian oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—First white crystals are quoted 74s. per cwt. on the spot; powder, 75s. to 77s. per cwt., according to percentage.

CUTCH—Remains very quiet, and business restricted at previous rates.

ESERINE (PHYSOSTIGMINE).—Price of this article has been advanced to 2s. 6d. per gramme for the sulphate and salicylate, and 3s. 6d. for the pure, in quantities of at least 10 grammes.

EXTRACT FILICIS MARIS (OIL MALE FERN).—Makers ask 4s. 9d. to 5s. per lb. for this article.

FISH OILS.—52 tuns offered and all sold, very full prices being obtained. Seal, pale, £20 15s.; tinged, £19 10s.; fine straw, £18 10s. to £19; straw, £18 5s. to £18 15s.; yellow, £17 5s. to £18 10s.; dark to brown, £17 to £18 5s.; Cod, £18 10s. to £19 per tun.

GALLS.—Extreme prices continue to be quoted for the small supplies of China available on the spot; for arrival the price is still 63s. c.f. and i. A fair business has been done in Persian Blues at full rates, but holders are now asking higher prices for the small supply. Greens scarce, and firmly held.

GAMBIER—Remains steady, although quiet. For arrival no business is reported to-day; Oct.-Dec. steamer buyers at 14s. 6d.

GENTIAN ROOT.—Good dry root has been sold this week at 14s. per cwt., ex warehouse, London.

GINGER.—There is very little business doing privately, and in auction it was not represented.

GLYCERIN.—Crude is firm at nominally unchanged prices, while some of the German makers have advanced their price 2s. 6d. per cwt. for Refined. Quotations are: English, 55s. to 57s. 6d.; German, 57s. 6d. to 67s. 6d.; according to make, for best white double distilled chemically pure, 1260° quality, in tins and cases (2 or 4 × 56 lb. tins in a case).

IODIDES—Are in a somewhat uncertain position, owing to offers from various quarters at prices below those fixed by the Convention. Convention prices remain, however, unchanged at 10s. 6d. per lb. for Potassii Iodid., 11s. 10d. per lb. for Sodii Iodid., 13s. 10d. per lb. for Ammon. Iodid., 13s. 10d. per lb. for Iodoform, crystal. powder, or precipitate; 12s. per lb. for Iodine resublimed, and 7½d. per oz. for crude Iodine.

ISINGLASS.—At the Hudson's Bay sales, 1,616 lbs. offered, all sold at 2s. 1d. to 2s. 6d. per lb., a few lots of inferior quality fetching 1s. 4d. to 1s. 9d.

LITHIA.—The carbonate is unchanged at 11s. per lb., while the citrate is quoted 7s. and 7s. 6d. per lb. for the crystal and powder respectively.

MENTHOL—Very firm at 10s. 3d. to 10s. 6d. per lb. for case lots on the spot, price for arrival being even higher. It would appear probable that we shall see still higher prices for this article.

MERCURIALS.—Price is unchanged at 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for Corrosive Sublimate, other mercurial preparations being quoted in proportion.

MORPHINE—Market is decidedly firmer; makers have, however, so far made no alteration in their price, which remains nominally 5s. per oz. for the hydrochlorate powder, and 2d. per oz. more for the crystal. It is thought likely that we may see dearer prices for this article.

OILS (FIXED) AND SPIRITS.—Linseed firm, on the spot, pipes, London, quoted £21 12s. 6d.; barrels, £21 15s. to £21 17s. 6d. Hull: spot, naked, £21. Rape strong at 15s. advance. Ordinary brown, on spot, £23 5s. to £23 10s. Refined: Spot, £24 10s. Ravison, naked, spot, £21 5s. Cotton: Firm. London, crude, spot, £18; refined, spot, £19 10s. to £20, according to make. Hull: Naked, refined, spot, £18; crude, spot, £16 17s. 6d. Cocoanut steady. Ceylon, on spot, £25 5s.; Cochin, spot, £29 to £29 10s.; afloat, £26 15s. c.i.f. Olive: Mogador, £34; Levant, £34 5s.; Spanish, £35 5s. Palm: Lagos, on spot, quoted £26. Castor oil easier. Belgian, first pressing, spot, £27; second pressing, spot, £26 per ton, ex wharf. Hull manufactured, guaranteed cold drawn, pure pharmaceutical, £29 per ton, in barrels; 3½d. per lb., in cases. Pure firsts, £26 10s.; seconds, £25 10s. per ton, in barrels; firsts, 3⅛d. per lb., in cases; seconds, 3d., ex wharf, London. Lubricating oil: Pale American, spot, 7s. 6d. to 11s.; black, 7s. to 9s.; Russian black, 5s. 6d. to 6s.; pale, 8s. to 9s. 6d. Petroleum oil quiet. Russian, spot, quoted 6⅜d. to 6½d. American, spot, 7⅜d. to 7½d. Water white, 8⅝d. to 8¾d. Petroleum spirit: American, 9¾d.; deodorised, 10d. Turpentine: Firm. American, spot, 36s. 9d. to 37s.; January-April, 37s. 6d.; July-December, 32s. per cwt.

OPIUM.—There has not been very much business passing in this article during past few days. Price is, however, decidedly firmer, and an advance is fully expected.

OXALIC ACID—Is quoted 3d. to 3⅛d. per lb. nett, free delivered, London.

PARAFFIN WAX—Is still quoted 2⅞d. to 3d. per lb. for crude and 3⅛d. to 3¾d. for refined.

PHENACETINE.—Unchanged at 3s. 3d. to 3s. 6d. per oz., according to quantity, for both crystals and powder.

PILOCARPINE.—Makers advanced their price to 2s. per gramme for the nitrate, hydrochlorate, and other salts, and 2s. 6d. per gramme for the pure. It looks very much as if we were again on the eve of famine prices for this article.

PITCH—Is quoted 8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt.; bichromate, nominally 3¾d. per lb.; bromide, 1s. 10½d. per lb.; chlorate, spot, London, crystals, 3¾d.; powder, 3⅞d. Iodide, 10s. 6d. per lb. Permanganate: Small crystals are quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow Beckton, 7d.; other English makes, 7¾d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER.—Market is firm and unchanged at £9 12s. 6d. per bottle from the importer; second-hand still not offering.

QUININE.—Makers of the favourite German brands B & S and Brunswick advanced their price to 1s. 3d. per oz. for the sulphate, in 100 oz. tins and for 1,000 oz. lots, while from second-hand there are buyers of these brands at 1s. 2⅛d. to 1s. 2¼d. for spot, and 1s. 2⅝d. to 1s. 2¾d. for March delivery. The period of uncertainty appears now to be over, and the article will probably still further advance before very long. Last week's Amsterdam bark sales went off at an advance of about 12 to 15 per cent.

ROSIN—Easier at 4s. 9d. to 5s. per cwt. for strained on the spot, and 4s. 7½d. per cwt. for Feb.-April and March-May shipment per sailing vessel.

SALICINE—Is firm at 12s. to 12s. 6d. per lb., according to quantity.

SANTONINE—Continues firm at 11s. 6d. to 11s. 9d. per lb. from the agents of the makers, second-hand offering at a trifle below these figures.

SHELLAC.—The market remains very quiet. The demand on the spot is slow, and sales are of a retail character at about steady rates. Futures are unaltered, without business; for arrival Jan.-March steamer there are sellers of TN Orange at 62s. c.f. and i., and March delivery at 64s.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d.; ash, £6 to £7, according to percentage, etc.; bichromate, 2¾d. per lb.; bicarbonate, landed, £7 5s.; bromide, 2s. 1½d.; caustic, 70 per cent, white, £10; 60 per cent., £1 less.; hyposulphate (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate, quiet on spot, refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper: At auction no Singapore was offered. 224 bags Penang bought in, weight 3lb. 7oz., dust 5 per cent., at 5½d.; 91 bags Ceylon offered, and bought in at 6d. White Pepper: A small supply, consisting of 8 bags fine Singapore, at 11d., and 50 bags fair Penang chiefly bought in. 8 bags Ceylon sold, fair, rather mixed, at 8¼d. Chillies: At auction 50 bags good bright Japan were bought in. Cinnamon chips, etc., neglected. 302 bags were all bought in at auction, including broken wild at 3½d. and coarse bark at 2d. Nutmegs: Slow of sale. Out of 41 cases Penang in auction only 3 cases sold, subject, 66's at 2s. 3d.; the remainder bought in, including 93's at 1s. 5d., and 208's, shrivelled, at 5½d. West Indian: 36 barrels sold cheaply, 54's at 2s. 9d., 62's at 2s. 4d., 77's at 1s. 6d., 83's at 1s. 5d., 89's at 1s. 2d., 95's (slightly mouldy) at 11½d. to 1s., 99's at 10d., 104's (slightly mouldy) at 9½d., 114's at 10d., 133's (mouldy) at 5d., 153's at 6d., 113's (wormy and broken) at 5½d. Mace: 16 cases Penang bought in, including fine pale bold, part wormy, at 2s. 6d.; fair bold, red, at 1s. 6d.; broken at 1s. 4d. West Indian: 13 packages sold, fair to good pale, at 1s. 5d. to 1s. 7d.; broken at 1s. 2d. to 1s. 3d.

SULPHATE OF COPPER—Is quoted £24 7s. 6d. to £25 10s. per ton.

SULPHONAL—Is still offering from quasi second-hand at 14s. to 14s. 6d. per lb., for both crystals and powder, while Bayer and Riedel maintain their quotation of 17s. per lb.

TAR.—Stockholm 25s. to 25s. 6d.; Archangel, 18s. to 18s. 6d.

THYMOL—Is firm at 10s. 6d. to 11s. per lb, according to quantity and make.

TURMERIC—Remains steady, although quiet, with only a small business passing. Bengal quoted 30s., good bright Madras finger sold at 37s. 6d., and Cochin split bulbs at 12s. China finger quoted 30s.

VERATRIA.—Makers' prices are now 4s. 8d. per oz. for the pure, 5s. 1d. per oz. for the sulphate, and 5s. 8d. per oz. for other salts, for any quantity below 16 oz.

VANILLA.—At auction the extensive supply offered consisted of 1,367 tins. It was in good demand; about 968 tins sold as follows: Good and fine qualities, of which bulk consisted, opened 1s. 6d. to 2s., and closed fully 3s. lower. Common qualities sold well at full rates. Seychelles: Of 1,086 tins offered about 786 sold, fair to good colour, 7 to 8½ inch, at 25s. 6d. to 28s.; 7½ to 8 inch at 25s. to 27s.; 7 to 7½ inch at 24s. to 25s. 6d., down to 14s. to 19s. 6d. for 2½ to 6 inch. Bourbon: Of 221 tins about 179 sold, fair to good colour, 6½ to 7 inch at 24s. to 25s. 6d., down to 3½ to 5½ inch, 21s. 6d. to 23s. 6d. Mauritius: 3 tins sold, rough, 3 to 5½ inch at 12s. 6d. The remainder Tahiti bought in.

WAX.—Japan quiet, at 31s. 6d. per cwt. for good squares on the spot, while for arrival the article is quoted tangibly higher.

Liverpool Market Report.

December 13, 1899.

Good business has been done this week in Chilian Honey, Guinea Grains, Beeswax, Ginger, and Quillaya Bark at full prices. In Seeds things have been quiet, but quotations are those of last week, and in the case of Linseed a better inquiry has set in. The prices of Oils are not appreciably altered. In consequence of advances in the price of most chemicals, business has been somewhat circumscribed, and the tone of the market at time of writing is extremely firm.

AMMONIA SALTS. — Carbonate, 3½d. to 3¾d. per lb. Sal ammoniac, 38s. to 40s. per cwt. Sulphate £11 10s. to £11 12s. 6d. per ton.

BEESWAX.—60 sacks of Chilian found ready buyers at £7 3s. 9d. per cwt.

BLEACHING POWDER—Is dearer, viz., £6 per ton.

CANARY SEED.—Business has been quiet, and no trade has been done, quotation, 35s. 6d. to 36s. per 464lbs. for Turkish.

COPPERAS—Is firm at 37s. and 39s. per ton.

COPPER SULPHATE—Is steady at £25 to £25 10s. per ton.

GINGER.—161 bags of old crop Sierra Leone sold at 26s. per cwt.

GUINEA GRAINS.—The market has been cleared at 100s. per cwt.

HONEY.—36 barrels of Chilian, Pile I., made 24s. to 25s. per cwt.

LINSEED.—An improved inquiry is experienced and January-February shipments of River Plate are offering at 39s. per 416lbs.

OILS (FIXED) AND SPIRITS.—Castor is in moderate demand, Calcutta at 2 15/16d. to 3d.; French 1st pressure, 2¾d. per lb.; 2nd pressure, Belgian, 2 11/16d. per lb.; 5 tons of French 1st pressure sold at 2¾d. per lb., and 5 tons to arrive, £24 per ton, f.o.b., Marseilles. Olive promises to be still dearer, Spanish being still quoted at £36 10s. to £37 per tun. Linseed Oil is easier a trifle, and is selling moderately at 22s. 6d. to 23s. 6d. per cwt. Cottonseed Oil is scarce, and holders of Liverpool refined are firm for 19s. 9d. to 20s. per cwt. Spirits of Turpentine is steady at 38s. per cwt., with moderate demand.

POTASH SALTS.—Bichromate is very scarce at 4d. per lb.; Chlorate firm, 3½d. to 3¾d. per lb.; Pearlashes, 32s. 6d. per cwt.; Potashes scarce and dearer, 25s. 6d. per cwt.; Prussiate quiet, 7¾d. per lb.

QUILLAYA BARK.—Chilian has been selling at £13 5s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton; Borax, £16 to £16 10s. per ton; Caustic is likely to be considerably higher in price next year and is very firm, 76 to 77 per cent. at £10 per ton, 70 per cent. £9 5s. and 60 per cent. £8 5s.; Crystals, £3 5s. per ton; Nitrate is slow of sale at 7s. 7½d. to 8s. per cwt.

Manchester Chemical Report.

December 13, 1899.

The Board of Trade returns of exports for the past month are the most satisfactory that have been issued since the beginning of this year. Chemicals and chemical and medicinal preparations show an increase of 13 per cent., being £780,713, as against £690,973; Alkali, 22·1 per cent. in quantity, and Bleaching materials 26·3 per cent., respectively, 404,661 cwts. and 140,327 cwts. respectively, and in value 17·3 and 13·9 per cent. The most satisfactory and perhaps striking feature is that the exports to the United States approach and in some respects exceed those of the same period of 1897. Last year, 1898, they were scarcely half. The past month shows the quantity to have been 114,234 cwts. of alkali as against 64,808 cwts. last year, and 101,139 cwts. bleaching materials as against 66,568 cwts. It may be taken for granted, judging from the very substantial increase in the shares of the various companies, that the trade is looked upon as being in a flourishing condition. The changes during the past week have not been numerous, but, generally speaking, they have been of an upward character. Ammonia Alkali, 58 per cent., is exceedingly scarce, and heavy chemicals generally are not plentiful. In Brown Acetate of Lime, it is reported that contracts are being made for delivery over next year at £5 10s. per ton, but for prompt as high as £6 5s. is asked. Sulphate of Copper continues, owing to the easier tendency in the metal, on the dull side, and best brands vary from £25 to £26 per ton, delivered Manchester. Arsenic is a trifle firmer, varying from £19 5s. to £19 10s., ex ship, Garston. Yellow Prussiate is still scarce at 8d. to 8½d. for English make. It is reported hat the shares in the new Electrolytic Alkali Co., Limited (Hargreaves-Bird process) have been fully subscribed. The amalgamation of Bowman, Thompson and Co., Limited, with the firm of Brunner, Mond and Co. has been officially contradicted.

Newcastle-on-Tyne Chemical Report.

December 13, 1899.

A strong market still continues here particularly for Caustic Soda. The new process of "mercerising" Cotton to give it the appearance and the feeling to the touch of silk is causing for the moment, a heavy demand, so much so, that the price has been further advanced, assisting at the same time the status of Soda Ash and Bleaching Powder. Soda Crystals and other makes are pretty much in keeping. Quotations are:—Caustic Soda, 70 per cent., £9 10s.; Soda Ash, 52 per cent., £5 to £5 5s.; Bleaching Powder, according to markets, £6 10s. to £6 15s.; Soda Crystals, in bags, 57s. 6d. to 60s.; Alkali, 52 per cent., £6 to £6 5s.; Sulphur, £5 per ton.

Calendar for the Week.

Sunday, Dec. 17. 3rd in Advent. Sun rises 8.3, sets 3.49.

Monday, Dec. 18. ○ 1.31M. Sun rises 8.3, sets 3.50.

Tuesday, Dec. 19. Sun rises 8.4, sets 3.50.

Bradford and District Chemists' Association, County Restaurant.—Children's Evening.

CAMWAL, Anderton's Hotel, Fleet Street, London, E.C., at 2 p.m.—Important General Meeting of Shareholders.

Royal Photographic Society, 66, Russell Square, London, W.C. at 8 p.m.—Paper on "Negatives for Three-Colour Work," by Captain Abney.

Wednesday, Dec. 20. Sun rises 8.5, sets 3.50.

Midland Chemists' Assistants' Association, Great Western Hotel, Snow Hill, Birmingham, at 8.30 p.m.—Social Evening; Ladies and members of the Senior Association cordially invited.

Pharmaceutical Society of Great Britain, 36, York Place, Edinburgh, at 8.30 p.m.—Evening Meeting:—Papers by Thomas Dunlop on "Maceration Tinctures," and a "Strychnine Mixture."

Royal Microscopical Society, 20, Hanover Square, London, W., at 8 p.m.—"A Review of Photomicrography and its different methods," illustrated by numerous lantern slides, by Dr. E. J. Spitta.

Sheffield Pharmaceutical and Chemical Society, at 8.30 p.m.—Paper on "Fruits, Rare, and Interesting," by J. W. J. Turner.

Western Chemists' Association (of London), Westbourne Restaurant, Craven Road, W., at 9 p.m.—Address by the President, and a discussion on the Companies Acts Amendment Bill, opened by Walter Hills.

Thursday, Dec. 21. Sun rises 8.6, sets 3.50.

Chemical Society, Burlington House, Piccadilly, London, W. at 8 p.m.—Papers by H. Jackson; A. W. Gilbody, and W. H. Perkin, jun.,; N. E. Bowtell and W. H. Perkins, jun.; P. C. Ray.

Linnean Society of London, Burlington House, Piccadilly, W., at 8 p.m. —Papers by Professor T. W. Bridge and F. Chapman.

Friday, Dec. 22. Sun rises 8.6, sets 3.51.

Glasgow Chemists' and Druggists', Assistants', and Apprentices' Association, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Social symposium.

Saturday, Dec. 23. Sun rises 8.7, sets 3.52.

COMMUNICATIONS, LETTERS, NEWSPAPERS, etc., have been received from Messrs. Allen, Attenburrow, Barnes, Bartlett, Boa, Branch Davies, Dewhirst, Ferrall, Forster, Gilderdale, Gilmour, Goodall, Griffiths, Harris, Hebb, Hill, Jarvis, Johnston, Jones, Kermath, Lewis. Lucas, Marshall, Mumbray, Naylor, Philp, Pickering, Pickford, Richardson, Robins, Smith, Southwell, Thomas, Tirard, Wild, Wilson, Woolley, Wright.

EXCHANGE

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Drugs and Chemicals.—Cocaine Hydrochlorate, ⅛ oz. 2/9, ¼ oz. 5/3, ½ oz. 10/-, 1 oz. 20s. Post free for cash.—Collis, Bath.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

What Offers for one or more "Pharm. Journal," "Chemist and Druggist," and "British and Colonial Druggist" for 1900. Posted on Saturdays.—Drachma, 5, Serle Street, W.C.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Hot Water Bottles, best quality, thick rubber, under contract before advance, plush covers, detachable, included. 2 dozen assorted sizes; 10 by 6, 4/-; 12 by 6, 4/6; 12 by 8, 5/6; 14 by 10, 7/-; 16 by 12, 9/6.—Warnes, 333, Gray's Inn Road, W.C.

Chest Protectors. Bought largely, offer 4 dozen to realise; best quality wool felt, scarlet, natural undyed, and Pine (brown), silk bound, lockstitched, Maw's sizes, all double. No. 2, 16/-; 3, 21/-; 4, 26/-; 5, 34/-.—Warnes, 333, Gray's Inn Road, W.C.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Offer 7/6 for Attfield's Chemistry, latest edition, in good condition.—Wallbridge, St. Helens.

Chemist and Druggist Diary, 1900.—Lowest price to W. J. M., 75, Elsley Road, Lavender Hill, S.W.

Books.—Old, modern; text-books, formularies, herbals, dispensatories. Chemists having any such, bearing upon matters connected with the trade, for which they no longer have any use, are requested to send list, particulars, lowest price, Rouse Brothers, Charlotte Street, London, W.

Advertisements

Received too late for Classification.

TO CHEMISTS.—Commanding PREMISES, situate in the High Street; large shop, 5 rooms and bathroom; suit Store Chemist; to let on Agreement or Lease.—STONEHEWER, High Street, Wandsworth.

MANAGER, qualified and married; to take full charge of Branch Shop; to reside on the premises; specially comfortable roomy house; age 28 to 34; smart and active.—State height, age, salary required, photo and references, to WAND, Cash Chemist, Haymarket, Leicester.

ST. MARY'S HOSPITAL, PADDINGTON, W.

Contracts for Drugs, Chemicals, Dressings, &c.

The Board of Management invite Tenders for the supply of Drugs, Chemicals, Dressings, &c., for Three Months commencing 15th January, 1900.

Forms of Tender may be obtained on application to the Secretary.

Tenders must be delivered in sealed envelopes, addressed to the undersigned, marked "Tender for Drugs," on or before Saturday, 23rd December, 1899, at noon.

The Board does not bind itself to accept the lowest or any Tender, and reserves to itself the right of accepting the whole or any part of a Tender, or striking out any item.

By Order,

THOMAS RYAN, Secretary.

THE PHARMACEUTICAL JOURNAL

Is supplied from the Office, 5, Serle Street, London, W.C., post free to any part of the United Kingdom, the Colonies, and Abroad, on prepayment of 20s. for twelve months.

Cheques (crossed London Joint Stock Bank), and Postal Orders should be made payable to STREET BROTHERS; and letters addressed to

The PUBLISHERS, 5, Serle St., Lincoln's Inn, London, W.C.

ENGLISH NEWS.

Wholesale Prescriptions.—The following letters on the subject of "Wholesale Prescriptions," appeared in the *British Medical Journal* of December 16, 1899 :—

Sir,—We, the undersigned dispensing chemists, desire to express our concurrence in the view taken by the editor of the *British Medical Journal* in his note on Wholesale Prescriptions in the Journal of December 9, and we trust the medical profession will raise its voice against a system of medication detrimental to the interests of the public and faculty at large.

We are, etc.,

Dinneford and Co., Bond Street, W.
Hooper and Co., Davies Street, W.
W. E. Lowe and Co., 8, Stafford Street, W.
V. L. Fellows, 49, Hertford Street, W.
G. Jolley and Co., 13, Curzon Street, Mayfair.
A. Ralph Melhuish, 78, Duke Street, Grosvenor Square (Burden and Co.)
R. L. Wigham, 22, Brook Street, W.
Godfrey and Cooke, Conduit Street, W.
Frank A. Rogers, 327, Oxford Street, W.
R. A. Potts, 62, South Audley Street, W.

Berkeley Street, December 12.

Sir,—At a council meeting of the Chemists' Assistants' Union, held on December 11, the following resolution was passed:—

"That the Council of the Chemists' Assistants' Union fully endorses the opinion of the editor of the *British Medical Journal* in denouncing the continued spread of prescribing private specialities, instead of standard B.P. preparations, recently expressed in an article on wholesale prescriptions in the above Journal."

I am, etc.,

Stafford Street, December 12. R. E. Wright, Secretary.

Chemists' Assistants' Association.—The C. A. A. concluded the first half of the session on Thursday, December 14, when a most successful "Musical and Social" was held. Mr. J. H. Mathews presided over a small but appreciative assembly, and a very enjoyable programme was contributed to by Messrs. Walton. Leckenby, Martin, H. B. and E. J. Everson, and Stewart Donally, Mr. A. H. Brady ably performed the duties of accompanist. On the proposition of the President (Mr. F. W. Gamble), a hearty vote of thanks was accorded to Mr. Mathews for kindly taking the chair.

Plymouth and District Chemists' Association.—On December 6, a meeting of the Trade Section was held, at which the following officers were elected for the ensuing year :—President, Mr. W. Condy U'Ren; Hon. Treasurer, Mr. C. T. Weary; Hon. Sec., Mr. F. A. Goodwin.

Newcastle-on-Tyne and District Chemists' Association.—A smoking concert in connection with this Association was held on Wednesday, December 13, at the Hotel Metropole, Newcastle-on-Tyne, Mr. C. Ridley, President, in the chair. An excellent and varied programme was gone through. The proceedings closed with a vote of thanks being accorded to the artistes and also to the President. A collection was made for the Reservists' Fund, which amounted to £2 4s. 7d.

The Hospital Ship, "Maine."—A representative of the Journal had an opportunity early this week of viewing the hospital ship *Maine*, which has been fitted out by a committee of American ladies for the use of the sick and wounded in the present war. The ship was then lying in the West India Docks, and was not quite ready to sail, though it was hoped that she would be ready to go out on Thursday, December 21. The ship has been placed at the disposal of the committee by the Atlantic Transport Company, and has been fitted up at a cost of between £15,000 and £16,000. Five wards have been provided, occupying nearly the whole of the space on the main and the 'tween decks, while the orlop deck is utilised to carry large quantities of stores. There are 218 beds in the wards which are named the Britannia, Columbia, Whitelaw Reid, Bernard Baker, and Committee. The operating room contains a fine installation of Röntgen rays apparatus, and is excellently furnished with everything necessary for the use of the surgeons. The operating table is of glass. The entire medical equipment has been contributed by Messrs. Burroughs, Wellcome and Co., each ward being fitted with small cases of tabloid and soloid products, while the main outfit is placed in the dispensary. At the time of our representative's visit, the dispensary was not quite ready, so that the outfit was not on view, but a special case covered with tooled leather was exhibited in the operating room.

The Medicine Chest of the "Maine."—This case has been specially designed by Mr. Henry S. Wellcome, and the whole of the work has been done by the firm. On the top panel appears the Union Jack and Stars and Stripes entwined; portraits of George Washington, Queen Victoria and President McKinley and representations of the American Eagle and British Lion. The front panel bears portraits of Lady Randolph Churchill (President), Mrs. Ronalds (Hon. Treasurer), and Mrs. Blow (Hon. Secretary of the American Ladies' Hospital Ship Committee); a picture of the *Maine*; a scene representing the British Lion wounded by an arrow, being administered to by Britannia and Columbia. A frieze is formed by a representation of American Indian wampum, upon which are depicted Brother Jonathan and John Bull grasping hands. The panel at each end of the chest represents Britannia and Columbia supporting a banner bearing the Red Cross; also representations of the national emblems—the English oak and American corn. The panel at the back of the chest depicts a charge of British Regular and Colonial Lancers, and a Highland Brigade. The Boers hold their ground sheltered behind rocks and boulders. The bugler-boy who felled three Boers is noticeable in the scene. Prominently inscribed on the chest is Keble's line, "No distance breaks the tie of blood," and Ambassador Bayard's notable phrase, "Our kin across the sea." The chest is made of oak and covered with Carthaginian cowhide, upon which the designs are tooled by hand. With one exception the whole of the medical staff of the ship and five non-commissioned officers are Americans, acting under the direction of Surgeon-Major Cabell, of the United States Army. The exception is Surgeon-Lieut.-Colonel Hensman, of the British Army Medical Service, who is in command, as representing the War Office. Three American doctors have volunteered their services—Dr. George Eugene Dodge and Dr. Harry H. Hodman, of New York; and Dr. Charles H. Weber, of Philadelphia. Miss M. E. Hibbard is chief of the five nurses. Lady Randolph Churchill will also accompany the *Maine*, a special cabin elegantly and comfortably furnished on the main deck being placed at her service. The ship flies three flags—the Union Jack (presented by Her Majesty the Queen), the Stars and Stripes, and the Red Cross in addition to the Admiralty transport flag. She is the first vessel which any nation has ever dispatched to succour the wounded forces of another State.

Alleged Theft of Drugs.—At Southwark Police Court on Friday, December 15, the four men, Jones, Parker, Lardent, and Royou, charged, on remand, with stealing and receiving three barrels of cod-liver oil and a quantity of iodoform, mercury, and other goods, of the total value of £27 12s., belonging to Messrs. Davy Hill and Co., wholesale druggists, of Park Street (see *ante*, 562*b*), were all committed for trial.

Mr. Jesse Boot complains, in a letter sent to the Nottingham newspapers, that his "assistants are excluded from pharmaceutical study specially designed for chemists and given at the University College." He virtually threatens, therefore, to depart and, metaphorically, shake the dust of Nottingham from his feet, although,

as he almost plaintively states, he is himself a Nottingham man, and apparently he has so great a love for the place that in spite of the fact that he believes "we could save £60 to £80 a week—equivalent to £3,000 or £4,000 a year—for carriage" by removing elsewhere, he still remains. After that statement, doubtless, his shareholders will have something to say in the matter. In reply to Mr. Boot, Mr. A. Eberlin, Hon. Secretary of the Nottingham Chemists' Association, writes to the editor of the *Nottingham Daily Guardian* as follows:—"The Nottingham Chemists' Association admits as 'associates' all who are in the employment of duly qualified chemists and of registered medical practitioners. It provides, at considerable cost and trouble, a course of study suitable for the requirements of the qualifying examination of the Pharmaceutical Society. With this object it arranged with the authorities that certain classes should be provided at the University College, the Chemists' Association guaranteeing a minimum sum in each subject taught. These classes are in subjects quite extraneous to the ordinary college ones. So much so that in one, at least, the Nottingham Chemists' Association voluntarily finds teachers from amongst its own members. Now, to join these classes a student must be an associate of the Nottingham Chemists' Association, and, as above stated, must be in the employment of a legally qualified employer. And in this last requirement lies the point about which your correspondent labours so terribly. But this rule has been in force since the year 1870—long before drug companies came into existence. To say that the Nottingham Chemists' Association has ever refused entry to one of his employees, as such, is presumptuous on the part of Mr. Boot; for we have frequently pointed out that he had the remedy entirely in his own hands—namely, to qualify himself as a chemist. With this plain statement I would leave your readers to judge of the fairness of the charges Mr. Boot brings against an honourable association, which has done so much, at great labour and sacrifice, to provide facilities for study which, but for that association, would not exist, and which has been the means of inducing pharmaceutical students to settle in this town, because of the advantages offered them. In the words of a late President of the Pharmaceutical Society, 'Nottingham bids fair to become a leading centre for pharmaceutical study, owing to the energetic action of its association.'"

SCOTTISH NEWS.

WEST OF SCOTLAND COLLEGE OF PHARMACY.—The first annual dinner in connection with this institution was held in the Cockburn Hotel, Glasgow, on December 14, Mr. T. MABEN, F.C.S., in the chair. A company of upwards of sixty assembled, including Dr. Thomson, Messrs. W. L. Currie, Russell, Gilmour, Watson and T. S. Barrie. After dinner the usual loyal and patriotic toasts were honoured, Mr. Carson replying for the Army, Navy and Reserve Forces. The Chairman proposed the Pharmaceutical Society and the Glasgow Pharmaceutical Association, and in doing so spoke of the work done by the Society for fifty years in connection with education, the elevation of pharmacy and the Benevolent Fund. Speaking of the work of the local association, for which Mr. Currie had done so much, he hoped that when Mr. Currie was sent to the Council he would take a common-sense view of the many questions that waited solution. Mr Currie, who replied, spoke of the claims of the Society, and hoped that the young men would take advantage of the lowering of the franchise. So far as he was concerned there was little prospect of his being a councillor, but in whatever position he might be placed he would always do what he could in the interests of Pharmacy. Mr. Gilmour proposed the toast of the medical profession, and Dr. Thomson who replied, said that, as a constant reader of the *Pharmaceutical Journal*, he was well acquainted with the work of the Society. He endorsed what Mr. Gilmour had said, and hoped that the time would soon come when doctors would only prescribe and chemists only dispense. Mr. Anderson Russell, in proposing the West of Scotland College contrasted the teaching now with what he had as a student, and he almost wished he could begin again. Mr. T. S. Barrie, in reply, thanked the company for the way they had supported Mr. Maben and himself, and he hoped this was only the first of many such dinners, and that all of them would again meet next year. Mr. D. Watson proposed the health of the Chairman, who suitably replied. During the evening several songs and recitations were contributed by Messrs. Currie, Irvine, Lochhead, and the Chairman.

ARBROATH CHEMISTS' ASSISTANTS AND APPRENTICES ASSOCIATION.—A meeting of this Association was held in the Y.M.C.A. Rooms on Tuesday, December 12, Mr. D. M. Bruce, Vice-President, in the chair. Mr. F. W. M. Bennet read a paper on Thermometers. After giving a lucid description of the manner in which the thermometers were manufactured, Mr. Bennett described the various instruments now in use, viz., Centigrade, Fahrenheit, Reaumur, and Rutherford, explaining the various ways for graduating these different thermometers. The proceedings were brought to a close by the usual vote of thanks.

IRISH NEWS.

DEATH OF PROFESSOR J. F. HODGES, M.D., F.I.C., ETC., ETC.—This highly-respected and venerable Belfast gentleman has passed away, at the advanced age of eighty-four, at his residence, Sandringham, Malone Road. The late Dr. Hodges was one whose great achievements belonged to a past generation. In his youth, intending to pursue a medical career, he became an apprentice to Dr. M'Coubrey, in his native town of Downpatrick, the university of the student in those days, as of the apprentice to-day, evidently being the practical experience of the dispensing counter. In 1838 he took his degree of L.A.H., Dublin, and subsequently studied at Glasgow, where Professor Graham, afterwards Master of the Royal Mint, advised him to devote his talents to chemistry; and Dr. Hodges, whilst he started medical practice, also developed great interest and skill in chemico-agricultural science. In Germany he studied under Baron Liebig. The latter was so impressed with his pupil's indefatigable research ability that as a mark of his high appreciation he generously returned his fees, and thus was established betwixt both a life-lasting friendship. On his return to the north of Ireland Dr. Hodges lectured extensively on the New Agriculture, bringing about, in 1845, the formation of the Chemico-Agricultural Society, to which he became chemist. In 1846 he was appointed Professor of Chemistry in the old Belfast College. He occupied the chair of Agricultural Chemistry in Queen's College, being the author of various works upon the subject. He was also Lecturer in Medical Jurisprudence, holding both positions up to the time of his death. He was thus the last survivor of the original Q.C.B. professors. The Royal College of Chemistry, London, had him as one of its founders, and he was deputed to offer the Chair of Chemistry to Professor Will, then assistant to Baron Liebig; but the honour, being declined, was accepted by Professor Hoffmann. Dr. Hodges was also Government Analyst for many years and Public Analyst for five counties and the City of Belfast, though this short sketch does not by any means exhaust the record of the enterprises and high positions associated with his name, for almost every European country conferred upon him signal honours in recognition of his distinguished talents.

ACCIDENTAL POISONING.—Mr. E. S. Finnigan, H.M. Coroner for Belfast, held an inquest on the 16th inst. on the body of William Robb, who died owing to poisoning by carbonic acid gas issuing from a vat in Messrs. J. and J. M'Connell's brewery. Lewis H. Guinness, manager, deposed that deceased was working at a fermenting vessel. He was on a ladder looking out of an aperture in the vessel, and for the purpose of washing it clear of carbonic acid

gas he was in the tun. Witness did not know any means adopted for ascertaining presence of carbonic acid gas in the vessels. Deceased remarked that the gas was very strong, and shortly after he was taken out of the vessel unconscious but breathing, and removed on the ambulance to the Royal Hospital. Dr. Hunter certified the cause of death, and the jury, in returning a corresponding verdict, considered that there was neglect on the part of Messrs. M'Connell in not taking proper precautions to ascertain the presence of the gas in the vessel.

The Provincial "Pharmacist" is usually of a very composite character, judged by the experience of an authority who has spent a considerable period in an inland town, where he asserts everyone who sells anything considers it also his prerogative to sell poisons. Whether it is a dearth of the properly-qualified article, or merely the usual evasion of the Pharmacy Act, at any rate there seems to be a great deal of potential wealth at the disposal of any enterprising chemist in the host of small towns in Ireland. Some years ago in one of these hundred-score populations, a merchant had a bakery, whisky-shop, grocery, ironmongery store, post office, draper's shop, and medical hall, all under the ægis of one name—latitude sufficient, surely, for the scorner of "pharmacy proper." Prescriptions also were dispensed within the precincts of this conglomerate emporium, which recalls the fact that some time ago a medical man in a thriving townlet mentioned that he was entirely dependent upon a druggist to compound his prescriptions—about a dozen a week—which things suggest reflections!

POISONING CASES.

Camphorated Oil for Castor Oil.—An inquiry was held at Rotherham, on December 2, with respect to the death of a three-month-old child named Willie Bretton, who expired after taking a dose of camphorated oil, given in mistake for castor oil.—The evidence showed that the mother, on applying for a bottle of castor oil, was served with a bottle of camphorated oil, the latter having got into the box where the shopkeeper usually kept the castor oil bottles. In administering the oil to the child, the label on the bottle was, unfortunately, not noticed.—A verdict of "Death by misadventure" was returned.

Poisoning by Strychnine.—On December 13, an inquest was held at Ponder's End with respect to the death of Ernest James Stovell (32), described as a chemist's manager. [The name Ernest James Stovell does not appear on the Register of Chemists and Druggists for 1899. Ed. *P. J.*] From the evidence it appeared that deceased had been separated from his wife for two years. He had not been seen for about a week, and as the shop where he was employed remained closed the police effected an entrance, and found deceased's body lying on the floor, and near at hand a phial containing strychnine. Deceased's employer, said to be a Scarborough chemist, found everything connected with the business correct, but letters from his wife were found in his pockets, asking for money for the children.—A verdict of "Suicide by strychnine poisoning" was returned.

Fatal Dispensing Mistake.—The Manchester City Coroner on December 18 held an inquest on the bodies of John Smith (60) and William Wharton (65), late inmates of the Workhouse Hospital at Crumpsall. The Coroner stated that the deceased men were under medical treatment in the hospital, and the circumstances of their death pointed to strychnine poisoning. As other patients were also seized with illness, the case was one which required investigation. The doctor who was attending the patients, seeing that something was wrong, made inquiries about the medicine, and upon investigation found that there was a certain ingredient in all the bottles of medicine which had been administered. He at once stopped the further use of the medicine which contained that ingredient. Upon going to the dispensary he found that a bottle, which was supposed to contain spirits of nitrous ether, really contained "liquor strychnine," which had been used in mistake. From what one of the dispensers said to the doctor, there was no doubt that the dispenser had made the mistake. The drugs were in stock bottles, which were used to fill the dispensing bottles, and these were kept underneath the desk and shelves where the dispensing bottles were kept. The dispenser, having run out of his ordinary supply of nitrous ether, went to the cupboard for a fresh supply. It was supposed that by an unfortunate mistake he got hold of the strychnine bottle. If that was true the jury would have to consider whether the dispenser was not guilty of gross and criminal neglect. Had it not been for the prompt and intelligent action of the surgeon—who deserved the highest commendation—it was probable that other patients would have been poisoned. The case was one of the highest importance to the dispenser and to the hospital, and he thought it desirable that a special day should be fixed for the inquest.—After formal evidence the inquiry was adjourned until Wednesday, December 20.

FOOD AND DRUGS ACT PROSECUTIONS.

Boric Acid as a Preservative.—The case against Messrs. Hudson Brothers, Limited, for selling clotted cream preserved with boric acid (see *ante*, 484), was to have been resumed at Westminster Police Court, on Thursday, December 14, but at the request of the counsel for the defence, it was adjourned *sine die*.

Spirit of Nitre.—An important point was raised in a case at the County Police Court, Huddersfield, against Dennison Priestley, grocer, Golcar, who was charged, by Inspector Newbould, with having sold by the hands of his wife, sweet spirit of nitre, which was not of the nature substance, and quality demanded.—It was contended for the defence that the wrong person had been summoned, inasmuch as the sale was made by defendant's wife, who ought to have been summoned as the servant or agent, or it must be shown that defendant had a guilty knowledge of the transaction.—The Inspector asked that the case might be adjourned, as the point was so important that he ought to have legal assistance.—The Chairman said the Bench was inclined to dismiss the summons in face of the point raised by the defence. After some conversation, however, it was arranged that the case should be adjourned for a month, the Inspector paying a guinea-and-a-half expenses.

Milk of Sulphur.—Samuel Dean, manager of the Co-operative Society's Stores, Cononley, was fined 20s. and costs, at Skipton, on Saturday, December 9, for selling milk of sulphur which did not conform with the requirements of the British Pharmacopœia.

Olive Oil.—On Monday, December 11, before the Malling (Kent) Bench, Charles Coulter was charged with selling cotton-seed oil as olive oil.—The defence was that the purchaser was asked if he meant flask oil, and he replied that it would do.—Ordered to pay the costs.——On Saturday, December 9, at Dartford Police-court, the International Tea Company, in reply to a charge of selling cotton-seed oil when olive oil was asked for, stated, through its solicitor, that the oil was sold under a guarantee of purity given by a wholesale firm in London.—The Bench, in dismissing the case, expressed the hope that some action would be taken against the firm who supplied cotton-seed oil for olive oil under a guarantee of purity.

Copper in Peas.—David Rice, provision dealer, Acton, was fined £8 and costs at Brentford Police-court on Thursday, December 14, for selling bottled green peas containing 2·0 grains of copper sulphate per lb.—Defendant pleaded that he sold the peas as received.—The Chairman advised him to get the amount of the fine back from the wholesale people.

CAMPHORATED OIL.—Mr. C. J. G. Bunker, chemist and druggist, Stuart Road, Peckham, was summoned for selling camphorated oil containing only 12·9 per cent. of camphor instead of 21 per cent., as required by the B.P., 1898.—Mr. G. W. Marsden, solicitor to the Camberwell Vestry, appeared in support of the summons, and the defendant was represented by Mr. Beck.—Inspector Groom stated that a sample of the oil was submitted to Dr. Frank Teed, the public analyst, who certified that it contained 12·9 per cent. of camphor, being a deficiency of 48 per cent. of camphor to the prescribed quantity of olive oil.—In answer to Mr. Hopkins, Dr. Teed said he understood that camphorated oil was used in cases of rheumatism as a liniment. The camphor was the effective part.—Mr. Hopkins: Then it was 48 per cent. short of its effective part!—Dr. Teed: That is so.—Mr. Beck, as a matter of fact, thought the figures worked out at 40, and not 48.—In addressing the Court for the defence, Mr. Beck pointed out that camphor was an exceedingly volatile substance, and that the Pharmacopœia did not give any test by which camphorated oil could be tested after manufacture. He added that camphorated oil was used for external application only, and said one knew that the real value of it was in the friction that was used in applying it rather than in anything else.—Mr. William Thomas, chemist and druggist, the manager of the shop, gave evidence to the effect that he made the oil in the proportions laid down by the Pharmacopœia.—Mr. Hopkins ordered the defendant to pay a fine of 40s. and 27s. 6d. costs.——Mr. Frank H. Davies, chemist and druggist, Hindman's Road, East Dulwich, appeared to answer a similar summons, the alleged deficiency of camphor being 40 per cent.—The defendant said camphor was very volatile. He was prepared to say that the camphor was put in in the proper strength.—Mr. Hopkins ordered the defendant to pay a penalty of 40s. and 27s. 6d. costs.——At the Leicester County Police-court on Wednesday, December 20, Cecil A. Buzzard, manager of the Anstey Co-operative Society; William Lacey, grocer; George Morgan Grocer, grocer; and George Roe, general dealer, all of Anstey, were severally summoned for selling camphorated oil not compounded according to the B.P., 1898.—The defence was that the oil was purchased from wholesale chemists, and was accordingly looked upon as reliable.—Mr. H. Simpson appeared for Buzzard, and said his client had nothing whatever to do with the purchase of the oil.—The Bench reminded all the defendants that they should have obtained a guarantee as to the reliability of the oil before purchasing it.—Morgan, who did not appear, was fined 30s., inclusive of costs, and the other defendants 25s. each.

EXTRACTS FROM CONSULAR REPORTS.

ADULTERATION AND SUBSTITUTION is said to be still practised to an alarming extent in San Francisco, although much good has been accomplished by the Health Department in its efforts to suppress the sale of impure articles of food. The official chemist reports that last year he analysed 562 samples, principally prepared foods such as enter largely into the ordinary diet of the people, the result showing, as intimated above, that there is still room for improvement.

THE QUANTITY OF KOLA NUTS imported into Gambia last year was 33 per cent. less than in 1897, but owing to the rise in the price caused by the disturbances in Sierra Leone, where all the nuts were exported from, the value was the same—nearly £22,000. These kola nuts are consumed entirely by the natives, especially the Mahomedans, and, according to Administrator Sir R. B. Llewelyn, they are offered to a friend when visiting, in the same way that a European tenders a cigar or refreshment.

NEW IDEAS AND TRADE NOTES.

BETA-EUCAINE *v.* COCAINE.—It is claimed that beta-eucaine is far preferable to cocaine because, whilst identical with cocaine in anæsthetic action, it has only one-fourth of the toxicity of cocaine, and no unpleasant by-effects, is more constant in action, does not decompose on boiling, and its solutions can thus be rendered permanently sterile and kept for indefinite periods. It is also less than half the price of cocaine. As regards solubility, it is stated that, at ordinary temperatures, 100 Gm. of water will dissolve 10 Gm. of alpha-eucaine or 4·5 Gm. of beta-eucaine. If the water be boiling it will dissolve up to 15 Gm. of alpha-eucaine, or 8 Gm. beta-eucaine, and on cooling the excess re-crystallises very slowly. 100 Gm. of olive oil will dissolve 0·2 Gm. of alpha-eucaine or 0·1 Gm. of beta-eucaine. 100 Gm. of glycerin will dissolve 8 Gm. of alpha-eucaine or 3 Gm. of beta-eucaine. Warm glycerin will dissolve more, the excess re-crystallising very slowly. Ether dissolves less than 0·1 per cent. of alpha-eucaine, and beta-eucaine is insoluble. 100 Gm. of alcohol will dissolve 90 Gm. of alpha-eucaine or 3·5 Gm. of beta-eucaine. The foregoing particulars regarding the solubility of the two compounds, and of tests for the same, are printed in a circular published by Messrs. A. and M. Zimmermann, St. Mary-at-Hill, E.C., who also supply pamphlets treating of the use of eucaine in dentistry and minor surgery generally.

A GOOD WRITING INK.—Messrs. Bewley and Draper, Limited, 23, Mary Street, Dublin, submit a sample of their dichroic ink. After giving the ink a fair trial we have no hesitation in saying that Draper's Dichroic Ink is all that a good writing fluid should be. It is a first-class jet-black; excellent for rapid writing, running freely from the pen; is cleanly to use, as it does not thicken or deposit; and it dries rapidly. Moreover, it resists the action of water and dilute acids; does not corrode steel pens, and is quite free from greasiness.

BYNO-GLYCERO-PHOSPHATES.—Messrs. Allen and Hanburys, Limited, Plough Court, Lombard Street, London, E.C., direct attention to their preparation of Byno-Glycero-Phosphates, a solution of the glycero-phosphates in Bynin Liquid Malt, one fluid ounce containing two grains each of the glycero-phosphates of iron, potash, magnesia and soda, and four grains of the glycero-phosphate of lime. The glycero-phosphates being more assimilable than phosphates, the combination with Bynin Liquid Malt should be an excellent one for those recovering from wasting diseases seeing that malt extract aids the digestion of farinaceous foods

'SMITH'S CASH PRICE LIST,' printed and published by Mr. John H. Smith, pharmaceutical chemist, Bridge Street, Newark, demonstrates very forcibly the miscellanous character of a present-day chemist's business. The contents of the list include "patent" and homœopathic medicines, proprietary articles, photographic goods, drugs and chemicals, surgical appliances, perfumery, wines and spirits, etc. The list has been printed at Mr. Smith's own works, and is a creditable specimen of printing.

BLAUD PILLS IN TINS.—Mr. Stephen Wand, chemist, 18, Haymarket, Leicester, has recently introduced a good selling line of Blaud pills, put up in tin canisters, neatly enamelled blue and white, each containing one gross. The price is 2s. 6d. per dozen tins, or 28s. per gross, carriage paid. The Blaud pills are pearl-coated, perfectly soluble, and of excellent quality. Mr. Wand has also recently issued a new price-list of his pills, which is arranged alphabetically, thus making it easy to refer to any of the numerous formulæ included in the list.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

Thursday, December 21, 1899.

As might have been expected, the volume of actual business which has been passing in Drugs and Chemicals since our last report was issued has not been very large. There remains at the same time, however, a decidedly firm undertone, and it is not merely hoped, but, in fact, confidently anticipated, that with the turn of the year we shall see a distinct renewal of business activity in the articles usually referred to in these columns. Prices generally remain firm and unchanged. Ipecacuanha is, however, a trifle weaker; same may also perhaps be said of Tinnevelly Senna, except for really first-class leaf. Quicksilver very firm, as also are Mercurials, a further advance being considered not improbable. Salicylates have at last been advanced in price, as also has German Sulphate of Quinine. Menthol is also dearer. Acid Carbolic very firm, with a continued upward tendency. No alteration was made in Bank Rate to-day, which therefore remains at 6 per cent. The following are prices actually ruling for some articles of principal interest:—

ACETANILIDE—Continues dull and weak at 9½d. to 11d. per lb., according to quantity. There is a rumour, however, that we may possibly hear of an improvement in this article before very long.

ACID BORACIC.—Crystals are still quoted 25s. per cwt., and powder 27s.

ACID CARBOLIC—Firm, at about the same prices as last week—namely, 10d. for 35° to 36° C ice crystal in large bulk; 11d. for 39° to 40° C; 1s. for 39° to 40° C detached crystals, B.P. quality; crude, 60° F, 2s. 9d. per gallon; 75° F, 3s. 6d. per gallon; liquid, 95 to 98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon, in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC—Dull and weak at 1s. 2¾d. to 1s. 3½d. per lb. for crystals in 5 cwt. casks.

ACID OXALIC—Is quoted 3d. to 3⅛d. per lb. nett, free London, for spot delivery.

ACID TARTARIC—Is easier, English being quoted 1s. 0½d. to 1s. 0¾d. per lb. on the spot; foreign, 11¾d. per lb.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb.; carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate: Chemically pure, small crystals, 33s. to 36s. per cwt.; ditto, commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate, quiet. Grey, 24 per cent., London, prompt, £11 3s. 9d.; January-March, £11 2s. 6d.; Hull, prompt, £11 2s. 6d. to £11 3s. 9d.; Leith, prompt, £11 2s. 6d. Beckton, terms prompt, £11. Sulpho-cyanide, 1s. 2d. to 1s. 3d. per lb

ANTIMONY.—Regulus is still quoted £39 to £40 per ton, and Japan crude (black sulphide), £23 10s. to £24 per ton.

ASAFETIDA.—There is a good inquiry for fair quality with sales at 65s. per cwt. The "Sharistan," from the Persian Gulf, is in with about 200 cases.

BORAX—Unchanged at 16s. per cwt. for crystals, and 16s. 9d. per cwt. for powder.

BROMIDES—Are very firm at prices hitherto ruling.

CAMPHOR.—Market for crude continues inactive, without sales, but there is some inquiry for spot and near positions. English refiners still quote Bells and Flowers, in ton lots, 2s. per lb., and are very firm thereat.

CINCHONA BARK.—At these, the last auctions of the year, moderate supplies were catalogued, amounting to 2,793 packages of all descriptions, against 4,063 packages at the preceding sale. East India shipments again represented more than one-half of the offerings. A good demand prevailed, and nearly the whole found buyers, at and after the sale, at fully 6 per cent. advance on the last Dutch sales, the average unit being 1½d. against 1 5/16d. to 1⅜d. at the last London auctions, and fully 1⅜d. at the sales in Holland. For Succirubra bark a much higher unit in many instances was obtained. Ceylon: 118 packages offered and 73 sold, according to analysis; Succirubra, natural stem chips and shavings, at 3d. to 4¼d. East Indian: 32 cases, 1,407 bales, and 244 bags catalogued, and about 1,400 packages sold, red, natural stem chips and shavings, ordinary to good at 2d. to 4½d., renewed ditto at 3½d. to 4½d., root, ordinary to good, at 2½d. to 7⅜d.; Officinalis, stem chips and shavings, good rich at 5⅜d. to 6d.; ordinary to fair, at 3½d. to 4⅞d.; inferior dark, at 2¼d. to 3⅜d.; renewed ditto, fair to good rich, at 4⅝d. to 8d.; Ledger, natural stem chips, ordinary to good, 2d. to 8d.; renewed ditto, 6d. to 7½d.; root, at 5½d. Java: 406 packages offered, and about 300 packages sold; Ledger, natural stem chips, ordinary to good rich, at 3¾d. to 10½d.; root, 5⅛d. to 5½d. South American: 406 bales Bolivian cultivated Calisaya quills offered and sold, fair to good at 7d. to 10¼d. 131 bales Cuprea offered and sold at 2d. to 3⅜d. 28 bales soft Columbian sold at 1⅜d. to 1½d. The next auctions will be held on Jan. 16, 1900.

CLOVES.—In auction, 11 cases Penang were bought in, bold dark, picked, at 6d. No Zanzibar were offered. Privately Zanzibar have been in more demand, the sales being at easier prices, comprising January-March delivery at 3¼d., and March-May at 3 5/16d. to 3 11-32d.; closing buyers at 3 5/16.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 4d.; pure, 2s. 4d. Benzole 50°, 10½d. per gallon; 90° 8½d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 5½d. per gallon. Solvent Naptha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene A., 4½d. per unit; B., 2¾d. per unit. Pitch, 35s., per ton, f.o.b. Tar refined and crude 12s. 6d per barrel; 2d. per gallon.

COCAINE.—Makers maintain their price of 20s. 6d. for the Hydrochlorate in 25 oz. tins for 200 oz. lots. A fair amount of business has been done, however, this week from second-hand at 19s. to 19s. 6d. per oz., according to quantity and brand, for the hydrochlorate in 25 oz. tins. The future of this article remains somewhat of a puzzle.

CODEINE—Remains very firm at 12s. 11d. to 13s. 6d. per oz. for the pure and 1s. per oz. less for the salts.

COD-LIVER OIL.—Although there is not very much business passing in this article at the moment, quotations are very firm at 80s. to 85s. per barrel, according to brand, etc., for best non-congealing Norwegian oil, in tin-lined barrels of 25 gallons each.

CREAM OF TARTAR—Slightly lower at 73s. for first white crystals on the spot, 75s. per cwt. for powder, and 76s. for 95 per cent. ditto.

CUTCH.—Business continues on a small scale at previous rates.

GALLS.—All descriptions continue to be firmly held, and supplies are small. China for arrival is quoted in one quarter 65s. c. f. and i. for ordinary. In Persian no sales of importance have occurred; holders are asking higher rates.

GAMBIER.—The market remains quiet, and no business for arrival is reported, but prices are firm; distant positions quoted 14s. 9d. Sales have been made for January-March shipment, Liverpool, at 15s.

GINGER.—At auction there was only a small supply, consisting of 105 bags of Cochin, which were bought in, dullish plump medium and small slightly wormy and mouldy.

GLYCERIN.—While refined is unchanged for spot delivery at about the prices named last week, the agents for some of the makers are offering to book orders for next year's delivery at comparatively lower rates. This would look as if the future of the article were tending in a downward direction, and intending buyers would do well to act cautiously.

GUINEA GRAINS—Are scarce, and value has advanced to 100s. per cwt.

GUM ARABIC.—The inquiry for London sorts is good, and a fair business has resulted at 80s. per cwt. for good soft. Stock is very moderate.

IODIDES—Are fairly steady at unchanged prices.

IPECACUANHA.—Only a small business doing, as general opinion appears to anticipate lower prices.—Rio, 11s. 9d. per lb.: Carthagena, 8s. per lb.

LICORICE ROOTS.—Good thin clean Persian is selling at 14s. cwt.

MENTHOL.—10s. 6d. per lb. is now asked for good dry, white crystals, on the spot, for case lots (12 × 5 lb. tins in a case).

MERCURIALS—Are firm at unchanged price—viz., 3s. 2d. per lb. for calomel and 2s. 10d. per lb. for corrosive sublimate.

MORPHINE.—While makers' price remains nominally unchanged, at 5s. per oz. for the hydrochlorate powder and 2d. per oz. more for the crystal salt, the tone of the article is certainly somewhat harder, and would appear to point to a tendency to higher prices.

OILS (ESSENTIAL).—Star Aniseed very quiet at 6s. 3d. per lb. Cassia, 3s. 9d. to 4s. 6d. per lb., according to analysis. Citronella slow of sale at 11d. to 1s. per lb., as to package. Lemongrass steady at 3¼d. per oz. Peppermint: H.G.H. unchanged at 5s. 3d. to 5s. 6d. per lb.

OILS (FIXED) AND SPIRITS.—Linseed flat: on the spot, pipes, London, quoted £21 7s. 6d. to £21 10s.; barrels, £21 10s.; January-April, £21 7s. 6d.; May-August, £20 7s. 6d.; Hull, spot, naked, £20 12s. 6d.; January-April, £20 10s. Rape quiet: ordinary brown on spot, £23 5s.; refined, spot, £24 10s.; Ravison, naked, spot, £21; January-April, £21. Cotton firm: London, crude, spot, £18 2s. 6d.; refined, spot, £19 15s. to £20 5s., according to make; Hull, naked, refined, spot, £18; crude, spot, £17. Olive: Mogador, £34 5s.; Spanish, £35 10s.; Levant, £34 5s. Cocoanut steady: Ceylon, on spot, £25 5s. to £25 10s.; Cochin, spot, £29 to £29 10s.; afloat, £26 15s., c.i.f. Palm: Lagos, on the spot, quoted £26. Castor quiet: Belgian, first pressing, spot, £27; January-June, £25 10s., f.o.b. Antwerp; second pressing, spot, £26 per ton, ex wharf; Hull manufactured, guaranteed cold-drawn, pure, pharmaceutical, £29 per ton in barrels; 3½d. per lb. in cases; pure firsts, £26 10s.; seconds, £25 10s. per ton in barrels; firsts, 3⅛d. per lb. in cases; seconds, 3d., ex wharf, London. Lubricating oil: Pale American, spot, 7s. 6d. to 11s.; black, 7s. to 9s.; Russian, black, 5s. 6d. to 6s.; pale, 8s. to 9s. 6d. Petroleum oil dull: Russian, spot, quoted 6¼d. to 6½d.; American, spot, 7⅜d. to 7½d.; water white, 8⅝d. to 8¾d. Petroleum spirit: American, 9¾d.; deodorised, 10d. Turpentine opened easier, but closed steady: American, spot, after 37s. accepted, closed 37s. 1½d. to 37s. 3d.

OPIUM.—The market has been quieter and business restricted, owing to the high prices required by sellers. Dearer rates have been paid for manufacturing kinds, with small sales, "Soft Shipping" also being dealt in at full rates. Persian is without change, and business limited.

PHENACETIN.—Makers have agreed that lowest price for 5-cwt. lots shall be 3s. 6d. per lb., for both crystals and powder, smaller quantity being quoted at a higher figure in proportion.

PILOCARPINE.—The same London agent of one of the makers who has been hawking round Veratria at a figure below makers' lately advanced price has also been offering Pilocarpine at 31s. per oz., while the makers lately advanced their price to 41s. 9d. for 8 oz. lots. This does not look much like straightforward dealing!

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt.; bichromate, 5d. per lb.; bromide, 1s. 10½d. per lb.; chlorate, spot, London crystals, 3¾d.; powder, 3⅞d. per lb. Iodide, 10s. 6d. per lb. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 7¾d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER—Is very firm at £9 12s. 6d. per bottle from the importer; second-hand still not offering.

QUININE.—The agents here for the favourite B & S brand again advanced their price ½d. per oz., to 1s. 3½d. per oz. for the sulphate, in 100-oz. tins, for 1,000-oz. lots, while there have also been buyers in the speculative market at about this figure. Since then the market has, however, easied away a bit, and there are now sellers from second-hand at 1s. 2⅞d. per oz. Appearances would appear to point to the probability of a further advance in value of this article.

ROSIN—Is firmer at 5s. per cwt. for strained on the spot, and 4s. 8d. per cwt., ex ship, for January-March shipment per sailing vessel.

SALICYLATES.—It is stated that Acid Salicylic has been advanced 2d. per lb., and Soda Salicylate 5d. per lb; definite reliable details are, however, not yet to hand.

SENNA.—The special sale of 785 bales Tinnevelly took place today. Quality was very inferior, and showed evident signs of country damage. Only 11 bales of really good were offered, which sold at full to even higher prices at 4½d. to 5½d. per lb. The bulk sold with considerable trouble at a drop of about ½d. per lb., the last lots being forced off at perhaps even a greater reduction.

SHELLAC.—Business privately continues on a small scale at previous rates. TN Orange on the spot quoted 62s. 6d. for fair; March delivery 64s.; and January-March shipment at 61s. c.f. and i. At auction to-day the small supply of 150 cases Second Orange was offered, but bids being generally below valuations and sellers being firm, all was withdrawn at 66s. to 67s. for good to fine, with SG in diamond at 76s. 61 cases blocky Button offered and bought in at 55s. to 70s., according to quality.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 4¼d. per lb.; bicarbonate, landed, £7 5s.; bromide, 2s. 1½d. Caustic, 70 per cent. white, £10; 60 per cent., £1 less. Hyposulphate (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate, quiet on the spot; refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper. At auction nothing was offered. White Pepper also was not represented in auction. Capsicums, 197 pkgs. Bombay, were offered at auction, and 72 bales sold at rather cheaper rates, red cherries, little mixed, at 33s. Cinnamon, slow of sale at auction. 91 bales Wild were bought in. Nutmegs quiet. In auction out of 5 cases Penang offered, 3 cases sold, 101's defective, 5¼d. West Indian, 11 barrels offered and sold, 83's at 1s. 3d.; 109's at 10½d.; 128's at 9d. Mace, neglected; in auction, 5 cases Penang were bought in; fair red but broken, at 1s. 5d. Of 69 cases Bombay Wild, 4 cases sold, good pale part broken, 5d. Pimento continues dull of sale, and of 247 bags offered, only 22 bags sold, fair at 3¼d.; remainder bought in at 3⅜d.

SULPHATE OF COPPER—Steady at £24 5s. to £25 10s. per ton, according to quantity and make.

SULPHONAL.—Bayer's and Riedel's price remains at 17s. per lb. for crystals and powder; outside makes are, however, offering at 14s. to 15s. per lb., according to quantity.

TRAGACANTH.—The market has been practically cleared of medium qualities, and any new arrivals will meet with a good demand.

TURMERIC.—Business has been on a small scale, but prices remain firm. Bengal quoted 30s.; Madras, fair to good, finger at 35s. to 36s. 6d.; and Cochin split bulbs at 12s.

VERATRIA.—While the makers last week advanced their price to 4s. 8d. per oz. for the pure, the agent here for one of the aforesaid makers has been hawking the article round (?) for his own account at 3s. 6d. to 3s. 7½d. per oz. This looks very much like what is called "ratting," and it remains to be seen what the other makers have to say on the subject.

Manchester Chemical Report.

DECEMBER 20, 1899.

Although the close of the year is usually marked by diminished orders and general quietude, this cannot be said to be the case in this centre. The paper making, as well as the textile industries continue to absorb increasing quantities of heavy chemicals, and it is not unlikely that there may be another advance in prices all round. Caustic Soda and Bleaching Powder are scarce for prompt delivery. Pitch continues to be shipped in fair quantities from the ship canal here, and is firm at 30s. 6d. to 31s. per ton, f.o.s. Foreign White Acetate of Lead has advanced 20s. per ton, and Bichromate of Potash is quoted 4½d., and Soda, 3¾d. Brown Acetate of Lime is very scarce at £6 5s. to £6 10s. per ton, and there is little offering for next year's delivery. Salt Cake is rather quiet. Yellow Prussiate of Potash scarce at 8¼d. to 8½d. per lb English make.

Newcastle-on-Tyne Chemical Report.

DECEMBER 20, 1899.

This market still keeps busy, but more with working off old orders. The demand for Caustic Soda is fully maintained, followed closely by Soda Ash and Bleaching Powder. Inquiries on a large scale for Soda Crystals are in circulation for next year. Quotations are:—Caustic Soda, 70 per cent. to £9 10s. Bleaching Powder, £6 5s. to £6 15s. Soda Ash, 52 per cent. £5 5s. Alkali, 52 per cent. £6 10s. Soda Crystals, 57s. 6d. to 60s. Sulphur, £5 per ton.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Frank R. Dudderidge, Ph. C., Principal of the North of England School of Chemistry and Pharmacy, Newcastle-upon-Tyne, was elected a Fellow of the Chemical Society, on December 7.

Mr. J. E. Lockyer, wholesale photographic chemist, 87, Evelyn Street, Deptford, S.E., has published a handy blotting book, with a calendar for 1900, postal information, etc., printed inside the covers.

Mr. H. D. Kelf, Ph.C., has been appointed dispenser at the St. Saviour's Union Infirmary, East Dulwich, S.E.

Miss Mary Ariel Stewart, whose success in obtaining the degree of Bachelor of Medicine was recently recorded in this column, has just taken her degree of Bachelor of Surgery at the University of London.

Messrs. Typke and King, 7, Jeffreys Square, St. Mary Axe, London, E.C., ask us to notify that on account of the rebuilding of Jeffreys Square, St. Mary Axe, they are removing on January 1 to 47, Wilson Street, Finsbury Square, E.C., and have made this an opportunity for considerably improving their accommodation. They have much larger offices, and a good warehouse, where it is intended to hold stock of all their leading specialties so as to guarantee prompt delivery of all orders. The new telephone number will be "489 London Wall."

Mr. Horace Davenport, Chairman of the Chemists' Aerated and Mineral Waters Association, at the annual meeting held at Anderton's Hotel, Fleet Street, E.C., on Tuesday, December 19, was presented by the Secretary, Mr. H. T. Butler, on behalf of the staff and employees, with an illuminated address and a silver service, in commemoration of his having obtained his majority as Chairman of the Association.

Mr. A. C. Seward, M.A., F.R.S., Fellow of St. John's College, University Lecturer in Botany, and an examiner of the Pharmaceutical Society, has been elected a senior Fellow and tutor in natural science at Emmanuel College, Cambridge.

Publications Received.

Sionnimia Vulgar y Cientifica de los Principales Vertebrados Mexicanos. By Professor A. L. Herrera, Jun. P. 31. Mexico: Oficina Tipografica de la Secretaria de Fornento. 1899. From the Author.

Indigestion Clearly Explained, Treated and Dieted, with Special Remarks on Corpulancy and Gout. By Thomas Dutton, M.D. Univ. Durh. Fifth edition, enlarged and revised. Pp. xii. + 212, price 3s. London: Henry Kimpton, 82, High Holborn, W.C., 1899. From the Publishers.

The Chemists' and Druggists' Diary, 1900. Pp. 646. London: The *Chemist and Druggist*, 42, Cannon Street, E.C. From the Publishers.

Formulaire des Medicaments Nouveaux pour 1900. Par H. Bocquillon-Limousin. Introduction par le Dr. Huchard. Pp. viii. + 324. Price 3 fr. Paris: J. B. Baillière et fils, 19, Rue Hautefeuille. From the Publishers.

The Photo-Miniature: A Monthly Magazine of Photographic Information. October, 1899. Platinotype Processes. Vol. i., No. 7, price 6d. net. London: Dawbarn and Ward, Limited, 6, Farringdon Avenue, E.C. From the Publishers.

Opinions of over 100 Physicians on the Use of Opium in China. Compiled by William Hector Park, M.D. Pp. xiv.+98. Price 30 cents. Shanghai: American Presbyterian Mission Press, 1899. London: Society for the Suppression of the Opium Trade, Finsbury House, Blomfield Street, E.C. From the Society.

Atlas de Photomicrographie des Plantes Medicinales. Par Dr. L. Bræmer and Dr. A. Suis. Pp. 76 (Illustrated). Price 15 fr. Paris: Vigot Frères, 23, Place de l'École-de-Médecine, 1899. From the Publishers.

Receiving Orders in Bankruptcy.

(From the London Gazette.)

John Hornsey, described as a Chemist, Bourne, Lincolnshire.

Harrington Wyndham Darrell, Doctor of Medicine, All Saints' Green, Norwich, lately residing at 35, Surrey Street, Norwich.

Partnership Dissolved.

(From the London Gazette.)

Edgar Henry Swann and Frank Wakeman, Photographers, Stafford Road, Handsworth. Debts will be received and paid by Frank Wakeman, who will continue to carry on the business

Marriage.

Dey—Paterson.—At 5, St. Bernard's Row, Edinburgh, on December 14, by the Rev. Andrew Keay, Alexander John Dey, chemist and druggist, to Isabella Scott, second daughter of Andrew Paterson, cabinet maker, Edinburgh.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Twenty £1 Camwal Shares. What offers?—Apply W., The Pharmacy, Richmond, Yorks.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. —Edward Peck, East Dereham.

Good Second-hand, Hand Painted Lantern Slides, to clear, 4½d. each, including Scripture, Temperance, Mottoes, Effects, &c. Not rubbish. Thorough good quality. Lists free.—T. T. Wing, Slide Maker, Chatteris.

Hot Water Bottles, best quality, thick rubber, under contract before advance, plush covers, detachable, included. 2 dozen assorted sizes; 10 by 6, 4/-; 12 by 6, 4/6; 12 by 8, 5/6; 14 by 10, 7/-; 16 by 12, 9/6.—Warnes, 333, Gray's Inn Road, W.C.

Chest Protectors. Bought largely, offer 4 dozen to realise; best quality wool felt, scarlet, natural undyed, and Pine (brown), silk bound, lockstitched, Maw's sizes, all double. No. 2, 16/-; 3, 21/-; 4, 26/-; 5, 34/-.—Warnes, 333, Gray's Inn Road, W.C.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash. —P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Calendar for the Week.

Sunday, Dec. 24. 4th in Advent. Sun rises 8.7; sets 3.53

Monday, Dec 25. Christmas Day. Sun rises 8.7; sets 3.53

Tuesday, Dec. 26. ☾ 3.57M. Sun rises 8.7; sets 3.54

Wednesday, Dec. 27. Sun rises 8.8; sets 3.54.

Thursday, Dec. 28. Sun rises 8.8; sets 3.55.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—First of a series of Lectures on "Fluids in Motion and at Rest," by Charles V. Boys.

Friday, Dec. 29. Sun rises 8.8; sets 3.56.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—"Reproduction in Plants." by M. Meldrum.

Saturday, Dec. 30. Sun rises 8.8; sets 3.57,

ROYAL INSTITUTION, Albemarle Street, Piccadilly, at 3 p.m.—Second of Mr. Boys' Lectures on "Fluids in Motion and at Rest."

Pharmaceutical Journal

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Notices to Correspondents.

ALL COMMUNICATIONS FOR THE 'PHARMACEUTICAL JOURNAL' must be addressed to the Editor, 17, Bloomsbury Square, Londou, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for. Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C. Advertisements and Orders for copies of the Journal must be addressed to the Publishers 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inu, Londo n

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published iu the Journal is strictly reserved.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Alcock' Bennett Bewley, Carter, Cownley, Druce, Emary, Fielding, Gamble, Gardner, Gilderdale, Glyn-Jones, Goodwin, Greenwood, Griffiths, Hardy, Hewlett, Hill, Irving, Maben, Wilson, Wyatt.

MARKET REPORT.

The quotations here given are in all cases the lowest cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

London Report.

THURSDAY, DECEMBER 28, 1899.

Business in Drugs and Chemicals has been exceedingly quiet since Christmas, and we shall hardly now see any real revival in trade until after stocktaking. No doubt the weather, combined with the alarming prevalence of influenza, has had something to do with the prevailing dulness; the fact remains, however, that as regards actual business much remains to be desired. Quinine has remained steady, Opium is dearer, Cod Liver Oil very firm, as also is Acid Carbolic; otherwise, prices remain firm, but practically unchanged. We take this opportunity of wishing our readers a Happy and Prosperous New Year. The following are a few of the prices actually ruling for some articles of principal interest.

ACETANILIDE—Remains quiet and weak at 9½d. to 1s. per lb., according to quantity.

ACID BORACIC—Without change, at 25s. per cwt. for crystals and 27s. per cwt. for powder.

ACID CARBOLIC—Very firm, the prices being 10d. for 35° to 36° C. ice crystal in large bulk; 11d. for 39° to 40° C.; 1s. for 39° to 40° C. detached crystals, B.P. quality. Crude, 60° F., 2s. 9d. per gallon; 75° F., 3s. 6d. per gallon; liquid, of pale straw colour, 1s. 6d. to 1s. 8d. per gallon, in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC—Quiet, at nominally 1s. 2½d. per lb. for crystals, in 5-cwt casks.

ACID OXALIC—Is quoted nominally 3d. to 3¼d. per lb. on the spot nett, free delivered London.

ACID TARTARIC.—English is quoted 1s. 0½d. per lb. on the spot; foreign, 11¾d. per lb.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate: Chemically pure, small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate flat; gray, 24 per cent., London, prompt, £11 to £11 2s. 6d.; Hull, prompt, £11 to £11 2s. 6d.; Jan.-March, £11 7s. 6d.; Leith, prompt, £11 to £11 1s. 3d.; Beckton, terms, prompt, £11; sulpho-cyanide, 1s. 2d. to 1s. 3d. per lb.

BELLODONNA ROOT.—Good or even fairly good quality remains very scarce, and high prices up to 46s. per cwt. are asked for only medium quality.

BICHROMATE OF POTASH.—Cause of late advance to 5d. per lb. for this article is stated to be that the Syndicate, which has, it is understood, been selling at a loss, has got tired of the game, and now refuses to sell even at the figure named above. It is further stated that after the first three months of next year the combination of the English makers comes to an end; whether there will be a fresh arrangement, or what the future of the article will be, appears to be a puzzle even to those best informed.

BLEACHING POWDER (CHLORIDE OF LIME).—English make is now quoted £6 10s. to £6 15s. per ton.

BORAX—Unchanged, at 16s. per cwt. for crystals and 16s. 6d. per cwt. for powder.

BROMINE AND BROMIDES—Very firm at prices hitherto ruling.

CAMPHOR—Quiet but steady, both for crude and for refined. The Hamburg refiners, after reducing their price, in the hope, it is said, of picking up cheap crude (as also possibly cheap second-hand lots of refined from weak or frightened holders), have stiffened up again as to price, they now quoting prices for Bells and Flowers which are more in accordance with those of their English confrères.

CLOVES, GINGER, AND OTHER SPICES.—Markets for these have been closed since Christmas.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 3½d. per gallon; pure, 2s. 4d. Benzole, 50 per cent., 10½d. per gallon; 90 per cent., 8d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 5½d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene A, 4½d. per unit; B, 2¾d. per unit. Pitch, 36s. per ton f.o.b. Tar, refined and crude, 12s. 6d. per barrel; 2d. per gallon.

COCAINE—Quiet at nominally unchanged price from the makers—viz., 20s. 6d. per oz. for the Hydrochlorate in 200 oz. lots in 25 oz. tins, second-hand offering at about 1s. per oz. less money.

CODEINE—Remains very firm, at 12s. 11d. to 13s. 6d. per oz., according to quantity, for the pure alkaloid, and 1s. per oz. less for the Muriate, Phosphate, and Sulphate Salts.

COD LIVER OIL—Remains very firm at 77s. 6d. to 82s. 6d. per barrel, according to brand, for best non-freezing Norwegian oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—First white crystals are quoted 73s. per cwt. on the spot; powder, 75s.; ditto 95 per cent., 76s. per cwt.

GLYCERIN—Is nominally unchanged, both for crude and for refined, there having been practically nothing doing in either during past few days.

IODINE AND IODIDES—Are steady, without change in prices.

MENTHOL.—This week there have been offers of Kobayashi brand in case lots at 10s. per lb. The arrival price comes, however, decidedly higher than this figure, and it would appear probable that we shall see a further advance in value of the article ere long.

MERCURIALS—Are firm at unchanged prices.

MORPHINE—Quiet, at nominally unchanged prices, say, 5s. per oz. for the hydrochlorate powder and 2d. per oz. more for the crystal salt. Should the advance in opium continue we shall certainly see higher prices for morphine and its salts.

OILS (FIXED) AND SPIRITS.—Linseed firm and dearer; on the spot, pipes, London quoted £21 7s. 6d. to £21 10s.; barrels, £21 12s. 6d.; Jan.-April, £21 15s.; May-Aug., £20 12s. 6d.; Hull, spot, naked, £20 10s.; Jan.-April, £21 15s. Rape steady; ordinary brown, on the spot, £23 5s.; refined, spot, £24 10s.; Ravison, naked, spot, £21. Cotton steady; London crude, spot, £18; refined, spot, £19s. 5s. to £20, according to make; Hull, naked, refined, spot, £18; crude, spot, £16 17s. 6d. Olive Mogador, £34 5s.; Spanish, £35 10s.; Levant, £34 5s. Cocoanut, Ceylon, on spot, £25 5s. to £25 10s.; Cochin, spot, £29; Jan.-March, £26, c.i.f. Palm: Lagos, on the spot, quoted, £26. Petroleum Oil dull; Russian, spot, quoted, 6¼d. to 6½d.; American, spot, 7⅜d. to 7½d.; water white, 8⅝d. to 8¾d. Turpentine firm; American, spot, 37s. 3d.; Jan.-April, 37s. 6d.

OPIUM.—The market in Smyrna has advanced about 6d. per lb., 9s. 1d. to 9s. 3d. per lb. having been paid there for fair tale quale, at which prices about 40 cases have changed hands. Cause of the advance appears to be the extremely cold weather which has prevailed on the other side, with consequent anticipated damage to the new crop. Holders in London now refuse to sell.

PHENACETIN.—Lowest price at which a really reliable quality can be obtained remains 3s. 6d. per lb. for 5 cwt. lots for both crystals and for powder, smaller quantity being charged higher in proportion.

PILOCARPINE—Is firm at the late advance to 41s. 9d. per oz. for 8-oz. lots, it being stated that in consequence of continued scarcity of suitable raw material, we may very likely see the article even dearer before any change in price takes place in a downward direction.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt. Bichromate, 5d. per lb. Bromide, 1s. 10½d. Chlorate, spot, London, crystals, 3¾d.; powder, 3⅞d. Iodide, 10s. 6d. per lb. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to

make; large crystals, 5s. per cwt. more. Prussiate, yellow, 7¾d. for English makes; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER.—Importer is very firm at £9 12s. 6d. per bottle; second-hand not offering. Everything would appear to point to the probability of a further advance.

QUININE—Remains quiet, but steady, with sellers of the Sulphate, on the spot, at 1s. 3d. per oz., while there are buyers at this figure for March delivery; but no sellers. The agents here for the favourite B. and S. brand, quote nominally 1s. 3½d. per oz. for 1,000 oz. lots, in 100 oz. tins, but are by no means free sellers thereat. We shall probably see a further decided advance in value of this article after the turn of the year.

SALICYLATES.—The advance in makers' price is confirmed. Full particulars of same will be given in our next week's issue.

SHELLAC.—A small trade is passing on the spot at previous rates, including TN Orange on a basis of 62s. for fair, but futures are without alteration.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 4¼d. per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 1½d. Caustic, 70 per cent., white, £10; 60 per cent., £1 less. Hyposulphate (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet on the spot; refined, £8; ordinary, £7 15s.

SULPHATE OF COPPER—Remains quiet at £24 5s. to £25 10s. per ton on the spot, according to make and quantity.

SULPHONAL.—Bayer and Ricdel, the two recognised makers of this article, continue to quote 17s. per lb. for both crystals and powder, while outside makes are being hawked round at 14s. to 14s. 6d. per lb.

THYMOL—Continues very firm, some makers asking 11s. per lb., while others state that they are unable to offer. From second-hand limited quantities are still obtainable at 10s. 6d. to 10s. 9d. per lb.

Liverpool Market Report.

DECEMBER 28, 1899.

Considerable advance has been made in the prices of Linseed, Beeswax, Potashes and Pearlashes, Cottonseed Oil, Linseed Oil, and Spirits of Turpentine. Miscellaneous sales have been somewhat numerous, and include Cloves, Honey, and Spermaceti.

AMMONIA SALTS.—Carbonate, 3½d. per lb. Salammoniac, 38s. to 40s. per cwt., and very firm. Sulphate quiet, at £11 7s. 6d. per ton.

BEESWAX.—50 packages of Gambia went for £6 15s. to £6 17s. 6d. per cwt., and 45 sacks of Chilian fetched £7 5s. to £7 10s. Holders now ask £7 12s. to £7 15s. per cwt.

BLEACHING POWDER—Is very firm at £6 to £6 5s. per ton.

CANARY SEED—Is quiet and unchanged, at 35s. to 36s. per 464 lbs. for Turkish, and 45s. for Spanish.

CLOVES.—100 bales were disposed of at auction, "with all faults," at 1⅞d. per lb.

COPPERAS—37s. to 39s. per ton.

COPPER SULPHATE—Remains quiet at £25 per ton.

HONEY.—Fine Californian has been sold at 46s. 6d. per cwt., and Pile 1 Chilian at 25s.

LINSEED—Is firm in tone. American has been sold on the spot at 44s. per 425 lbs., and there are now no sellers under 45s. Business is also reported in 4 per cent. Karachi at 45s. 9d. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor oils are in moderate demand at steady prices: Calcutta at 2 15/16d. per lb.; French, first pressure at 2¾d. and second pressure Belgian at 2⅝d. per lb. Olive is firm, but there is little business doing and no sales to report. Spanish is quoted at £36 10s. to £37 per tun. Linseed oil of Liverpool pressure is quiet at 22s. 6d. to 23s. 6d. per cwt. Cottonseed Oil.—Stocks are somewhat low, and the price continues steady at 20s. 6d. to 21s. per cwt. for Liverpool refined Oil. Spirits of Turpentine are in fair request at 38s. 6d. per cwt.

POTASH SALTS.—Bichromate is dearer and scarcer at 4½d. to 4¾d. per lb. Chlorate is firmer at 3¾d. to 3⅞d. per lb. Cream of Tartar is slow of sale at 74s, to 80s. per cwt. Potashes are very firm at 26s. 9d. to 27s. per cwt. Pearlash 33s. 6d. to 35s. per cwt. Prussiate quiet, 7½d. to 7¾d. per lb.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is steady at £16 to £16 10s. per ton. Caustic is scarce, 76 per cent. to 77 per cent., £10; 70 per cent., £9 5s. per ton. Crystals, £3 5s. per ton. Nitrate, 7s. 7½d. to 8s. per cwt.

SPERMACETI.—62 bags of crude Chillian sold at 85s. per cwt. ex quay, and 27 cases of refined were disposed of privately, ex store.

The Chemical Trade of the Year.

(From Our Manchester Correspondent.)

The chemical trade of the past year has been, on the whole, fairly prosperous. Although in the early part there were growlings as to foreign tariffs hostile to our trade, yet the balance has asserted itself, and probably the volume at the close will be found to have been greater than that of the previous year. Prices during the past three months may be said to have advanced "by leaps and bounds," in regard to heavy chemicals. In fine chemicals, a branch in which pharmacists may be said to le especially interested, prices have been fairly steady. The imports of alkali, principally from Germany, have been steady (not much over those of last year), and the value is also about the same. The total value of imports of chemicals, dye stuffs, and tanning substances for the eleven months ending November has been £5,363,964, as against £5,091,022 in the corresponding period of 1898. The total exports of chemicals and medicinal preparations for the same period was £8,199,268, as against £7,678,009 for the corresponding period of 1898. The exports of alkali to all countries for 1899 show a slight increase in the aggregate over 1898, but there is still a notable decrease in the quantities sent to the United States and Germany. The trade with the United States has, however, shown signs of a revival of late, and for the month of December approximates more to the same period of 1897. The total quantity of alkali is given as 3,461,124 cwts. in 1899, as against 3,434,825 cwts. in 1898, but there is an increased value—£938,456 in 1899, as compared with £919,100 in 1898. The exports of bleaching materials and preparations to the United States, which is our best customer for these articles, have been not only maintained but increased, the value to the States alone being given as £293,613 in 1899, as against £284,351 in 1898. A matter of interest to chemists and druggists will be found in the fact that medicines, drugs, and medicinal preparations show an increase of £64,000 in value over the corresponding period of 1898. What has practically been a corner in the metal has materially affected sulphate of copper. The exports have been only 38,000 tons in round figures, as against 50,000 tons in 1898, but the value is nearly the same, being for the last-mentioned period £812,744, while for 1899, with 12,000 tons less, the amount is £813,686. This is satisfactory as far as it goes, but it must be remembered that the prices generally have been not at all remunerative for a long period, and future returns ought to show an increase of 20 or 30 per cent., especially when the cost of fuel and raw material is taken into consideration. As an indication of what may be expected in this direction, the increased consumption of chemicals used in the "mercerising" of cotton, which gives to the finished product the appearance of silk, has already made its mark, while the requirements of the paper-making industry have been almost phenomenal, and will no doubt continue for a long time to come. This has been reflected to some extent in the higher value attaching to shares in the various chemical manufacturing concerns. In the early months of the year a combine of English makers, of glycerin was formed, but it came to an end in May. Notwithstanding this, there has latterly been a fair demand for this article, and prices have been well maintained. It is pleasing to have to record that a growing trade has been done in pitch per the Manchester Ship Canal. The outlook forward is good, but the fuel question rather upsets the calculation of makers. Another branch of the Ship Canal of a growing and important character is the importation of mineral oil, which, with benzols, has been largely used for gas enrichment, not only by the Corporation, but by many gas companies in the surrounding district. Carbolic acid has advanced sharply within the past three months.

Newcastle-on-Tyne Chemical Report.

December 27, 1899.

The Christmas holidays have partially suspended business operations; besides, at this time of year the works close for some days for repairs to machinery, etc. With the exception of the usual annual contracts, not much mention is made of fresh orders for ordinary parcels. Quotations are unaltered, and are priced as follow:—Bleaching Powder, £6 10s. to £6 15s. Soda Crystals, 57s. 6d. to 60s. Caustic Soda, 70 per cent., £9 10s. Soda Ash, 52 per cent., £5 5s. to £5 10s. Alkali, 52 per cent., £6 5s. to £6 10s. Sulphur, £5 per ton.

Publications Received.

A Manual of Surgery. By Charles Stonham, F.R.C.S. Eng. in three volumes. Vol. iii. Regional Surgery. Pp. xxi. + 725. Price 10s. 6d. net. London: Macmillan and Co., Limited, 1899. From the Publishers.

Précis de Physique Pharmaceutique. Par le Dr. C. Sigalas. Pp. iv. + 656. Price, 7f. 50c. Lyon: A. Storck and Co., 8, Rue de la Mediterranée. 1900. From the Publishers.

PERSONAL AND BUSINESS NOTES.

[Notices are inserted free in this column, if sent by persons directly interested or otherwise properly authenticated.]

Mr. Alex. M'Intosh has been admitted into partnership by Messrs. Gibson and Co., chemists, Edinburgh. Mr. M'Intosh, who has been for several years one of Messrs. Gibson and Co's managers, is a member of the Pharmaceutical Society.

Alderman H. D. Simpson, J.P., M.P.S., Chairman of the Committee of the Louth Municipal Technical School, on Tuesdayl December 19, entertained the students to tea in the Council-Chamber of the Town Hall, the occasion being the successful completion of the first term of work.

Partnerships Dissolved.

(From the London Gazette.)

Thomas William Richardson and Eric Law Pritchard, Surgeons Norwich. Debts will be received and paid by Thomas W. Richardson.

George Ashbrooke and George Hartley Brewer, trading as George Ashbrooke, Mineral Water Manufacturer, 2, Grimshaw Street, Derby Road, Bootle. The business will in future be carried on by George H. Brewer.

EXTRACTS FROM CONSULAR REPORTS.

The Honey Harvest in California in 1898 is reported to have been so small that the Secretary of the Bee-keepers' Association complained last autumn of having orders for over 600 tons of honey, with not a ton on hand to execute them. Every section of the State contributes to the honey output, but the industry finds its greatest expansion in Southern California, where from 600 to 1,000 colonies of bees may be seen in a single apiary.

The Calcium Chloride Process of drying the vanilla bean is reported to give most satisfactory results, and has been adopted to the exclusion of all other methods by the Crédit Foncier Colonial. Vanilla prepared in this manner is said to command higher prices in Paris than ordinarily-dried vanilla. Vanilla is now so largely planted in Réunion and in places so widely different in climate, that the inevitable result, Consul Bennett thinks, must sooner or later be a rapid fall in price owing to over-production. The fall is said to have been fully expected this year, but a small cyclone in March did a good deal of damage to the vines and decreased the yield by about 25 per cent. Besides the high prices hitherto fetched by vanilla, an additional inducement for its cultivation is the fact that the crop has the advantage of quick returns upon capital and of not requiring a large amount of labour.

When in the Dentist's Hands, recently, Consul Hearn states in his report of the trade and commerce of Bordeaux and district, that he ventured to admire the very fine instrument which had been sawing through a tooth with the ease and noise with which its large type saws through a teak log. "These things," said the dentist, "we originally got from America and paid 25 cents a-piece for, no matter how many we took. Then we found that we could get them from Sheffield at the same price per unit, but with a reduction of 10s. the dozen. Now we get them from Germany, and they cost us less than 4½d. a-piece, and they could not be of better quality for the work they have to do." Consul Hearn quotes the foregoing as an instance of how trade slips into other hands unless the requirements and means of the consumer are carefully studied.

The Principal Chemical Products exported from Bordeaux during last year were chestnut and other vegetable tannin extracts, 69,545 cwts.; oxide of zinc, 2,508 cwts.; glycerin, 1,996 cwts.; raw tartar, 13,062 cwts.; tartar crystals, 3,526 cwts.; and cream of tartar, 32,303 cwts. Under the heading of pure oils exported were olive oil 6,315 cwts.; castor oil, 4,733 cwts.; and ground-nut oil, 12,760 cwts.

In the Importation of Chemical Products from Great Britain into Bordeaux in 1898 there was a substantial increase on the previous year, the principal items being sodium bicarbonate, 2,768 cwts.; sal ammoniac, 7,751 cwts.; superphosphate of lime, 21,253 cwts.; chemical manure, 77,867 cwts.; products distilled from coal tar, 237,582 cwts.; and copper sulphate, 266,088 cwts. The total amount of copper sulphate imported to Bordeaux was 273,458 cwts., the balance being made up from Sweden, 220 cwts.; Spain, 7,046 cwts.; and Algiers, 104 cwts. Of ink, out of a total importation of 46 cwts., the amount from Great Britain was 40 cwts. Of transparent soap, 26 cwts. were imported from Great Britain, also 37 cwts. of other toilet soaps, as well as 285 cwts. of starch out of a total importation of 1,172 cwts., whilst all the blacking imported, amounting to 86 cwts., went from this country.

The Importation of Senegambian Gum to Bordeaux in 1898 amounted to 39,000 bags, against 47,500 bags in 1897, thus showing a decrease of 8,500 bags. Prices, which had fallen away in the earlier part of the year, showed a slight increase later, and an advance of 5 to 10 per cent., owing to the scarceness of Turkey sorts, was noted, business remaining firm for both hard and soft gums.

Creosote is Principally Used, in the Bordeaux district, for pickling railway sleepers, and is very largely imported from Great Britain. It has, however, been employed for agricultural purposes in the form of a disinfectant and insect destroyer, a wood preserver, and other purposes where formerly coal tar was used. The importation in 1898 was 12,926 tons, and it is reported to be rapidly gaining favour, being cheaper and more efficacious than coal tar.

As a Preventative and Cure of the disease of the vine, known as "oidium," brimstone is sublimated or ground and sold in the agricultural district around Bordeaux. It arrives in bulk cargoes from Sicily to the amount of about 3,500 to 4,000 tons annually. The local factories where it is treated, however, are small, and manufacture but about one-fifth of the local requirements, the remainder being obtained from the large factories in the south of France (Marseilles, Cette, La Nouvelle, etc.). This fact is rather surprising seeing that there is so large a demand in the Bordeaux district.

Experiments with Acetylene Gas, made by a pine-wood proprietor in France, according to a recent report, demonstrated that by combining it with resin oil it does not evaporate so quickly, is less explosive, and gives the carbide a pleasant odour. The acetylene light has been adopted by several establishments in Bayonne, the calcium carbide employed being mostly imported from America and Switzerland, and sold at about £1 4s. per cwt. A number of calcium carbide factories are reported to be in course of construction in the neighbourhood of Lourdes (Hautes Pyrenées), which, it is expected, will in the course of time effect a considerable reduction in the price.

EXCHANGE.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free. —Edward Peck, East Dereham.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash. —P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Advertisements

Received too late for Classification.

WANTED, at a Dispensary, a part time DISPENSER. Hours 6 till 10 p.m., and Sundays 6 till 9 p.m. Suitable for a Student.—Apply, CYANIDE, "Pharm. Journal" Office, 5, Serle St., London, W.C.

Calendar for the Week.

Sunday, Dec. 31. 1st after Christmas. Sun rises 8.9; sets 3.56.

Monday, Jan. 1, 1900. ● 1.52 p.m. Sun rises 8.9 sets 3.57

Tuesday, Jan. 2. Sun rises 8.9; sets 3.59

ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Third of a series of Lectures on "Fluids in Motion and at Rest," by C. Vernon Boys.

Wednesday, Jan. 3. Sun rises 8.9; sets 4.0,

PUBLIC DISPENSERS' ASSOCIATION, St. Bride's Institute, Ludgate Circus, E.C.e at 8 p.m.—Special General Meeting for the Alteration of Rules, etc., to b followed by the Annual Meeting. All public dispensers are invited to attend

Thursday, Jan. 4. Sun rises 8.9; sets.

CHEMISTS' ASSISTANTS' ASSOCIATION, Dorset Hall, Portman Rooms, Baker Street, London, W., at 7.30 p.m. — Second of the Fifth Series of Cinderella Dances.

ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m. — Fourtb Lecture on "Fluids in Motion and at Rest," by C. Vernon Boys.

Friday, Jan. 5. Sun rises 8.9; sets 4.2.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Open Night—Short Papers.

Saturday, Jan. 6. Sun rises 8.8; sets 4.3.

ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Fifth Lecture on "Fluids in Motion and at Rest," by C. Vernon Boys.

Notices to Correspondents.

ALL COMMUNICATIONS FOR THE 'PHARMACEUTICAL JOURNAL' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for. Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London.

ARTICLES AND REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

CORRESPONDENTS should write in ink, on one side of the paper only, and must authenticate the matter sent with their names and addresses—of course, not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

REPRINTS OF ARTICLES cannot be supplied unless the authors communicate with the Editor before publication of the articles. The right to reproduce all original matter and illustrations published in the Journal is strictly reserved.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Abram, Andrew Bones, Coull, Delarne, Forster, Gibson, Hallaway, Hill, Ling, Maitland, Pemberton, Poingdestre, Ransom, Reynolds, Robins, Thompson.